

A critical self-reflection on the relationship of teaching practice to the enhancement of at-risk student academic performance

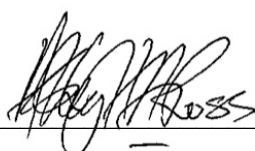
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Submitted in fulfilment of the requirements for the degree

Doctor of Philosophy in Health Sciences

Faculty of Health Sciences

Durban University of Technology

Supervisor:  _____

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ABSTRACT

In this thesis, I present my living educational theory of my practice as an Anatomy and Physiology lecturer. The significance of this study lies in my role as a lecturer in higher education, where I conducted this study out of deep concern for my students who were ‘at-risk’ of failing Anatomy and Physiology and the need to create Whole-Being Learners.

This study aimed to conduct a critical self-reflection on the impact of my teaching and assessment practices on the academic performance and security of nursing students registered for Anatomy and Physiology in the Department of Nursing in the Faculty of Health Sciences at the Duban University of Technology, with specific reference to the subject being ‘at-risk’.

The main purpose of my research was to conduct a self-study of my practice using Action Research. In this study, I set 3 phases of traditional tests, examinations, and continuous assessments, each assessed against a marking memorandum. In addition, I designed 19 Whole-Being-Learning-Teaching-and-Alternative-Assessment assignments assessed by alternative professional assessment practices using relevant rubrics. After each phase, I engaged with my students through online focus group interaction during Phases 1 and 2 and an in-person meeting in Phase 3, which focused on their concerns about their studies operating under Lockdown.

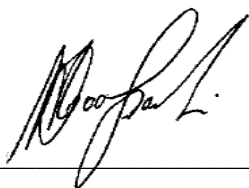
Drawing on Whitehead’s Living Educational Theory Research as a conceptual framework, I generated my living educational theory, which describes my values-laden explanation for my educational influence on my own learning, the learning of my students, and the learning of my practice. My living educational theory embodied the emergence of my ontological values of Whole-Being-Learners who use their head, heart and gut to become competent nurses who can function as compassionate, responsible, caring and honest individuals in their own practice. Drawing on my own and my students' knowledge and experience, I make an original contribution to the professional knowledge base of nurse educators.

DECLARATION BY STUDENT

I, Marilynne Coopasami declare that:

- i. The research reported in this thesis, except where otherwise indicated, is my original research.
- ii. The thesis has not been submitted for any degree or examination at any other university.
- iii. This thesis does not contain other persons' data, pictures, graphs, or other information unless specifically acknowledged as being sourced from other persons.
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Student: _____



Date: 29 October 2024

DEDICATION

“Keep your thoughts positive because your thoughts become your words.

Keep your words positive because your words become your behaviour.

Keep your behaviour positive because your behaviour becomes your habits.

Keep your habits positive because your habits become your values.

Keep your values positive because your values become your destiny.”

Mahatma Gandhi

This thesis is dedicated to my husband, Rajen Pillay, and my son, Jedrael Josiah Pillay. Your support has made me stronger, better, and more fulfilled than I could have ever imagined. I am pleased to express my gratitude to both of you for your assistance in my quest to obtain a Ph.D.

I dedicate this thesis to my parents. By nurturing and caring for my siblings and me, you have provided me with role-models for Whole-Being Learning. I do not doubt that I love you both very much.

Last but not least, I would like to dedicate this thesis to my ‘*Ma*’—my caregiver, friend, and protector who taught me that love transcends death.

ACKNOWLEDGEMENTS

“The Lord himself goes before you and will be with you,

he will never leave you nor forsake you.”

Deuteronomy 31:8

It would not have been possible for this thesis to be completed without the support and assistance of the following individuals:

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It has been an honour to share this journey with my past and present students. As a result of them, I am motivated to become a better teacher.

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Thank you to all my teachers who have taught me and inspired me to embrace Whole-Being Learning. I am grateful for your assistance in creating a practice that will inspire my students to become Lifelong, Whole-Being Learners.

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CHAPTER ONE

INTRODUCTION

Situated in the crosshairs of an ‘at-risk’ subject
in South African Higher Education

“One of the greatest gifts you can give yourself, right here, right now,
in this single, solitary, monumental moment in your life,
is to decide, without apology,
to commit to the journey, not the outcome”
Joyce Di Donato

1.1 Introduction:

In this introductory chapter, I describe the context of my research by providing a background of my study. I explain the rationale of my research and outline the concerns that prompted me to take action and set me on a path to transform my teaching practice. I conclude this chapter by stating my research question.

1.2 Background of my study

I teach future Professional Nurses what they need to know about Human Anatomy and Physiology to enable them to provide the best nursing care to their future patients. I believe that what and who I teach is extremely important since it allows for professional nurses to contribute to saving lives.

The Department of Nursing at the Durban University of Technology (DUT) in the Province of KwaZulu-Natal is located in the Faculty of Health Sciences on two campuses, viz. the Main Campus in Durban and the Indumiso Campus in Pietermaritzburg. I teach Human Anatomy and Physiology to first and second-year students and supervise the research work of fourth-

year students on the Indumiso Campus in Pietermaritzburg, which is 90 kilometers from where I live.

I undertook this research journey because I was deeply concerned about my students. It seemed that few of my students understood and appreciated the structure and functions of Anatomy and Physiology relevantly and fully. As a result of the high failure rate in the cohort, Anatomy and Physiology were in danger of being declared an 'at-risk' subject. At DUT, subjects that obtain a pass rate below 85% are considered at-risk subjects. Kinzie's 2012 study (cited in Mayet, 2016:4) asks the following questions to identify the relevant issues that make students' academic performance a threat to acceptable throughput:

“Who are the culprits of depressed success rates?

Is it underprepared or unmotivated students?

Or is it underperforming institutions and ineffective pedagogies? Or are we ignoring emotional and physiological phenomena among a diverse student population?”

These questions were and are of critical importance to me. They significantly impacted my studies, practice, insights, and realisations as my studies progressed. I respond to Kinzie's questions in Chapter 8.

From the outset, I knew what I wanted to achieve would be extremely demanding and difficult. However, I had no idea that these difficulties would be further exacerbated by an unanticipated global calamity and external national problems. The unexpected challenges I faced during my research journey were indeed daunting.

1.2.1 COVID-19 coronavirus Pandemic and Lockdown and its impact on my study

In 2020, during my research and studies for this doctoral degree, the whole world was impacted by the COVID-19 coronavirus. The worldwide COVID-19 pandemic was first experienced in Wuhan, China, in late December 2019 (Shereen, Khan, Kazmi, Bashir and Siddique, 2020). In South Africa, the first case of COVID-19 was reported in March 2020 (Lone and Ahmad, 2020). On 11 March 2020, the World Health Organization (WHO) announced that the COVID-19 pandemic spread rapidly to different continents. Lachman (2022) noted that the COVID-19 outbreak quickly escalated into a global pandemic, significantly impacting the global education system.

These Lockdowns impacted all human endeavours - business, manufacturing, worship, cultural activities, tourism and travel, sports events, education (Dave and Dave, 2020) and more. The pandemic necessitated strict Lockdowns of all institutions, including sites of higher learning (Iglesias-Pradas, Hernández-García, Chaparro-Peláez and Prieto, 2021)). Education systems, educators, and learners were caught off-guard by the COVID-19 pandemic (Cahapay, 2020). The consequent Lockdowns negatively impacted student academic performance and achievement globally.

Most educational institutions (schools, colleges, universities) offer learning, teaching, and assessment through an in-person, face-to-face situation, which is identified as a traditional method of teaching (Dhawan, 2020). However, in early 2020, a new era of teaching and learning emerged, known as “the new normal” (Cahapay, 2020).

According to Cahapay (2020), the urban dictionary (2009) defines the “new normal” as a situation where some intense change has occurred. Within the educational realm, several researchers have been discussing the “new normal” in reference to the use of online learning and teaching modalities in educational institutions (Cahapay, 2020). The COVID-19 Lockdown forced educational institutions to move from in-person face-to-face teaching, learning, and assessment into a mode of online teaching so that the academic year would not be wasted or lost (Iglesias-Pradas *et al.*, 2021). With the unanticipated and deadly emergence of COVID-19, DUT was forced into Lockdown.

According to Dhawan (2020), “COVID-19 Lockdown was an ‘intense change’, which challenged the education systems across the world and highlighted gaps in the curriculum (McLaughlin, Scholar and Teater, 2020). The chief gap in the curriculum was the lack of fully developed online teaching, learning, and assessment practices, which should have been implemented at the dawn of the Fourth Industrial Revolution (Iglesias-Pradas *et al.*, 2021).

Nurse educators had to shift to an online teaching mode overnight, with minimal technology resources and capacities. My students were even less prepared, and many of them could not access the technology being used because of the lack of three critical factors: equipment, signal and connectivity where they lived, and money (Haslam, 2021; Nabolsi, Abu-Moghli, Khalaf, Zumot and Suliman, 2021)

The COVID-19 Lockdown added an unanticipated and extremely challenging dimension to my teaching, assessment, and research. The Lockdown meant that my students were negatively

affected, with some being mildly affected and others completely adrift with only the smallest possible connection to the university (Haslam, 2021; Nabolsi *et al.*, 2021). In the midst of Lockdown and loss of digital access, I asked myself how I could improve my practice to mitigate the threat of teaching ‘at-risk’ students about an ‘at-risk’ subject and possibly making me an ‘at-risk’ educator.

Lockdowns forced nursing education departments nationally to focus on finding appropriate ways to use the available technology to create innovative and flexible education methods. Unfortunately, these technologies had not yet been fully developed at the Durban University of Technology, creating a ‘gap’ in the curriculum. So, when the Lockdowns were imposed on learning, teaching, and assessment at DUT, the lecturers and students had to find ways of closing the ‘gap’ very quickly, if at all possible.

New approaches included blended learning and e-learning for learning, teaching, and assessment purposes. In situations where students had access to e-learning and blended learning resources, they were able to continue their studies by studying online at home (Güven Özdemir and Sonmez, 2021). However, these students were a small minority. The majority of the students were not able to use the online learning platforms due to the lack of appropriate equipment and resources, and in those situations where students had only one of the three operational factors, the other two were useless. Any and all efforts notwithstanding, the impact of the Lockdown could not be mitigated for those who lacked vital resources (Khalil, Mansour, Fadda, Almisnid, Aldamegh, Al-Nafeesah, Alkhalifah and Al-Wutayd, 2020; Barrot, Llenares and Del Rosario, 2021).

My professional practice was also challenged by the Lockdown. One of my research objectives was to self-reflect critically on my current perceptions, expectations, and practice of teaching, with specific reference to the teaching of Anatomy and Physiology (A&P). I set out to reflect, asking the question, “How can I improve my practice as an anatomy and physiology lecturer to help at-risk learners improve academically and create Whole-Being Learners?” I hoped that by interrogating my professional practice, my students would fare better when being assessed. I hoped that an improvement in my professional practice would address the potential threat of Anatomy and Physiology becoming an ‘at-risk’ subject and my students becoming Whole-Being Learners.

The issue of personal well-being and academic security was almost more important to me than the improvement of their marks. I became concerned for my students' well-being and mental health. I was prompted to be concerned about my students' personal well-being and academic security when I read in June 2020 of a young girl in Kerela who committed suicide. The 15-year-old girl was an educationally gifted girl in Grade 10 who received an award from her school for 'academic brilliance'. Her father was a labourer who had earned no money for months because of the pandemic (Lathabhavan and Griffiths, 2020). The girl committed suicide because she did not have the technological resources to attend online lectures and watch the classes on television during the Lockdown, which denied her access to her school. Her death was recorded as the first case of suicide in India due to the COVID-19 Lockdown education crisis. It alerted me to potential dangers to those of my students who were similarly vulnerable and caused me to be concerned about my students' personal well-being and academic security. In addition, I was also aware that in South Africa, in the same way that all pandemics exacerbate inequalities and affect marginalised and vulnerable groups, COVID-19 has adversely affected youth from low- and middle-income countries, whose education was severely disrupted by schools and universities closing their doors and shifting to online teaching (Bantjes, Swanevelder, Jordaan, Sampson, Petukhova, Lochner, Stein and Kessler, 2023). My students in South Africa were vulnerable due to the lack of necessary equipment to fulfil online learning, and most of them lived away from the city, which made it difficult to connect online.

It is important to conclude that my concern for my students' personal well-being and those who were "at risk" of failing were important factors shaping my research journey as a professional educator. I believe that a students' academic achievement and performance should take into consideration all aspects of his or her affective, intuitive, and spiritual aspects of what they are studying, which in this case is Anatomy and Physiology. In Whole-Being Learning and Assessment, learning and development are based on the use of the whole person, namely the individual. The gut, the heart, the head, the physical body, and the spirit are considered as one indivisible psycho-physiological complex (Jousse, 2004; Timm, 2013).

1.3 Research Aim and Research Objectives

This study aimed to conduct a critical self-reflection on the impact of my teaching and assessment practices on the academic performance and security of nursing students registered for Anatomy and Physiology in the Department of Nursing, in the Faculty of Health Sciences, DUT, with specific reference to the subject being 'at-risk'.

The first objective of the study was to critically self-reflect on my current perceptions, expectations, and practice of teaching, with specific reference to the teaching of Anatomy and Physiology.

The Second Objective of my study was to evaluate the perceptions, expectations, and academic outcomes of the ‘at-risk’ subject Anatomy and Physiology among first- and second-year professional nursing students in the Department of Nursing at DUT Faculty of Health Sciences.

The Third Objective of my study was to implement and evaluate the impact of Whole-Being-Learning Teaching and Alternative Assessment (W-B-L-T-a-A-A) practices on the academic security and performance of nursing students studying the ‘at-risk’ subject, Anatomy and Physiology.

I responded to my Principal Research Question, “How do I improve my practice as an Anatomy and Physiology lecturer to enhance student performance in an ‘at-risk’ subject?” by constituting my Action Research enquiry informed by Three Phases and 19 stages of W-B-L-T-a-A-A teaching and assessment interactions as seen in Figure. 1 below. The responses to the challenges and interactions in these 19 stages provided the data I used to provide evidence of improving the students’ academic performance and security in Anatomy and Physiology. I believe these improvements in my students’ academic security and performance reflected my improved professional pedagogical practice.

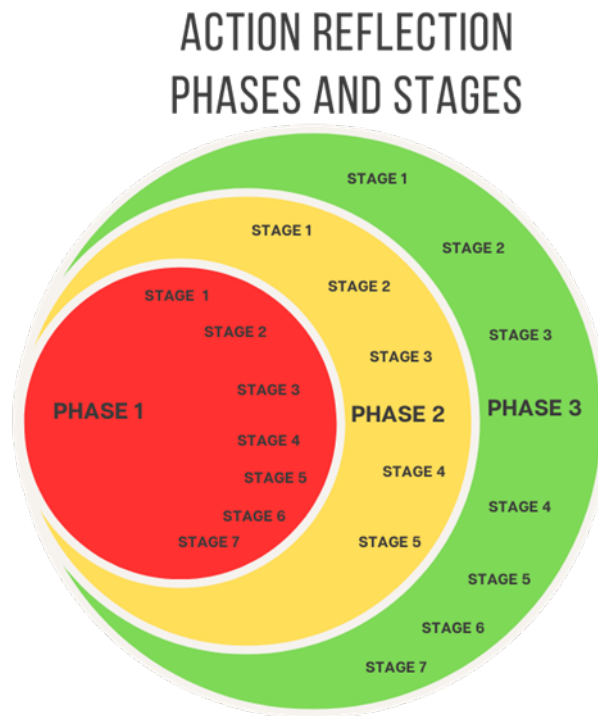


Figure 1: Action reflection phases and stages

When the COVID-19 Pandemic Lockdown came, I was relieved that I could accommodate the shifting context using the Action Research Framework (ARF). As a result of its action-enabling agency, the ARF was highly functional, as it enabled me to carry on with the study almost seamlessly despite the Lockdown. In retrospect, I have realised that accommodating the Lockdown increased the significance of the findings that emerged in this enquiry.

The use of the ARF, as seen in Table 1 below, generated my living educational theory (Consult Chapter 7) as the conceptual framework to account for the values-driven lived experiences of my educational journey and to inform my Philosophy of Teaching and Learning (Whitehead (1989), and Whitehead and McNiff (2006)).

Table 1: Action Research Framework: My adaptation accounting for my educational learning

McNiff & Whitehead (2006)	Coopasami (2023)
What really matters to me?	1. What are my values, and why?
What do I care passionately about?	2. What really matters to me? What do I care passionately about?
What kind of difference do I want to make in the world?	3. What are my concerns? Why am I concerned?
What are my values and why?	4. What kind of experiences can I describe to show the reasons for my concerns?
What is my concern?	5. What will I do about it?
Why am I concerned?	6. What evidence do I have of my intentions, actions, and interventions?
What kind of experiences can I describe to show the reasons for my concern?	7. What evidence do I have of my students' responses to my actions and interventions?
What can I do about it?	8. What evidence do I have of actions and interventions that my students have developed to improve their own learning?
What will I do about it?	9. What evidence do I have of the impact of my educational actions and interventions on my educational practice?

1.4 Significant Factors in the Context of this Study

There are several factors that contribute to the context of my study. Firstly, South Africa's Gini Coefficient describes the country's economic context and employment history. Secondly, a brief description of the Durban University of Technology (DUT) will provide a context for the current status of the university's direction in terms of its Envision 2030 Statement of Intent. Thirdly, the DUT student population and first-generation university students will provide insight into the inequalities in South African education related to our country's socio-historical context.

Fourthly, retention and throughput rates, quality of schools and schooling, Department of Basic Education (DBE) attrition rates, and load shedding will contribute to economic and socio-historical development.

1.4.1 The Gini Coefficient

The Gini Coefficient is “an expression of income distribution within a population expressed as a number between 0 (perfect equality) and 100 (perfect inequality)” (Hayes, 2023:2). With a Gini Coefficient of 63 (Stats SA, 2020), South Africa is the most unequal country in the world, and it reflects sadly on its socio-economic profile. As a result of South Africa's unequal distribution of wealth, approximately 95% of all wealth is owned by the top 10% of the population, while approximately 80% of the population does not own any wealth at all (Orthofer, 2016; Chatterjee, 2019). Such vastly unequal distribution of South Africa's wealth cannot benefit the country's employment rate, economic growth, political stability, health, and education status.

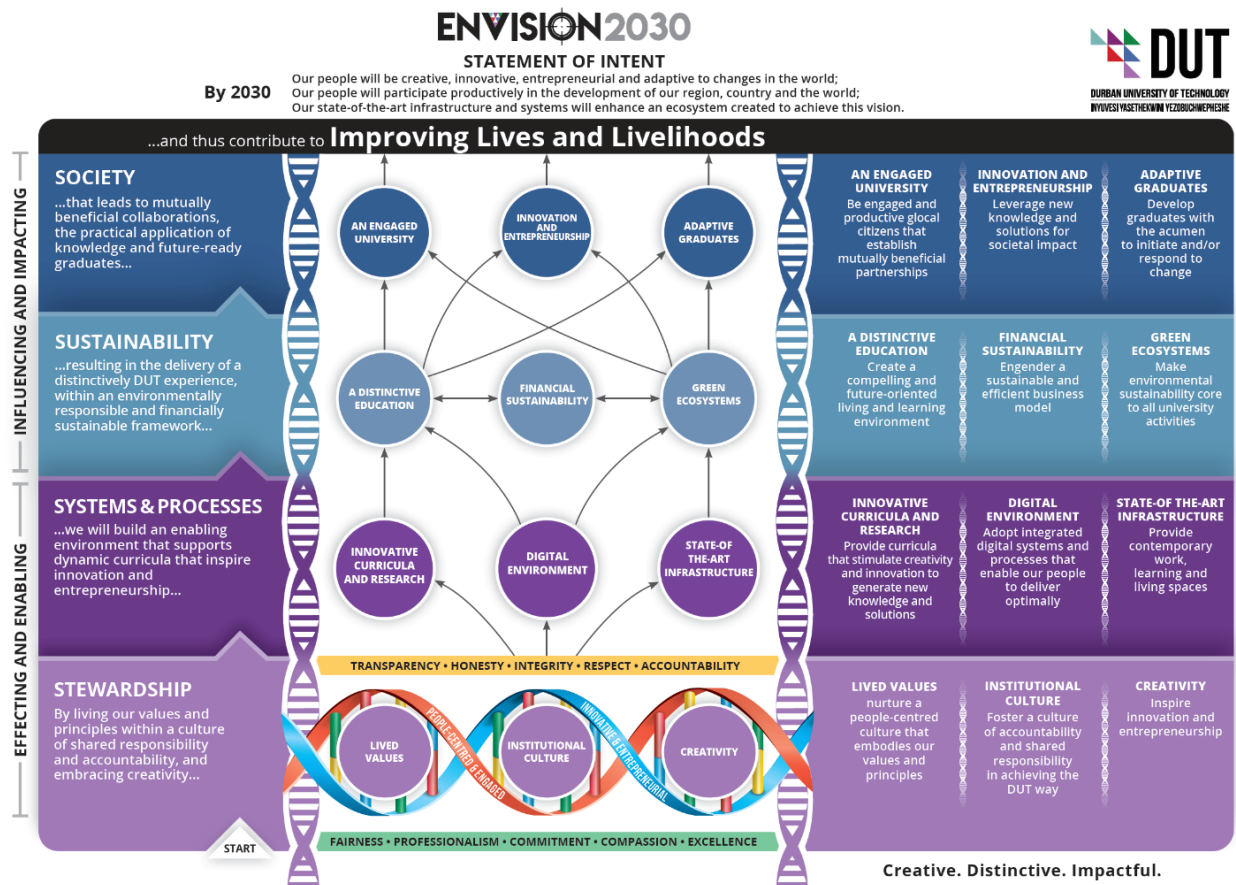
1.4.2 The Durban University of Technology (DUT)

Durban University of Technology (DUT) is a multi-campus university located in KwaZulu-Natal province. Originally known as the Durban Institute of Technology, it was formed in 2002 because of the merger between Technikon Natal and ML Sultan Technikon. A total of five campuses are located in Durban, while two are located in Pietermaritzburg. It has approximately 33,000 students. In 2020, DUT was ranked as one of the Top 500 Universities in the world, and it ranked 10th for citations globally and 5th nationally.

DUT is an aspirational higher education institution, exemplified in the DUT 2020-2030 Envision 2030 strategic plan, which introduces the concept of the DNA of DUT.

1.4.2.1 DUT Envision 2030

Significantly, the DUT strategic plan's Statement of Intent (SoI) focuses at the outset on people and their livelihoods (Consult Figure. 2). The vision makes special mention of the roles that people will fill, what they will achieve in these roles, and how these achievements



will be realised.

Figure 2: The Big Picture: Statement of Intent: Improving Lives and Livelihoods by 2030: (Available online: <https://www.dut.ac.za/wp-content/uploads/2022/02/DUT-ENVISION2030.pdf>)

As part of the SoI, the university outlines how it will enable these achievements.

The ‘Statement of Intent’ is identified in Figure. 1 is at the top and reads as follows :

1. Our people will be creative, innovative, entrepreneurial and adaptive to changes in the world.
2. Our people will participate productively in the development of our region, country and the world.
3. Our state-of-the-art infrastructure and systems will enhance an ecosystem created to achieve this vision.

It is essential to begin reading the strategic plan at the START in the bottom left-hand corner (Consult Figure 2). START leads the reader immediately into the two overarching categories of contributing roles: ‘Effecting and Enabling’ in relation to ‘Stewardship, Systems and Processes’ and ‘Influencing and Impacting’ in relation to ‘Sustainability and Society’.

The function and realisation of each role are described in detail. The ‘logic’ of the strategic plan is the text running ‘up’ the left-hand side (Consult Figure 2): “By living our values and principles within a culture of shared responsibility and accountability, and embracing creativity, we will build an enabling environment that supports dynamic curricula that inspire innovation and entrepreneurship, resulting in the delivery of a distinctively DUT experience, within an environmentally-responsible and financially-sustainable framework, that leads to mutually beneficial collaborations, the practical application of knowledge and future-ready graduates (that) contribute to Improving Lives and Livelihoods.”

In the centre panel of Figure 2, the numerous outcomes are linked to each other with multidirectional arrows, informed by the values of Transparency, Honesty, Integrity, Respect, and Accountability, and principles of Fairness, Professionalism, Commitment, Compassion and Excellence. Therefore, the DUT Envision 2030 must engage staff and students to embrace a culture of accountability and responsibility through creativity to live their values.

Moving to the right-hand side of Figure 2 are the anticipated Strategic Outcomes (SOs) of each of the Perspectives in the left-hand column. Within ‘Stewardship’, the SOs pursued include ‘Lived Values’, ‘Institutional Culture’, and ‘Creativity’; within ‘Systems and Processes’, the SOs pursued include ‘Innovative Curricula and Research’, ‘Digital Environment’, and ‘State-of-the-Art Infrastructure’. Within ‘Sustainability’, the SOs pursued include ‘A Distinctive Education’, ‘Financial Sustainability’, and ‘Green Ecosystems’ and within ‘Society’ the SOs pursued include ‘An Engaged University’, ‘Innovation and Entrepreneurship’, and ‘Adaptive Graduates’.

Moreover, the final tagline on the bottom right-hand corner emphasises being ‘Creative, Distinctive, Impactful’. As a whole, the stated intentions of DUT Envision 2030 would seem unachievable if it were not for the fact that every aspect of the DUT Envision 2030 strategic plan interlinks in multiple ways with other aspects. Consequently, every aspect contributes differently from other aspects idiosyncratically: every single value-based action impacts in multiple ways in different contexts. The value of ‘Honesty’ displayed once in one situation

positively impacts multiple cases in multiple contexts where Honesty is required. The same can be said of using digital expertise in multiple situations, such as creativity, collaboration, and being future orientated.

Figure 3 of the DUT Envision 2030 Strategic Plan follows Figure 2 above with the already established ‘Effective and Enabling’ roles of ‘Stewardship’ and ‘Systems and Processes’ and the ‘Influencing and Impacting’ roles of ‘Sustainability’ and ‘Society’.

	Perspective	Leading question	Definition
Influencing and Impacting	Society	How do we impact society in a transformative way through innovative solutions to its challenges?	A dynamic and innovative solutions-focused interaction with, and impact on, society at both local and global levels
	Sustainability	How do we become and remain sustainable?	An integrated approach that considers how we ensure the future of knowledge production, the environment, and economic progress
Effective and Enabling	Systems & Processes	What, where, and how do we need to invest, develop, and grow our systems to excel in our mission?	Providing an enabling environment with coordinated and inter-dependent systems and processes across the institution
	Stewardship	How do we ensure that our values and principles are reflected in our institutional culture and practices?	A value- and principles-based collective responsibility and accountability, as custodians, for all that is ours: our people, infrastructure, resources, and the environment.

Figure 3: The Big Picture: Statement of Intent: Improving Lives and Livelihoods by 2030

Continuing in these established categories, Envision 2030 now focuses on ‘Perspectives’, ‘Leading Questions’ and ‘Definitions’ as seen in Figure 3. From the perspective of

‘Stewardship’, the question asked is “How do we ensure that our values and principles are reflected in our institutional culture and practices?” the definition of which is “A value-and principle-based collective responsibility and accountability, as custodians, for all that is ours: our people, infrastructure, resources, and the environment.”

From the perspective of ‘Systems and Processes’, the question asked is “What, where, and how do we need to invest, develop, and grow our systems to excel in our mission?” the definition of which is “Providing an enabling environment with co-ordinated and inter-dependent processes across the institutions” (Consult Figure 3).

From the perspective of ‘Sustainability,’ the question asked is, “How do we become and remain sustainable?” The definition of sustainability is “an integrated approach that considers how we ensure the future of knowledge production, the environment, and economic progress.”

From the perspective of ‘Society’, the question asked is “How do we impact society in a transformative way through innovative solutions to its challenges? “The definition of which is “A dynamic and innovative solutions-focused interaction with, and impact on, society at both local and global levels?”

The Leading Questions and Definitions from each Perspective are closely inter-related and mutually informing, and supportive. This creates a model with no detailed dedicated beginning or anticipated order of execution. This model requires that all factors be used interdependently, logically, and flexibly in the relevant processes to realise idiosyncratic outcomes best suited to each unique and specific situation, which introduces the concept of the DNA of DUT.

The DNA of DUT has been introduced as the “intrinsic essence” of the university, thus forming the fabric of the university. Since 2015, the DNA of DUT has been retained with modifications brought about by the 2020-2030 strategic plan (DUT, 2020). The two strands of DUT’s DNA are as follows: strand one represents people-centredness and engagement. The second strand of DUT's DNA represents innovation and entrepreneurship, which are fundamental and intrinsic attributes of DUT as it pursues its 2030 goals.

The figure of the DNA molecule below displays two nucleotide chains coiled into a double helix (Consult Figure 4). The “backbones” of the DNA are formed by alternating sugar and phosphate molecules. Complementary bases create the “rungs” (adenine (A) to thymine (T); guanine (G) to cytosine (C)) bound by two or three hydrogen bonds, respectively (Marieb and Keller, 2011).

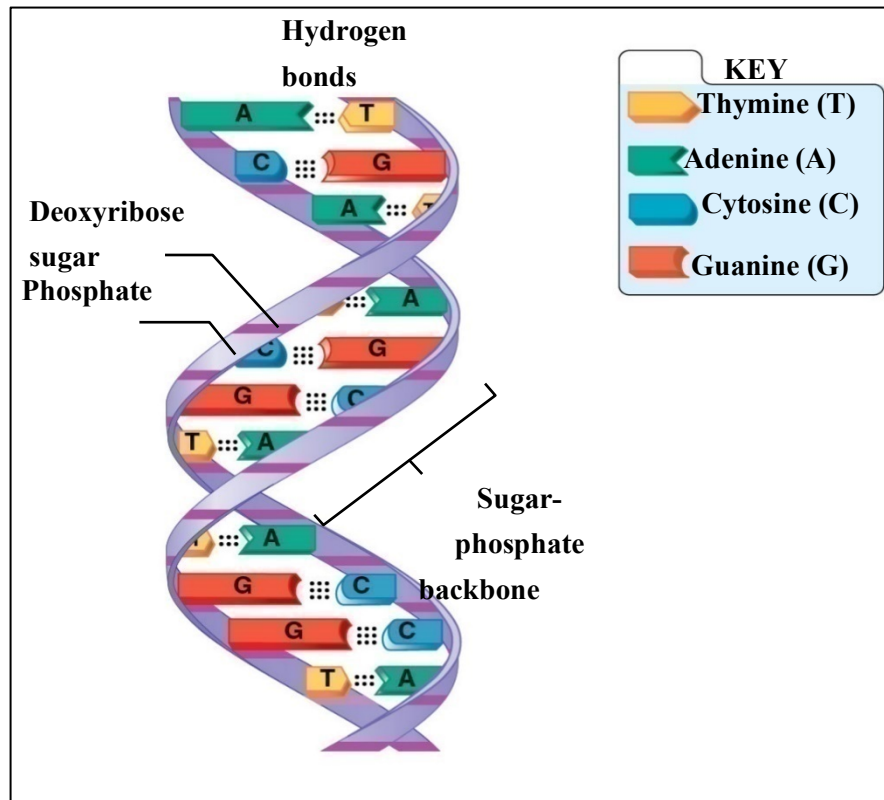


Figure 4: DNA Molecule (Marieb and Keller, 2011).

As in the anatomical DNA model, DNA bonds are formed by hydrogen ions; in the DUT DNA (Consult Figure 4), the bonds are held together by values, principles, ethos, and culture. Hence, this PhD journey mirrors the DUT Envision 2030, which is values-based (DUT, 2020).

Along with DUT's DNA, stewardship, systems and processes, sustainability, and society are essential perspectives that will ensure interdependencies between the views, providing a multidisciplinary approach to the plan (Consult Figure 2 and Figure 3). Therefore, it is imperative to emphasise that as a DUT employee, I am responsible for contributing to the implementation of the university's strategic plan by role-modelling its values, principles, ethos, and culture.

1.4.3 DUT Student Population

DUT draws approximately 33,000 students from all over South Africa and across the African continent. A high percentage (80%) of students come from deep rural areas and/or households with meagre incomes in the form of low wages and social grants from the State. This means that a significant percentage of DUT students are funded by the State, which funding brings with it its own difficulties and challenges. Late payments leave many students without food and accommodation for prolonged periods of time. These difficulties add to the students' stresses and anxieties and impact how well they can focus on their studies, which in turn impacts their academic performance and achievement. Schwarz (2000), Ezquerro and Mikeleiz (2014), and Tyng, Amin, Saad and Malik (2017) affirm that moods and emotions profoundly influence cognitive function. Cognitive clarity is enabled by positive emotions, while negative emotions hamper cognitive clarity.

1.4.4 First-Generation University Students

Many First-Generation University Students (whether urban or rural) come into Higher Education disadvantaged in a number of ways. Not only do First-Generation higher education students often have no higher education role-models in their families and communities, but their families and community members also have very little idea of the demands that their children face in institutions of higher learning. Consequently, they often have unrealistic expectations of their children, which place a huge burden on their children, which in turn can lead to extreme anxiety and even depression. The 'First-Generation-University-Student' status often exacerbates their vulnerability and negatively impacts the students' cognitive abilities, leading to academic underachievement (Schwarz, 2000; Ezquerro and Mikeleiz, 2014; Tyng *et al.*, 2017).

In addition, many students from deep rural areas experience an urban environment for the first time when they come to the university. Understandably, such students can be easily overwhelmed by significantly different community activities and values. Naïve students are extremely vulnerable and are prone to being duped and robbed (Van Breda, 2017a; Van Breda, 2018).

1.4.5 Retention and Through-put Rates

Many of the DUT students come from academically impoverished backgrounds. Mayet (2016) records that a “high number of South African students arrive at university without the essential skills required for tertiary studying and the necessary strategies required for being successful. Students experience an ‘articulation gap’, which is the gap between success at school and the students’ first exposure to demands of higher education.” First-year student success requires approaches from dedicated teachers to support and mentor students to alleviate the problem of attrition and high drop-out rates (Reason, Terenzini and Domingo, 2006).

The focus on retention rates in higher education has become one of the most important focal points of many higher education facilities due to the increase in the number of ‘at-risk’ students (Harter and Szurminski, 2001). In order for ‘at-risk’ students to be successful academically, they need to be identified early (Higgins, 2005; Pearson and Naug, 2013). Once identified, early intervention is important to prevent students from dropping out of university. Teachers play an important role in helping ‘at-risk’ students improve academically. Successful teachers of ‘at-risk’ students are those who can be patient and open-minded with their students (Westfall and Pisapia, 1994a, 1994b).

1.4.6 Schools and Schooling

Students at DUT often have poor educational backgrounds. Historically disadvantaged students in rural schools have found it more challenging to sustain educational changes than their affluent counterparts (Msila, 2010). Critical shortfalls in South Africa's Basic Education System cause academic impoverishment among underprepared students (Van Breda, 2017a; Van Breda, 2017b, 2018; Boughey and McKenna, 2021).

There are nearly 26,000 schools in South Africa, 400,000 teachers, and almost 13 million students (Sterne, 2021). “The education department is our biggest system in the country” (Sterne, 2021).

South Africa has one of the most unequal school systems in the world. The test scores between the top 20% of pupils and the rest are wider than in almost every other country. On the one side, there are wealthy functional schools. On the other hand, there are mostly poorly funded dysfunctional schools, and 85% of our students attend these dysfunctional schools. These are schools that are poorly constructed and lack regular maintenance and repair, especially after

the damage caused by vandalism, theft, and the effects of natural disasters (Taylor, 2008). The state of the worst schools in South Africa is certainly cause for concern (Du Plessis and Mestry, 2019).

According to the statistics from the South African Department of Basic Education published in 2018, out of 23 471 public schools, 20,071 did not have a laboratory, 18,091 did not have a library, 16,896 could not access the internet, 239 did not have electricity, and 37 did not have sanitation facilities (Sterne, 2021).

In addition, many schools lack basic amenities, such as administration buildings, staff rooms, formally sited and equipped sports fields, and even clean and safe toilets (Du Plessis and Mestry, 2019). Among the most distressing incidents have been the high rates of children drowning in dilapidated pit toilets.

According to News 24, Michael Komape, a Grade R student at Mahlodumela Primary School in Chebeng Village, Polokwane, Limpopo, drowned in a pit toilet on 20 January 2014. As a result, investigations were far-reaching. It was discovered by officials in the Department of Basic Education that almost 1,500 schools in South Africa had pit toilets that were mostly unsafe and unsanitary (Khumalo and Mji, 2014). South Africa's High Court ruled that plans for the removal of pit toilets from schools would have to be presented and implemented within six months. Despite this, pit toilets still exist in South African schools (Netshitahame and Van Vollenhoven, 2002; Pillay, 2021). The Supreme Court Judge ruled in favour of Michael Komape's family only after seven years. The judge ruled: "The judgement is a vindication of the rights of learners in Limpopo to safe and dignified sanitation. It follows a six-year battle to ensure that the Limpopo Department of Education and the Department of Basic Education eradicate pit toilets in that province".

Of course, there are exceptions, some of which are highly inspirational. Sterne (2021) tells us that "... schools do not fail or thrive based on their resources. It is the culture that is more important". By having an inspirational figure at the helm of the school, a community of learning will be created. A number of visionary principals continue their battles to transform their schools. As do many communities. Both principals and communities urgently require and deserve the support of the South African Department of Basic Education to develop their schools optimally.

This is the reason why the quality of an education system cannot exceed the quality of its teachers. “Every day, there are many teachers who do their best with limited resources“ and hold themselves accountable (Sterne, 2021). “There is still a great need for more teachers to understand how powerful education can be in changing lives” (Sterne, 2021).

Sterne (2021) notes, “On our wish list would be for the Department of Education to ensure school facilities and infrastructure are up to standard, students' interests are always put first by unions, learners to get a clear understanding of their home languages before moving onto English, and as students move from high school to the workforce, they pursue new avenues of progression.”

1.4.7 Department of Basic Education attrition rate between Gr R and Gr 12

Between Grade R and Grade 12, the Department of General Education has a significant attrition rate. The attendance rate of Early Childhood Development (ECD) among young children was the lowest in 2021. It was below the national average (Stats SA, 2020). According to Stats SA (2020), reports indicate that in 2021, close to 3% of 15-year-olds and nearly 9% of 17-year-olds dropped out of school. Stats SA 2021 indicates that “although most 18- and 19-year-olds were still attending secondary school, almost three out of ten pupils aged 18 years (29,3%) and four out of nine (46,3%) of 19-year-olds had dropped out of school.”

“The most prominent reasons for non-attendance of school in 2021 included illness and disability (22,7%), poor academic performance (21,2%), and lack of money for fees (19,6%). Reasons for dropping out differ by gender, especially for females who have to stop attending school due to family commitment (13.4%), while close to 5% of males stopped attending because they had no interest in school.”

While the official pass rate nationally in South Africa in 2022 was 80.1%, that is 80.1% of the learners who registered to write grade 12 in 2022. According to the Democratic Alliance, when one takes into account the number of learners who registered for ECD over 12 years ago and the dropout rate in the years since then, the pass rate of that original cohort is much lower, probably in the region of 55%, which means that 330,000,000 learners dropped out en-route from the lower grades to Grade 12, or failed Grade 12 at the end of 2022.

1.4.8 Loadshedding

And then there was, and still is, Loadshedding. For over a decade, South Africa has been experiencing the effects of ageing, neglect, and abuse of the national energy generator ESKOM. The result of this insecure energy generation is the need for loadshedding. Loadshedding is necessary when:

- a) the energy generation plants require maintenance;
- b) one or more generators break down and require repairs;
- c) one or more essential sections of the energy generation are damaged and require repairs.

Loadshedding means that parts of or the whole country have no power until the maintenance and/or repairs have been successfully attended to. This means that there are regular occurrences of hours, and sometimes even days, when large swathes of South Africa have no power. Ironically, many people living in deep rural areas have never had power provided for them. So, loadshedding for them is normal. However, in those areas where there usually is power, the lack of power has a profoundly negative impact on any activity that requires power. In my case, Loadshedding impacted my students' abilities to access online learning and assessment programmes. Personally, loadshedding has impacted my teaching, research, and writing of this thesis. This situation is much more than an inconvenience. Loadshedding impedes progress and growth in every possible way.

1.5 Research focus shift from Blended Learning to Whole-Being-Learning (W-B-L) and Whole-Being-Learning Traditional and Alternative Assessment (W-B-L-T-a-A-A)

'Reflective practice' and 'action research' have been important practices used by individuals for decades to improve their professional practice (McNiff, Lomax and Whitehead, 1997), (Schön, 1968, 1983, 1987, 2017). Initially, I intended to use supportive interventions in a series of action research cycles, relying on Blended learning. Lockdowns and a lack of students' access to technology made blended learning impossible.

I realised that I would have to rethink my approach. In all my reflections and investigations thereafter, I realised that Whole-Being-Learning (W-B-L) and Whole-Being-Learning-Traditional and Alternative-Assessment (W-B-L-T-a-A-A) might be a viable possible and

effective option to improve both my students' academic security and performance and my professional educational practice, simultaneously.

1.5.1 Rationale for using Whole-Being-Learning, Teaching, and Alternative Assessment (W-B-L-T-a-A-A)

From the outset, I wanted my students' academic performance to improve, and I appreciated the demands of their chosen future profession and all the critical implications that that entailed. I wanted my learners to grasp fully the use of the knowledge of Anatomy and Physiology and its importance in the practice of nursing. I believed, and continue to believe, deeply that the mark awarded to a student must be a measure not only of the anatomical and physiological facts and factors but must also measure and reflect the relevant application of that knowledge in a fully operational situation. I believe that it is only when one can operationalise one's knowledge that one can appreciate the value of that knowledge. I could see how that kind of understanding could be enabled by Whole-Being Learning- what Dewey called 'learning-by-doing' (Sikandar, 2015; Theuri, Waitherero, and Nyabul, 2020).

Further, very wisely, we are told that 'assessment is the bridge between teaching and learning' (Earl and Cousins, 1995; Nasab, 2015). Bearing this in mind, I focused closely on the design of the assignments and assessment 'bridges' I was contemplating. In my mind, it followed that the design of the bridges would reveal the nature, depth, and application of the knowledge. I realised that the design of the bridges, i.e. the assignments and assessments, should enable students to explore and experience their learning from multiple perspectives and through multiple lenses to engage every aspect of the whole human being.

I address Whole-Being-Learning (W-B-L) Whole-Being-Learning, Teaching, and Alternative Assessment (W-B-L-T-a-A-A) in close detail in Chapters Three and Four and Five.

1.6 Measures to ensure rigour and validity

Based on Whitehead (1989, 2010c, 2019), I tested for validity according to the living educational standards of judgement by asking the following questions:

- a) Is the enquiry carried out in a systematic way?
- b) Are the values used to distinguish the claim to knowledge as educational knowledge clearly shown and justified?

- c) Does the claim contain evidence of a critical accommodation of propositional contributions from the traditional disciplines of education?
- d) Are the assertions made in the claim clearly justified?
- e) Is there evidence of an enquiring and critical approach to an educational problem?

I used Habermas (1976),

- a) to support the comprehensibility and truth of the propositional context, the understanding of the normative background of my writings, and the authenticity of my accounts.
- b) to demonstrate clearly the rigor and validity of my educational research and how I influence the learning/ research of others and communicate with the wider academic community.

1.7 What is the structure of my thesis

I begin Chapter 1 of my thesis by providing background, rationale, and my research question, as well as a reference to my first research framework question: What are my concerns?

In Chapter 2, I provide a reflective autobiography related to my research framework question: Why am I concerned? I share critical incidents in the form of memories that help shaped my values and guided my values in my professional practice.

In Chapter 3, I record the academic sources that have influenced and informed my study. My study is based on the premise that academic success and performance go beyond cognitive engagement with the subject material and achieving higher grades related to my research framework question: What can I do about it?

In Chapter 4, I outline the methodology, methods, and media I used in my study to promote a clear understanding of how I conducted my research and answer my research framework question of how I can provide evidence to show the situation as it is and as it changes.

Chapter 5 outlines the 3 Phases and 19 Stages conducted in the action research approach.

Chapter 6 provides evidence for my research framework question of how I can evaluate the educational influences of my actions.

In chapter 7, I share my living educational theory.

In Chapter 8, I respond to Whitehead's and Habermas' questions to validate my research. I conclude my study by highlighting the significance of the research that contributed to the body of knowledge and briefly suggesting recommendations for future research.

I conclude this chapter by summarising my research question: "How do I improve my practice as an Anatomy and Physiology lecturer in improving my students' academic performance by creating Whole-Being Learners to become competent professionals who can apply their learning in real-life situations?"

CHAPTER TWO

REFLECTIVE AUTOETHNOGRAPHY

My Values-Based Whole-Being Childhood and Upbringing, and Journey into Adulthood,
Parenthood and Employment

“Know from whence you came. If you know whence you came,
there are absolutely no limitations to where you can go.”

James Baldwin

The principle of knowing the past is to know yourself
as an individual as well as a representative
of a socio-historical moment
(Bullough and Gitlin, 1995).

2.1 Introduction

In this chapter, I will address the question, “Why am I concerned?” by sharing the values that were part of my upbringing and childhood and have impacted me and my practice as a teacher. I want to make a difference in my personal and professional world by contributing to peace, justice, and productivity, and a great deal more, by doing what I do to the best of my ability. I want to share my story about how I have contributed to making the world a more peaceful, just, and productive place (Whitehead, 1993). My intention in telling my story to as many people as possible is to encourage them to share their stories. I believe that the greater the number of people who share their stories with others, the more people will understand how they can contribute to a more peaceful and productive world. I am personally and professionally focused

on my commitment and passion for education, specifically in teaching and assessing human anatomical and physiological knowledge.

I critically reflect on how I was raised in my Christian values-based home, which took care of all my needs and most of my wants, indeed of my Whole-Being. My early childhood was followed by careful attention by those responsible for my development to ensure that I was provided with every possible opportunity to develop my innate gifts and talents. As I grew into young adulthood, those responsible for my further development demonstrated their mindfulness of my needs and aspirations. I know that I have been richly blessed with love, kindness, nurturing, understanding, generosity, and wisdom. I learned these values from role-models, such as honesty, accountability, responsibility, and transparency, which continue to serve me well. The origin of these values is important because they inform my professional practice today as an educator in higher education.

In my auto-ethnographic account, I include specific incidents, people, places, and events in my life history, who and which have influenced me to adopt the values I use (Samaras, Hicks and Berger, 2004) (Hiralaal, 2018). Writing reflectively about my personal history helps me to understand my learning and how my past experiences have informed my development as a person and educator (Samaras, 2010) growing up in Chatsworth. I will set out my present values as an educator, daughter, sister, wife and mum. and how they are linked to my professional practice.

2.2 Chatsworth

A 40-kilometre drive from the heart of Durban's business district lies Chatsworth, where I live. Chatsworth was established in the 1950s as an apartheid township under the Group Areas Act. Apartheid had a profound impact on Chatsworth. Through the Group Areas Act, “thousands of Indians from all over Durban were constrained into the 10 square kilometre precinct south of Durban” (Desai, 2000). Durban's peripheries also became a haven for Africans who were shepherded out of the city. The Apartheid state upheld racial segregation as part of its policy.

The middle-class areas of Chatsworth were strategically placed so that people with low incomes would be hidden from view from the 1970s onwards (Benjamin, 2007). However, according to Benjamin (2007), Chatsworth was classified as poor. Most people living in Chatsworth were working-class people who struggled to pay rent, electricity, water, and feed their families. There was a far more significant difference between their basic needs and their

wages. They feared being evicted from their homes and not being able to provide food for their families. The non-payment of water and electricity bills led to many people's water and lights being disconnected (Benjamin, 2007).

The appearance of Chatsworth has changed over the years. So, if you drive along the never-ending highway that runs through Chatsworth today, you might think that it is the home of wealthy, well-to-do Indians and that it is no longer the refuge of the poor and working class. However, the reality is that the pockets of poverty are hidden from the public eye, making the existence of the poor challenging to prove. Fifty years later, the hardships and disadvantages that my caregivers endured then are still with us today.

2.3 My Childhood

I was born a healthy baby at 3.6kg on Wednesday, 17 February 1982, at 1:00 pm. I am the oldest daughter of the Coopasami family and the first granddaughter on both my paternal and maternal sides. My birth registration card (Consult Figure 5) below has my name, the date I was born, my gender, and my address. My birth registration card identifies my address, an important aspect of my identity as an Indian female resident of Chatsworth.

16

G.P.-3.25583—1980-81—1 000 000 (M-3) GW 17/6

Volle naam/Name COOPASAMI MARILYNNE

Geboortedatum/Date of birth 17.2.82 Geslag/Sex F

Adres/Address Room 514 No 50

Ouderdom Age	Immuniserings Immunisation	Datum toegedien Date administered	Toegedien deur Administered by	Terugkeerdatum Return date
Pasgeborene New born	B.C.G.	at Birth	St Adams	
3 maande 3 months	*Polio, D.P.T., B.C.G.	24.5.82	CITY HEALTH DEPT. DURBAN	
4 1/2 maande 4 1/2 months	Polio, D.P.T.	26.7.82	CITY HEALTH DEPT. DURBAN	
6 maande 6 months	Polio, D.P.T., Masels/Measles	20.9.82	CITY HEALTH DEPT. DURBAN	
1 jaar 1 year	Polio	6.2.84	CITY HEALTH DEPT. DURBAN	
15 maande 15 months	† Masels Measles	17.2.83	CITY HEALTH DEPT. DURBAN	
18 maande 18 months	D.P.T.	6.2.84	CITY HEALTH DEPT. DURBAN	
5 jaar 5 years	D.T. ✓	2.12.87	CITY HEALTH DEPT. DURBAN	
Skoolbeginner School beginner	B.C.G. ✓	2.12.87	CITY HEALTH DEPT. DURBAN	
10 jaar 10 years	D.T.			
Skoolverlater School leaver	B.C.G.			
Elke 10 jaar Every 10 years	T.			
Immigrante Immigrants	Polio 8cc	21.10.85	CITY HEALTH DEPT. DURBAN	

D—Witseeerkeel/Diphtheria T—Kiem in die kaak/Tetanus P—Kinkhoes/Whooping Cough

* Slegs indien geen bewys van vorige immunisering (littaken of aktiewe entmerk).
Only if no evidence of previous vaccination (scar or active vaccination).

† Slegs in hoë risiko gevalle.
In high risk cases only.

Figure 5: A photograph of my birth registration card

My childhood caregivers were my ‘Ma’ (my Father’s Mother), my Mother and my Father. I name them in that order because my parents were employed in humble positions with poor wages but were nonetheless responsible for the whole family. So, when I was born, my mother had to go back to work when I was only one month old, leaving me in the wonderful loving care of my ‘Ma’.

My dad was raised by his mother, my ‘Ma’. My dad’s dad, my grandfather, passed on when my dad was very young, so my ‘Ma’ raised him. I recall from conversations with my dad, that he promised his dad on his deathbed that he would take care of his mum, my ‘Ma’. My ‘Ma’ lived with us and cared for us until she passed on. My dad fulfilled his promise to his dad.

My dad is one of my most influential role-models. I have watched him role-model the values of loving and caring in the way he raised my siblings, my cousins, and me. My dad left school after passing Grade 8 (Std 6). Initially, my dad worked as a labourer doing hard manual work for the Durban Corporation. He worked hard and tirelessly and eventually worked his way up

to become a Cable Layer Supervisor, which is a critically important role in the provision of power within the eThekweni Council. He retired in 2021 at the age of 63.

My mum is the youngest in her family. Like my dad, she was born into a disadvantaged family and received little education. She worked her entire life as a machinist in a clothing factory, a job she was grateful to have in spite of the fact that she could have used her gifts and talents in much more interesting occupations. With the meagre salary that she earned, she helped my dad raise us and provide for her family. She retired in 2008 at the age of 47.

My 'Ma', my dad, and my mum are all very strong people, who demonstrated their understanding of their responsibilities in the family through their choices, their priorities, their selflessness, and their role-modeling behaviour every day of our lives. My 'Ma', my dad, and my mum were all firmly family-focused. My 'Ma' had two other daughters and was the second oldest sibling among her sisters. They visited on weekends and during holidays. Our home was always full of the family because of 'Ma'. 'Ma' was the glue that bound us together. My dad was our caregiver on weekends when my mum was working, and my 'Ma' visited her other adult children. Before my sister was born, my dad looked after my brother and me as it was only the two of us initially. My dad would spend time with us at the park when my mum was at work.

My mum is the embodiment of love. When my mum met my dad, she courageously gave up her faith (Hinduism) and became a Christian so that she could marry my dad. My mum entered the Christian religion whole-heartedly. My mum is the caretaker of the family. My mum can keep a home where there is peace. She can bring her family together by cooking a pot of food. I have learned to love like my mum, to care like my mum, and to maintain peace in our family like my mum. I grew up in an environment where I never knew that my parents and 'Ma' faced hardships. They always presented a united front that there were no problems in our home. They were a seamless, loving, and strong team, and this contributed to us, their children, feeling secure and confident. I grew up respecting my elders. I grew up knowing that I was loved because I had two parents who worked hard to give my siblings and me everything we needed. I grew up knowing right from wrong. According to Rassin (2008), values represent basic convictions about what is good, right or desirable and motivate both social and professional behaviour. I believe the learning process requires engagement with human experiences of the physical and social environments we live in, as well as insights gained from spiritual experiences. In my role as an educator, I believe it is my responsibility to create a learning

environment where my learners are well-known, valued, and feel safe. I believe that in order to reduce anxiety; a supportive environment must include structures that promote continuity in relationships, consistency in practices, and predictability in routines, as seen with the consistency in practices of my parents and ‘Ma’ towards me.

2.4 Our Family Spirituality

We were raised as Pentecostal Full Gospel Christians. We believe in the Father, the Son, and the Holy Spirit. I was raised by my parents, who took me to Sunday School and church every Sunday morning. The Christian faith is exemplified by my mother and father. Every morning, both of them still rise and go to their knees to pray. In the evenings, they perform the same ritual before going to sleep. My ‘Ma’ would do the same, praying for each and every member of her family. Her church required female members to wear a ‘doek’ to cover their heads. In the Christian calendar, Easter and Christmas are two of the most important dates.

Being a Christian is important to my family. We practise our faith and account for each holiday celebrated. We celebrate Easter by going to church on Good Friday and Easter Sunday to remind us of the essence of our beliefs. We meet later at my parent’s home to have hot cross buns and tea. We still follow this tradition.

When we were very young, we were raised celebrating and embracing our spirituality fully. My mother used to sing to us from a little hymn book on Sunday afternoons. Every week, my siblings and I would gather together to sing hymns from the same little hymn book. One of my favourite songs is “A new commandment that you love one another.” It was my belief that inspired me to write a poem.

Loving the Lord is all I know to do.

Praying to the Lord is what I know to do.

During troubles and sad times

Crying out to the Lord is what I was taught to do.

In times of blessing, raising my hands and thanking the Lord is what I was told to do.

Everything that has breath must praise the Lord.

This I believe to be true.

An ever-present help in my time of need”.

I grew up in the church under the leadership of P.P.P. My involvement with the youth committee began when I was 13 years old, and I became a Sunday School teacher when I was 18. I found both roles equally enjoyable. Working with young people was a rewarding experience for me. After our marriage, Rajen and I became Sunday School Leaders. In our roles, we worked closely with the children, sharing our values of caring and love. According to Rogers (1991), good teachers care. In my professional practice, I believe the value of care and love developed me into the educator I am. This is validated by my students’ shared account of how I cared for them. This can be read in Chapter 6.

My dad has always been kind and loving, but he was also a firm disciplinarian. One day, when I was ten years old, I had to attend dance rehearsals for a show at school. 'Ma' had given me permission to attend but made me promise to be home before my dad arrived home from work, so my dad was unaware of this arrangement. Even though dad was on duty, he came home early and discovered I was not at home. I was very firmly disciplined, so I made sure that I never made that mistake again. I share this critical incident because it has shaped me as a teacher when it comes to facilitating a practice that fosters discipline in a caring and loving way. I am mindful of my students’ emotional states and create an environment that supports learning by alleviating negative emotions that may distract students from learning and completing assignments.

My dad was always fair. When my brother was ten years old, I saw him smoking cigarettes. When I told my dad, my brother was also as firmly disciplined as I had been. To this day, I have never seen my brother drink or smoke again. My dad would take my mum, my siblings, and me on a Saturday morning to the community grounds for training to nurture our sporting talent, such as cross-country running. He was always present whenever we competed in every sport and tournament, even when it was very difficult for him. My parents attended each and every event which celebrated their children’s success and achievements, not only when we were young but also later when we were at school and in Higher Education, and not only in matters of growing our knowledge but also in sporting and other activities. The science of learning and development demonstrates how tightly related a learner is to a context s/he may

experience (Darling-Hammond, Flook, Cook-Harvey, Barron and Osher, 2020). In my practice, I believe that being disciplined and fair to my learners will allow them to evolve as Whole-Being-Learners; they will become learning-centred and will take responsibility for their own learning, which will benefit them and others in their practice.

There were very few exceptions. When I was eight years old, my maternal grandmother passed on. I remember it was a very sad day in our family, mainly as I had been selected to participate in inter-school sports that day, so I could not attend her funeral. It was difficult for my dad, as he had to be with me and support my mum at the same time. Nevertheless, my dad was in the stands even though I knew that my mum also needed his support. I knew that my mum supported his decision to be with me because they would have discussed it. I knew that they always worked, and still work, as a team. In times of illness and hardship, my parents take care of each other and the family. My dad is my HERO. He is wise, strong, and a visionary, so - with no disrespect - he often does not conform to some cultural norms with which he disagrees.

In my first year of high school, there was an episode at school which demonstrated my mum's role as my biggest defender. A window fell on my hands and hurt me. Why the window fell has never been explained. But the teacher blamed me and held me responsible. My mum went to the school and demanded to see this teacher to "set the record straight". My mum taught me at that moment that she would stand by me and protect me. The values of care, love, faith, and protection are what I have learned from my mum. I see it evident in the way I raise my son. I see it evident in the way I make a home with my family.

My parents have always loved their family being around them. On Christmas mornings, my dad and mum always woke up early to prepare Christmas lunch. My dad is an amazing chef. I love the way he cooks so many different foods on Christmas morning. I have a clear memory that our home was, and still is, always filled with the beautiful smell of roasts. My siblings and I would go to church, and my mum and dad would prepare lunch. This is still the tradition now, as much as my siblings and I are married and have families of our own, we know that Christmas lunch is always at our family home. And even though my mum's family is not of the Christian faith like ours, they have always been a part of our Christmas celebrations from early childhood until now. Christmas in our family home is always celebrated with joy, love, and family.

Watching my parents over the years, working hard for their family, and assuming the responsibility to look after us has contributed to me being the person I am today. Both my dad

and mum had very limited access to education through no fault of theirs or their parents. Nonetheless, they all had a high regard for education. My parents have always had high ambitions for their children. They have encouraged our efforts every step of the way.

In my first year of high school, one day, my mum had a very frightening health episode. We were all at home, and suddenly, my mum could not breathe. We called the paramedics, and they attended to her so that she could breathe again, but she was still ill. A Pastor told her, “Many people can pray for you, but it is your faith that will make you better”. My mum truly believed in her faith and that it was her faith that made her well again.

My mum has been my guide on the side all my life. I recall the days when I used to study for an examination, and a cup of coffee and a snack would be made for me by my mum. I did not have to ask her. She just knew. Her value of caring has always been evident in how she treated and still treats my siblings and me. I see her treat my son in the same manner. Her warmth is what connects our family.

When I got married and started a family of my own, my mum was there to assist and help raise my son, Jediahel. Jediahel was two months old when I had to leave him and return to a full-time job, as my mum did with me when I was one month old, and she had to go back to work. I was happy that my mum was there, and is still there, to help take care of my son. She has nurtured and cared for Jediahel as if he were her son. She has developed a relationship with him that has taught him how to be kind and caring.

My mum is indeed an extraordinary blessing. She is my confidante and best friend. I can relate incidents that trouble me with her, and she has always provided sound advice. My mum is a significant influence in me being a mum too. My mum continues to be my support in how I treat my son and perform my duties in this role. My mum has influenced me to be a caring, loving, and protective mother to my son.

As in many other cultures, when parents have to work, grandparents step in, so having “Ma’ raise me when I was so young, was not, and is not, a new practice in my culture. In fact, grandparents more often than not, enjoy their roles as grandparents in this way. The values of loving and caring unconditionally were moulded and shaped in me when my ‘Ma’ took care of us. When I was very young, ‘Ma’ taught me the values of caring and loving unconditionally. She was my friend, confidante, and a precious blessing (Consult Figure 6).



Figure 6: A photograph of Ma with me, my brother Jamie, and my sister Mealine.

Ma bathed, clothed, and fed my siblings and me from dawn till my parents returned home after work. She cared for us and ensured we had everything we needed. Ma was our daytime caretaker and chef. She cooked the meals our family ate. On days that she did not cook, my dad would cook because my mother came home from work too late from Monday to Friday. My mum would cook on weekends if she was not working. My ‘Ma’ would still prepare the vegetables every day that my dad needed to cook the meal.

She was always caring and full of love for me and would ask daily as I left the house for school, “What should I cook for you today?” I knew I would be coming home to a hot meal. She told

me stories from her life history that you could not find in books, for example, ‘The Girl Inside the Mango’.



Figure 7: A photograph of Ma and me on my 16th birthday

It was from Ma that I learned how to be brave (Consult Figure 7). I watched her as she bravely dealt with the difficulties she encountered. Ma had many health complications, so she took medication for many chronic diseases, but I did not realise how ill she was. Her death came unexpectedly and at a critical point in my life’s journey. Ma passed away on the morning I commenced my Grade 12 examinations. I was shocked and scared and my world was completely disrupted. I had lost my friend, my confidante, my precious blessing, my Ma. When she passed away, we felt she was ripped from our family when we least expected it, especially me, because I felt as if I was robbed and my whole world was shattered.

But I knew that Ma would have expected me to be brave. I knew she would have wanted me to go and complete my examination. Although I knew that I had to come back home to say “goodbye” to her after the examination, I decided to go to school to write my examinations. Amidst my grieving process for her, I still had to complete my matriculation examinations, which was very hard at the time. The bravery and strength Ma instilled in me as a child helped

me complete my matriculation examinations and obtain a matriculation exemption pass, which was the entry requirement for me to attend university. I know that that would have pleased my Ma.

I have nothing but the most profound respect and love for her, and that is why I wrote this poem to commemorate her role in my life.

‘Ma’

It is said that when someone dies, it is the end of their pain and suffering.

And that they are in a better place.

I used to wonder a lot at times whether it was true.

Are you indeed in a better place?

How do you live without your family, without us, without me?

As I get older and less naïve (I think)

I reflect on my then childhood, Ma.

All the memories I have of you come flooding back.

I feel a sense of overwhelming that only grief knows how to bring.

It takes me right back to that fateful night/morning.

When we were robbed of a simple goodbye

I remember how you tried to calm me after a nightmare.

That took away my peace and threatened me with harm.

I remember how you sat reassuring me it would be okay.

After the whole household went back to their warm beds

There you sat on mine telling me everything is going to be okay.

It never was! Not then!

“Pain lasts for the night, but joy comes in the morning.”

A haunting scripture for me but hope to many.

As I get older, Ma, I realise that you still live on through me.

I’m such a spoilt child.

The smell of fresh food daily is a constant reminder of you.

The smell of freshly cooked yellow potato curry is still my favourite.

As I have gotten older, and I have a family of my own.

I remember you, Ma, more often.

In the potato curry that I now cook for my son -

Jediael loves it!

As I have gotten older, Ma, I miss you more.

But I have come to believe that you are in a better place.

2.5 My role as a daughter: Values of responsibility

I am the oldest child in my family. I have a brother, Jamie, who is two years my junior, and a sister, Mealine, who is six years younger than I am. Because I was the oldest child, I learned the value of responsibility in my childhood. The value of responsibility is what I learned as a daughter and the oldest sibling, watching my mum, dad, and 'Ma'. Although I had loving parents who cared for my siblings and me, my parents had to work tirelessly to ensure that we had the best while growing up.

Because I was the oldest child, the rules differed for me from those for my siblings. In the absence of my 'Ma', I became responsible for my siblings. Being responsible for and protective of my siblings became significant values for me. When my brother found himself in trouble, I would be the one to protect him. In his first year in high school, I had to defend him from a group of boys who wanted to harm him.

It was my responsibility to come home from university and watch my siblings on the days that I arrived early. I would cut the vegetables in preparation for the afternoon meals so that my dad could come from work and cook the family supper without having to prepare the vegetables. I always aimed to please and excel at everything I did. I took on the role of helping my brother and sister with their homework. According to Gillies and Lucey (2006), sibling relationships serve as a source of intimacy, support, and protection.

As the oldest sibling, I learned the value of caring and loving as demonstrated by my 'Ma' and my parents. I role-modelled these values for my siblings. My brother Jamie and I were remarkably close growing up, as we were only two years apart and we did everything together. We attended Primary School together, the first two years of High School together, Sunday School together, and Karate together. We share the same birth month. My brother's birthday is on 12 February 1984 and my birthday is on 17 February 1982. My brother Jamie is phenomenally talented and gifted and has worked hard to achieve his goals. He is kind-hearted, caring, and always there when you need him.

My youngest sibling, Mealine, is the baby of our family, by six years. I felt more like her mother than her sister growing up. She is kind, caring, and strong-willed. I recall a critical incident

with my sister, of my values of caring and responsibility being challenged. My sister was in Grade 12 in 2005 and she had a breakdown during her examinations. She was learning for her Afrikaans final examinations and found herself battling to complete her examination preparation. She became overwhelmed and started to cry uncontrollably. My sister has since reminded me of how I stopped what I was doing and helped her study for her Afrikaans examination. She calmed down and with my guidance, learned everything that she needed to learn to write the examination for which she obtained a 70% mark overall. I had to be a good example for my younger siblings. I had to role-model my parents in the absence of my Ma. As the oldest sibling, I knew that I had to abide by the rules of the home. From this experience I learned about accountability and responsibility in addition to loving, nurturing, and caring.

2.6 Primary schooling

I attended a primary school in my community of Chatsworth from 1987 to 1994 when Apartheid was still in place in South Africa. During apartheid (1948-1994), the government stratified South African society based on racial categories of black, coloured, Indian, and white. As explained by (Pithouse, 2007), ‘black’ referred to people who were understood to be indigenous to Africa, ‘Indian’ referred to people who had ancestral heritage from India, ‘Coloured’ referred to people who were understood to be of ‘mixed’ race, and ‘White’ referred to people who were understood to have ancestral heritage from Europe. Timm (2013) explains that during Apartheid, children from different race groups had to go to schools exclusively reserved for each race group. This was a deliberate ploy designed to alienate race groups from each other. This is important to highlight because during the apartheid period, I, an Indian child, could not go to any other school but the one in my community allocated to my race group.

I have selected photos of my primary schooling from my album (Consult Figures 9). I was in Standard Three (Grade 5) when these photos were taken. I chose this standard because this was the most significant year for me in my primary school history. It was the year when I learned about the value of hard work and determination. The value of things can be thought of as standards and rules of judgment, as explained by Shaver (1986). This definition resonates with me as I explore my journey through learning and the values that were role-modelled for me and evolved in me, through the various stages of my life as a learner.

In my senior primary phase, two teachers Mr DVN and Mrs JN, my Form Teacher and Physical Education Teacher respectively, role-modelled the values of love and caring that informed their

teaching. I recall Mr. DVN was a frail old teacher, but he had a powerful disposition and always wore a suit to school. He had a loud voice that was very commanding. From them both, I also learned the importance of passion, perseverance, and hard work. Mr. DVN motivated me to work hard and persevere in my studies. He was the first teacher to inspire the values I now recognize: hard work and perseverance. I was not just a number in his class. He acted as an impetus for my desire to achieve and strive for academic excellence. I have attached (Consult Figure 8) my Standard Two report in which he, as my form teacher, comments, “A more determined attitude and harder work has helped Marilynne to greatly improved results. If she maintains the same interest her end-of-year results will be even better.”

HDE 9

REPORT ON
VERSLAG OOR

Marilynne Coopasami

For half-year/year ending 28-6-91 Number of days absent NIL
Vir halfjaar/jaar geleëdig Getal dae afwesig

Standard 2 Division 8
Standard Afdeling

Number in standard 79 Number in division 40
Getal in standard Getal in afdeling

Position in division 16
Posisie in afdeling

Age of pupil 9 years 4 months. Average age of div. 9 years 7 months
Ouderdom van leerling jaar maande. Gem. oud. van afd. jaar maande

General remarks
Algemene opmerkings

A more determined attitude and harder work have helped Marilynne to greatly improved results. If she maintains the same interest her end of year results will be even better.

Conduct
Gedrag

A very pleasant, helpful and well-behaved pupil.

S. Sinaidoo
Class teacher
Klasonderwyser(es)

Remarks by Principal
Prinsipaalse opmerkings

A pleasing report. Continue working in a determined manner.

P. Chaboolall *P.O.*
Principal
Prinsipaal

School will reopen on 22-7-91
Skool heropen op

Kindly notify the Principal if the pupil was in contact with an infectious disease during the holidays.
Stel asseblief die Prinsipaal in kennis indien die leerling gedurende die vakansie met 'n aansteeklike siekte in aanraking was.

2

HDE 9

RECORD OF EXAMINATION WORK
VERSLAG OOR EKSAMENWERK

Subjects Vakke	Marks Punte		
	Maximum Maksimum	Pupil's Leerling s'n	Standard median Standar median
1. English: Written	120	76	74
Oral			
2. Afrikaans: Skriftelik	60	49	42
Modeling			
3. General Mathematics/Algemene Wiskunde	100	59	65
Elementary Science/Elementêre Wetenskap	40	36	30
History/Geskiedenis	40	29	32
4. Geography/Aardrykskunde	40	26	23
Total for group 4/Totaal vir groep 4	120	91	
GRAND TOTAL GROOTTOTAAL	400	275	

COMMENTS ON OTHER CURRICULAR ACTIVITIES
KOMMENTAAR OP ANDER KURRIKULÊRE BEDRYGWIGHEDE

Art Kuns	Good <i>GB.</i>	
Music Musiek	Satisfactory	<i>JP.</i>
Needlework & Handicrafts Naaldwerk of Kunstvlyt	Satisfactory	<i>JP.</i>
Health Education Gesondheidsleer	Satisfactory	<i>JP.</i>
Physical Education Liggaamlike Opvoeding	V. Good <i>JP.</i>	
Sport	Interested in athletics.	<i>JP.</i>
Handwriting Handskrif	Good <i>GB.</i>	
Homework Huiswerk		
Library Biblioteek	Should continue to read more books	
Other (specify) Ander (spesifiseer)		

3

Figure 8: My Standard Two report

Ginott (1972), in his poem, reminds teachers of the importance of role-modelled values in education.

*“I have come to the frightening conclusion that I am the decisive element.
It is my personal approach that creates the climate.
It is my daily mood that makes the weather.
I possess tremendous power to make life miserable or joyous.
I can be a tool of torture or an instrument of inspiration; I can humiliate or humour, hurt or
heal.
In all situations, it is my response that decides whether a crisis is escalated or de-escalated,
and a person is humanized or de-humanized.
If we treat people as they are, we make them worse.
If we treat people as they ought to be, we help them become what they are capable of
becoming.”*

I believe that values should remain at the heart of what is taught in the classroom, and humanitarian values should be communicated to learners. I observed the importance of hard work, determination, and perseverance in my teachers. This has helped shape my teaching practice. Watching and learning from my teachers has made me sensitive to my students and allowed me to role-model the values that were communicated to me when I was a student.

I also learned from my Sensei, my martial arts teacher. *“I learned hard work beats talent when talent does not work hard.* “I later found out that these words were often used by high school basketball coach Tim Nokte (Goodreads, 2022). All learners are allocated to various sports houses, competing against each other at schools. These sports houses are usually given exciting names, and each sports house has different colours assigned to them. I was in the sports house ‘Starling’ and our colours were black and yellow. I was an outstanding athlete and received many trophies for sporting activities. I was a very competitive athlete. I was a 100m and 200m winner. I took part in field events as well. I was the long jump and high jump winner. I also participated in netball and volleyball. I played touch rugby and was awarded the Player of the Year trophy. Up until Grade 3, I excelled in my sporting activities. I had many sports awards in the form of crockery, trophies, and medals, as evidenced by (Consult Figure 9) below, which is a photograph of me holding the floating trophy for the age division that I represented. The floating award is presented to the athlete who earns the most points for the house they belong to.



Figure 9: A photograph of me holding the floating trophy for the age division that I represented

In Figure (9) above, I am eight years old. I participated in the 60m, 80m, and 100 m races, as well as the high jump and long jump. I was awarded the divisional trophy for earning the most points for my house.

When I went into the senior primary phase of my schooling, my physical education teacher, Mrs. JN, was also my form teacher. She recognised that I was keenly competitive on the sports field. But she also saw that I had not excelled academically in the first years of my schooling. Mrs JN encouraged me to bring my competitive spirit into the classroom and apply it to my studies. I worked hard that year and was placed first in my class. I continued working hard to achieve academic excellence throughout my primary school years. I was the first child in my family to achieve academic excellence by coming first in the class in Standard Three (Grade 5) and remaining in the top five groups of learners as I progressed to different levels in my primary school. Figure (10) is a photograph of me receiving a trophy for academic achievement from my form teacher Mrs. JN. In Standard Five (Grade 7). I became a prefect in primary

school, which was a considerable achievement, and my parents were so proud of me. I realised that my ‘awards’ were my parents ‘rewards’



Figure 10: A photograph of me receiving a trophy from my form teacher Mrs. JN.

From Mrs. JN I learned the value of commitment, hard work, and dedication. This contributed to my further academic achievements in primary school, as reflected in Figure (11), which is my Standard Three (Grade 5) report. Role-modelling these values in our interactions with students can have a substantial impact on their internalisation and adoption of these values, which is essential for nursing educators (Kaya, 2017).

HDE 9

REPORT ON
VERSLAG OOR **MARILYNNE COOPASAMI**

For half-year/year ending **27.11.1992** Number of days absent **NIL**
Vir halfjaar/jaar geëindig Getal dae afwesig

Standard **3** Division **B**
Getal in standard Getal in afdeling

Number in standard **75** Number in division **24**
Getal in afdeling

Position in division **1st**
Posisie in afdeling

Age of pupil **9** years **11** months. Average age of div. **9** years **8** months.
Ouderdom van leerling Ger. oud. van afd.

General remarks
Algemene opmerkings

ATTENDANCE: EXCELLENT
DRESS: TAKES PRIDE IN DRESSING NEATLY
PROGRESS: HAS AT ALL TIMES WORKED CONSISTENTLY, AS A RESULT HER PERFORMANCE IS COMMENDABLE. SHE HAS BRIGHT FUTURE PROSPECTS IF SHE CONTINUES TO WORK IN THE SAME STRENGTH.
RESULT: PASSED

Conduct
Gedrag

SHE HAS GIVEN OF HER BEST AT ALL TIMES.

Maidoo
Class teacher
Klasonderwyser(es)

Remarks by Principal
Prinsipaal se opmerkings

A very pleasing report. Must keep it up.

Syd Brown
Principal

School will reopen on **12.01.1993**
Skool heropen op

Kindly notify the Principal if the pupil was in contact with an infectious disease during the holidays.
Stel asseblief die Prinsiaal in kennis indien die leerling gedurende die vakansie met 'n aansteeklike siekte in aanraking was.

2

HDE 9

RECORD OF EXAMINATION WORK
VERSLAG OOR EKSAMENWERK

Subjects Vakke	Marks Punte		
	Maximum Maksimum	Pupil's Leering s'n	Standard median Standar mediaan
1. English: Written Oral	240	173	138
2. Afrikaans: Skriftelik Mondeling	180	111	87
3. General Mathematics/Algemene Wiskunde	180	161	135
Elementary Science/Elementêre Wetenskap	60	49	40
History/Geskiedenis	60	58	36
Geography/Aardrykskunde	60	48	35
Total for group 4/Totaal vir groep 4	180	155	111
GRAND TOTAL GROOTTOTAAL	780	600	471

COMMENTS ON OTHER CURRICULAR ACTIVITIES
KOMMENTAAR OP ANDER KURRIKULÊRE BEDRYGWIGHEDE

Art Kuns	V. Good! Has a creative flair!	70
Music Musiek	Good	81
Needlework or Handicrafts Naaldwerk of Kunstvlyt	Good!	80
Health Education Gesondheidsleer	Very good - Keenly interested!	80
Physical Education Liggamlike Opvoeding	A VERY ACTIVE AND ENTHUSIASTIC PUPIL	80
Sport	REPRESENTS THE SCHOOL IN NETBALL	80
Handwriting Handskrif	VERY NEAT	80
Homework Huiswerk	WORKS WELL WITHOUT MUCH DIRECTION	80
Library Biblioteek	An outstanding reader	80
Other (specify) Ander (spesifiseer)		

3

Figure 11: My Standard Three (Grade 5) report

2.7 Secondary School Education in South Africa

In 1994, South Africa held its first democratic elections after 46 years (1948-1994) of being ruled by the Nationalist Policy of Apartheid, which was cruel, discriminatory, unjust, and dehumanizing for everyone. In 1994, South Africa became a democracy, and Nelson Mandela became its President.

As mentioned earlier in the chapter, I attended primary school from 1987 to 1994 during the apartheid era in South Africa. From 1995 to 1999, I attended a community secondary school. My secondary schooling experience was different from that of primary school. In the post-apartheid period after 1994, we experienced diverse class populations. The black learners were allowed entrance into the once-segregated 'Indian' schools. I was exposed to learners of different races for the first time. We learned to break down the invisible walls that were artificially and cruelly erected by the apartheid regime.

I remember I had a friend Charity* who looked different from me and spoke a different mother tongue. Despite our differences, we became friends. I remember her because she always had a smile on her face, and she was kind. We learned through our differences to work together to build a 'rainbow nation', in the words of Archbishop Desmond Tutu (Baines, 1998). Charity was not at my school for long as she left to attend an ex-model C school because, sadly, her family relocated.

Baines (1998) explains that the then global image of South Africa as the 'rainbow nation' seems to have caught the public imagination. It symbolised the 'new' South Africa, the imaginary nation constructed in the post-apartheid era. Although we were from different race groups, I treated my classmates as equals. I respected them, and in turn, they respected me.

The importance of Values-Based Education is as cited by Brighthouse (2005) in Potts (2012:8):

“It is essential not to separate values (as some lofty ideal) and practice: you have to address how you as a teacher walk the talk and empower learners to walk the talk as well as by giving them the wherewithal to become effective citizens.”

I remember Mr N, a teacher in my secondary school who influenced me to be kind and caring. Mr N truly walked his talk. The value of being kind and loving was part of his DNA. As I remember Mr. N, I recall how he was always willing to help. I recall how devastated I was when my 'Ma' passed on. My grief notwithstanding, I had to go to school to write the English Literature examination paper. Except for Mr. N, no one knew that I had lost my Ma in the early hours of that day. I was grateful to have quiet time without any reminder that my Ma had passed on. Mr. N was there in my classroom to support me. For Mr N, that was not enough. After school that day, he came to my home and offered help, and attended my 'Ma's' funeral. I was still in contact with Mr. N, up until he passed away in September 2022.

2.8 My Leadership Achievements

I learned the values I live by from the influences of my primary school teachers, who had been instrumental in inspiring and motivating me to work hard, to care, and to offer kindness. Having an academic and sporting presence in the school made me a leader by example. Mr N encouraged me to make my leadership qualities more evident. These values contributed to me being selected as the Deputy Head Prefect. In addition, the importance of love and care that my 'Ma' had instilled in me also contributed to my advancement in my leadership roles at

school. Existing research has consistently highlighted the pivotal role teachers play in fostering academic achievement, self-esteem, and a genuine interest in learning (McInerney, 2008; Meskauskiene, 2015). As a nursing educator in higher education, I have come to understand that the values of hard work, determination, and perseverance that I learned in primary schooling have significantly contributed to my leadership development in secondary school, as well as shaping me as the educator/lecturer/ teacher I am today in my professional practice. According to Bimray (2023), the ability to create a supportive and inclusive learning environment in which students can explore and develop their professional identities is an important component of role-modeling values.

2.9 Academic Achievements

Because I wanted to attend university, I had to make sure that I maintained a high academic profile. I continued working consistently and diligently. I was very pleased when I obtained distinctions in Biology, Geography, English, and Afrikaans in Standard 8 (Grade 10) and Standard 9 (Grade 11), (Consult Figures 12,13, 14).

I completed Grade 12 in 1999. My Grade 12 results were only satisfactory. I was grieving my 'Ma' at the time of my examinations, and I did not perform optimally. Although I received a Matric Exemption pass that allowed me entrance into university, I was not happy with my results.

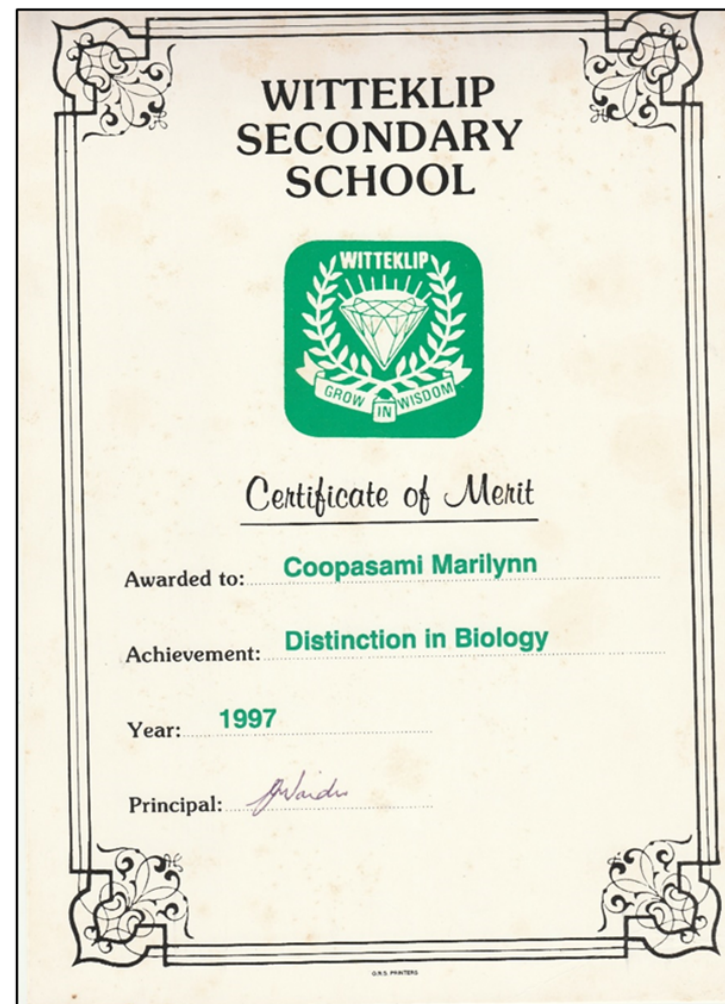
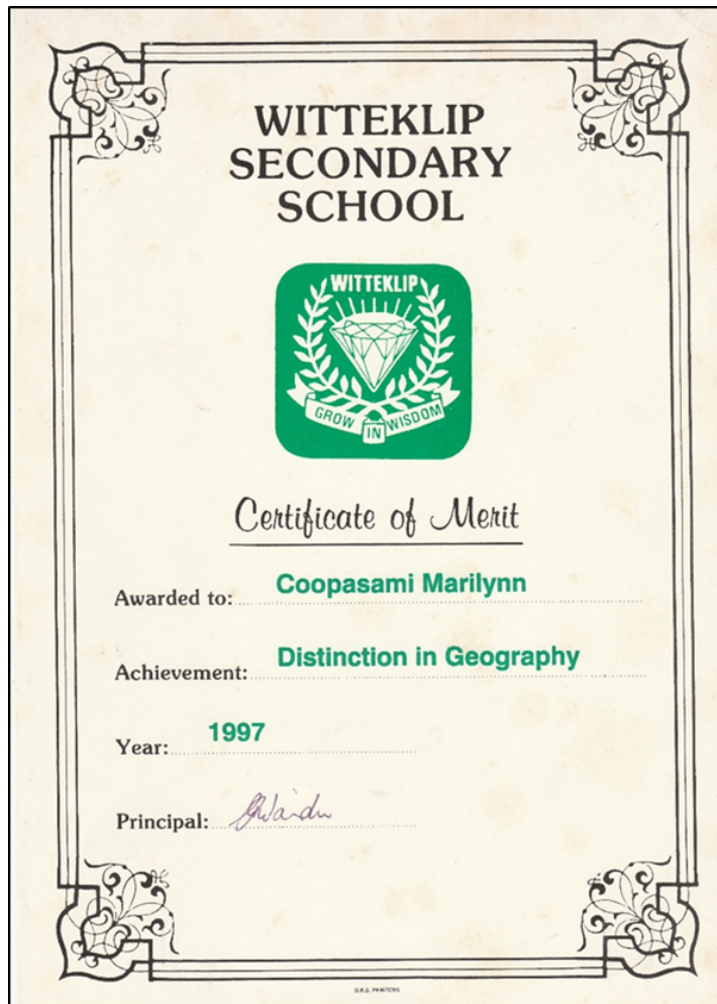


Figure 12: Merit Certificates in High School



Figure 13: Academic Achievement Awards for Afrikaans and English



Figure 14: Achievement Awards for Biology and Geography

2.10 Karate

When I was ten years old, my father came to believe that Jamie and I, needed to know how to defend and protect ourselves, so we joined a Karate Dojo.

I have loved karate since the first day I started. From Karate, I learned integrity, discipline, focus, perseverance, attentiveness, respect, honour, loyalty, accountability, and courage. Karate helped me believe in myself. I participated in many competitions and was placed in both Kata and Kumite. I continued doing karate until I was 16 years old, by which time I had already obtained my Brown belt (1st Kyu). I left because of academic demands at school.

2.10.1 Karate and Jedial

When my son, Jedial, was 5 years old, I enrolled him in Karate, so that he could benefit from Karate as I had. However, I was disappointed and concerned that Jedial was not enthusiastic and excited about Karate. I wanted to role-model the values of Karate - integrity, discipline, focus, perseverance, attentiveness, respect, honour, loyalty, accountability, and courage – for my son.

So, to encourage Jedial, I, at the age of 35 after a twenty-year break, decided to go back to Karate., I worked hard, and I earned my Black Belt First Dan (Consult Figure 20 below) in the same year. Jedial very quickly captured my enthusiasm and excitement and was awarded his Black Belt in November 2022. Karate provides a fascinating and insightful metaphor for educational practice that interests me as a lecturer in higher education (Schön, 1987; Larrivee, 2000). In the same way that karate practitioners learn how to perform intricate movements, stances, and methods, teachers must also learn classroom management techniques, content knowledge, and pedagogical abilities (Mulholland, 2008; Lăcrămioara, 2015). The metaphor of karate also implies the significance of being flexible and quick to respond in the field of education. As karate practitioners must adapt their strategies depending on the circumstances and adversaries, teachers must be able to comprehend their students, assess their needs, and adjust their teaching methods accordingly (Mulholland, 2008; Mahlios, 2010). Furthermore, the ethos of karate, with its emphasis on discipline, respect, and personal growth, aligns well with the core values and responsibilities of the teaching profession. These values helped me transform my practice during the COVID-19 pandemic.



Figure 15: Black Belt (First Dan) Certificate

2.11 University: My Undergraduate studies

I am deeply grateful that I was able to go to university. I was the first person in my family to attend university. I was also the first person in my family to graduate. I initially applied to study to become a medical doctor, but I was rejected. I was devastated as becoming a medical doctor was very important to me. In spite of the rejection, I did not give up. The rejection actually made me more determined to go to university and complete my qualification. My undergraduate years at university went by very fast.

I did not attend my first graduation. I was dejected because I could not find employment with my B. Med. Sc qualification. I had applied to study for a Bachelor of Science (B.Sc.) degree at two universities where I was accepted. I chose the university closest to home, the University of Durban-Westville (UDW), where I had completed my undergraduate degree. After my first year of studying, I still wanted to be in the medical field, so I applied to study for a Bachelor of Basic Medical Science degree (B.Med.Sc.). I was accepted and graduated timeously in 2003 as per my certificate in Figure 16 below.

Being at University taught me how to be resilient. Nonetheless, I recall how different University was from school. None of the lecturers cared if you attended their class or not. Whether you failed or passed seemed to be unimportant to them. I had to persevere and work hard. I was positively influenced by an Anatomy lecturer, Dr O. Dr O was very stern and strict, but he was also different. When he was lecturing and if he knew you were supposed to be in his class, he would open the door to the Anatomy Department and stare-you-down. That was his way of indicating you needed to attend lectures. As a higher education educator, I play an essential role in supporting my students' resilience and fostering their ability to navigate the challenges they may face. In my practice, I cultivate student resilience by having an open communication relationship within the classroom. In order to promote resilience, lecturers/teachers must establish a supportive environment and foster meaningful connections (Ang, 2022).

In my Honours year, I was able to understand him better as he was my research supervisor. His strict and stern appearance and staring-you-down were indirectly his ways of demonstrating that he cared. He would look for us without uttering any words. I passed my Honours dissertation well. Students are more likely to experience meaningful and transformative learning when the emotional component is acknowledged and addressed, which is intricately linked to the cognitive, social, and emotional aspects (Baptista, 2020). I believe that as a higher

education lecturer/teacher, I use my head, heart and gut brain to help facilitate my value of care in my classroom.

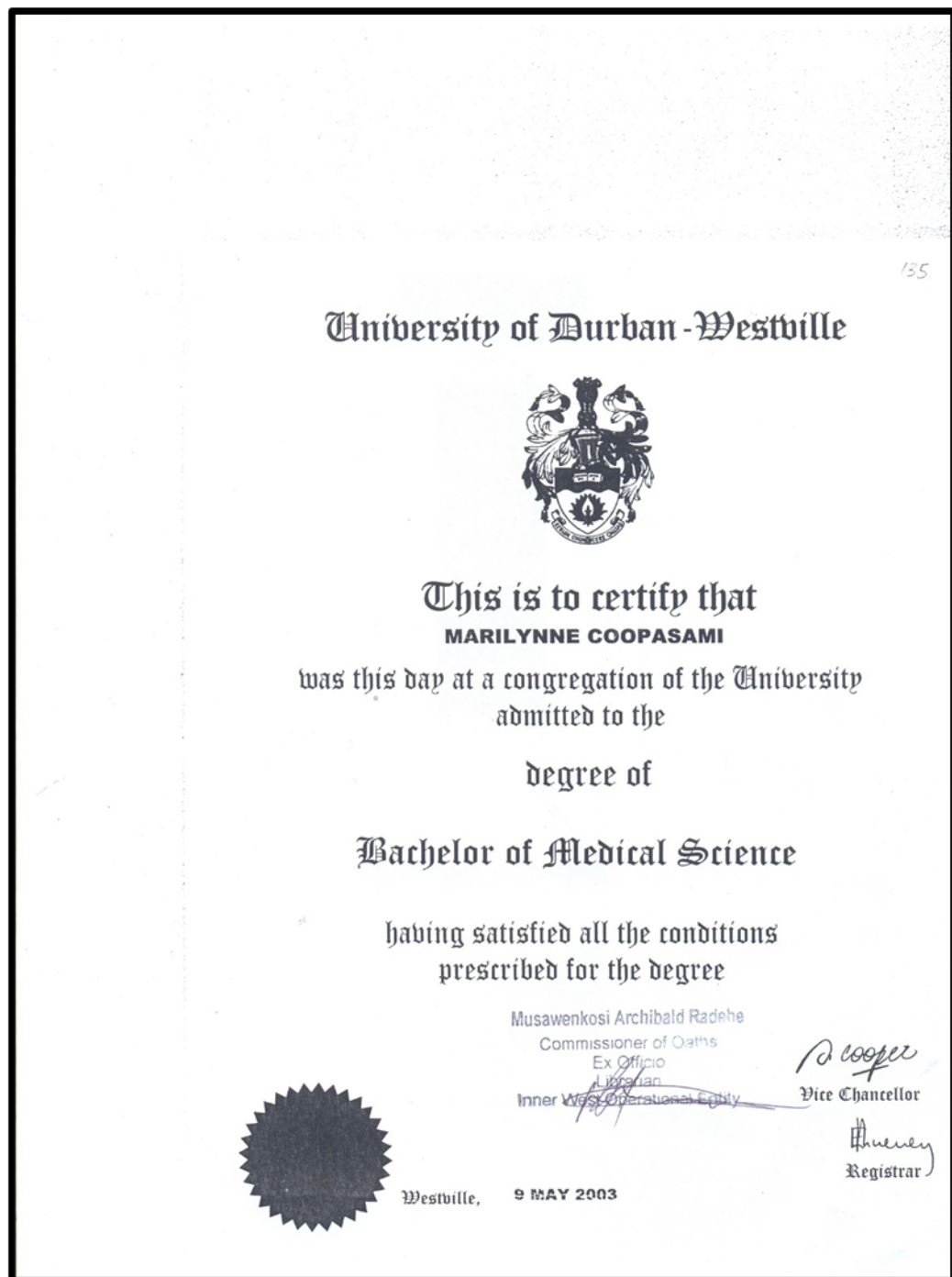


Figure 16: Bachelor of Medical Science degree certificate

2.12 My Employment

After graduating with a B.Med.Sc., I was disappointed that I could not find relevant employment. Nonetheless, I was fiercely determined to earn a salary. Having watched my parents overcome their humble beginnings, it mattered to me that I contributed to my family's well-being. So, I started working as a clerk in the Durban Metro Police Department. No sooner had I started working as a clerk than a Research Assistant post became available at the University of Durban Westville (UDW) in the Anatomy Department.

Then I discovered that the clerk's post earned much more than the Research Assistant's post. In conversation with my father, I was reminded that he had worked his way up into a highly responsible position with only a Grade 8 education. This was a most significant lesson learned from dad's role-modelling. My dad encouraged me to accept the Research Assistant post at UDW, explaining that I could work my way up into a responsible position. I immediately accepted the post of Research Assistant at the Anatomy Department at UDW. At the same time, I had an ardent desire to improve my qualifications. I applied to study for Honours in Anatomy.

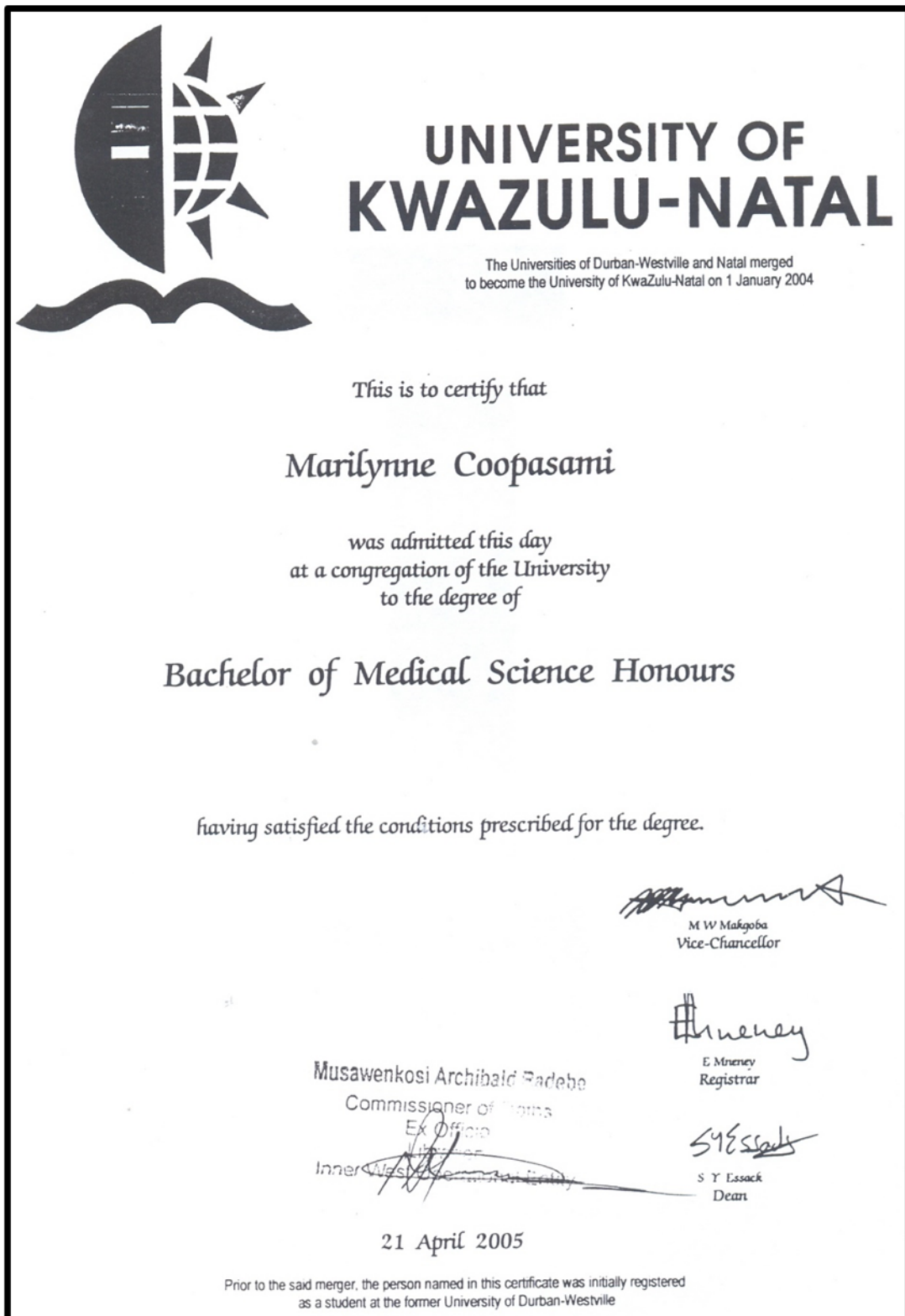


Figure 17: My Bachelor of Medical Science Honours degree

Once I had graduated with a Bachelor of Medical Science Honours degree in 2005 (Consult Figure 17), I started teaching as a part-time lecturer at the Durban University of Technology (DUT) in 2006. I taught Anatomy and Physiology to undergraduate students in the Somatology,

Clinical Technology, and Biomedical Technology programmes. I worked as a part-time lecturer from 2006 until 2010 in the Department of Basic Medical Sciences. I was mentored by a Senior Lecturer, Mr W, who taught Physiology. He was and still is a calm, honest, and sincere person. He was also the moderator of the Anatomy and Physiology course taught to undergraduate nurses from 2015 to 2021. His values of sincerity and honesty helped me approach my learning sincerely and honestly. Mr W's influence on my learning journey was critical as I remember I used to go to him to seek his advice on teaching a concept or section in Physiology, and he would be patient and calm. He would go through a certain section step-by-step with me so that I could understand it. He influenced how I taught and continue to teach.

In 2009, I applied for two positions a Contract Lecturer and a Permanent Lecturer position at the Department of Basic Medical Science at DUT. The Permanent Lecturer post was in Durban, and the Contract Lecturer post was at the Indumiso campus in Pietermaritzburg. Even though I was going on maternity leave, I received a call to attend an interview in January 2010 for the positions. I was appointed as the Undergraduate Nurses' Contract Lecturer at the Indumiso campus, in Pietermaritzburg. It was a new program, so I had to develop all the learning materials and student guides to accompany my teaching. I was glad I had learned how to be resilient.

The values of hard work, determination, love and caring, and responsibility I had learned in primary and secondary school were further developed. These values shaped and strengthened my practice and continue to do so.

On February 1, 2010, I was appointed as a Service Department Lecturer in the Nursing Department. A Service Department provides tuition in basic knowledge subjects which inform a professional qualification. This is why I was initially teaching Anatomy and Physiology not only to undergraduate nurses but also to undergraduate somatologists and radiologists.

From 2010 to 2014, I was appointed as a Specialist Instructor/Lecturer as I only had an Honour's degree. This Specialist Instructor post was not permanent. To be employed permanently, I needed a master's qualification before 2015.

I remember being called into the Dean's office to be told that I did not meet the institution's permanent employment policy requirements because I did not have a Masters's degree. I was told that my contract would be terminated if I did not complete my Master's study by 2015. This made me even more determined to complete my master's degree within the allotted time to obtain the required qualifications. I was the only student from the Master of Public Health class

to graduate timeously. I graduated with my master's degree in 2014, as evidenced by my certificate in Figure 18 below.



Figure 18: Master's degree certificate

In 2015 I became a permanent lecturer, and my post no longer resided in the Basic Medical Science but in the Department of Nursing. I was happy that I had found permanent employment in my field.



Figure 19 A photograph of me with my parents, and **Figure 20** is a photograph of my husband Rajen and me at my Master's graduation ceremony in 2014.

2.13 Wife and Mum

I met my husband Rajen at church. He is deeply spiritual and very grounded in his faith. It was his faith in God that encouraged me to develop a relationship with him. My husband is kind and caring (Consult Figure 19). We married in December 2006, after I had started my lecturing career at the Durban University of Technology.

Rajen is the fifth child in a family of six siblings. Rajen had only just finished school when his dad passed on and he had to grow up overnight. He was 17 years old. His three older siblings were married with families of their own. Rajen and one older and one younger brother were still living in the family home, so he and his older brother became the breadwinners at home. He had to sacrifice a lot to support his mum and younger sibling. This meant that he could not further his formal education beyond Grade 12 (Standard 10). He has never allowed this to deter him from learning new things.

Rajen worked in the automotive industry for many years. Then the company underwent restructuring, and he was unemployed. This did not deter him. His passion for learning new things is what he role-models daily. He found employment quickly in the dog food industry where he enthusiastically learned what he needed to know to make a success of his job. However, the dog food company then restructured, and he was once again facing unemployment. Fortunately, he was headhunted for a position near our home in Pinetown. In 2017 due to unforeseen circumstances, he found himself unemployed yet again. This was an overwhelming time for him, but Rajen is very strong-willed, and his determination, consistency, and responsibility have remained resilient through it all. He has role-modelled the values of determination and perseverance for us all, including our son, Jediahel.

Rajen had always been very close to his mum. Rajen was always the son she would call upon when she needed anything. I respected his relationship with his mum. He was loving, patient, and nurturing toward her. In the latter part of 2017, Rajen's mum became ill. Rajen was unemployed at the time so he would spend a lot of time with her, taking her for her monthly check-ups and cooking meals for her. During that time, he spent six months with his mum. In February 2018, Rajen's mum passed away. This was an emotional time for all of us.

At this time, Rajen was still not working, which made him even more determined and resilient. He took on the role of being a Stay-at-Home dad very seriously. Jediahel was 9 years old at the time and in Grade 3, in his senior phase of junior primary. Rajen is a dedicated dad who invested all his time in Jediahel. Rajen would fetch him from school, complete his homework with him, and spend time taking him for all his extra-curricular activities. Although it was a financially difficult time for us, Rajen role-modelled his resilience for me. He taught me never to give up. His faith in God anchored him and our family at this most turbulent time.

At the beginning of 2019, Rajen found employment as an electrical sales representative. Even though he was not experienced in the field, he embraced the challenge and worked until May 2022, when the company went through restructuring. He was again at risk of unemployment, but through the grace of our God, he was re-employed immediately.

My husband has been a constant and inspiring example of working hard for what you want. It is these values of perseverance and resilience that he role-models for our son and me. I recognise these values in Jediahel. He also has the same values of perseverance as his dad. He works hard academically and strives for excellence daily.

My son is my treasured blessing and brings immense joy to me. I love being Jedrael's mum. Jedrael was born in 2009. I was admitted on a Saturday night to deliver my beautiful baby; however, due to complications and an emergency caesarean section, Jedrael was only born Sunday afternoon at 16:10. In my role as a mum, I have learned to love unconditionally. The values of caring, love, and nurturing became more evident as I lived and role-modelled these values for my son.

2.14 Employment and Values

In February 2010, I began working in the Department of Nursing at the Indumiso campus of DUT, in Pietermaritzburg, 90 kilometers and an hour's drive from Durban. Since it was a new program, there were few staff members in the department. When I started, I met a staff member, Mrs. S G, who was appointed as a nursing lecturer, and a few other staff members. We had only just accepted our first cohort of students.

In April 2010, Mrs. ST was appointed the Head of the Programme for the undergraduate Nursing Department. At the institution, each department has a departmental head. However, due to the location of the Indumiso campus away from its sister department in Durban, it was decided by management that the undergraduate department would have a Head of Programme (HOP), and a Head of Department (HOD) to oversee both programmes. At the Pietermaritzburg campus, the Head of Program (HOP), Mrs S T was our direct line manager.

Mrs. ST was a person who was always full of life. She always had a smile on her face. She was instrumental in me enjoying my learning journey and in my attaining my master's qualification. In 2011, when I registered for the Master's in Public Health degree, I approached Mrs. S T, as I was doing a Coursework Masters. This meant that I needed to attend lectures and write examinations. Mrs ST was supportive and encouraging. Even though Mrs ST did not have a master's qualification, she was employed because of her knowledge and wealth of experience. She accommodated me generously, especially when I started the research component of my Masters' degree. Mrs. ST was kind and caring and always willing to assist her staff, and never had a bad word to say about anybody.

As a new mum trying to complete my degree, I learned from Mrs. ST to be patient with myself. She influenced my learning because she was a caring and likable person who was kind to everyone, irrespective of their position. It did not matter what portfolio you had, she treated everybody equally. Mrs. ST inspired me to be kind and approachable to everybody and not

discriminate against people based on their position. I try to remember her daily in my practice by putting into action the values I learned from her of being supportive and encouraging, kind, caring, willing to assist staff and be patient. Sadly, Mrs. ST passed away in 2013 before I could graduate with my Masters degree in which she had played a generous and loving part.

2.15 Dr. SG

Johari (2017) describes reflections as a way in which people learn from their experiences by intentionally thinking about actions to improve their practice. As I recall and relive the memories of my journey of learning in my roles, I remember my peer, mentor, and friend Dr SG who was another person who influenced my values positively. I asked Dr SG to write a reflection on our relationship as we worked together teaching the first cohort of nursing students. I was surprised to learn that she considered me courageous and resilient. Dr SG wrote:

I discovered she had just had a baby boy and returned to work when he was about four months old. This was very brave as she had to leave her baby boy in Durban to travel to Pietermaritzburg daily. I realised that this is a very courageous woman who is determined to make a career while being a young mother (Dr. SG's reflections, 2021).

When I began working with Dr SG, she was determined to complete her doctoral studies even though she was about to retire. Her values of determination and accountability in conducting her studies while being the HOP emphasized her resilience and perseverance. I was influenced by her determination and her dedication to complete her studies even though she was retiring. This inspired me to follow my dreams as well.

2.16 My role as a lecturer/educator/ teacher

I will use the words lecturer, educator and teacher interchangeably as I see these roles complement each other. I have given much thought to the Philosophy of Teaching and Learning and what drives me as a teacher. My philosophy of teaching and Learning is guided by a values-driven culture that may effect change in my practice and, ultimately, in my students. I have asked the questions using the following the Action Research Framework in Table 2, guided by Whitehead and McNiff, (2006).

Table 2 Action Research Framework in Table 1, guided by Whitehead and McNiff, (2006).

Questions used for my educational learning
What really matters to me? What do I care passionately about?
What are my values, and why? What are the evidence of active values?
What are my concerns? Why am I concerned? (Educational/Social Justice)
What can I do about it? What will I do?
What evidence do I have of my educative interventions?
What evidence do I have of how my students respond to my educative interventions during the COVID -19 pandemic?
What evidence do I have of my educational influences on my practice?
What is the importance of my action research? How is the action research important? What evidence do I have that in important in this study?
What new perspectives have I gained? What evidence do I have of how my understanding and practice of quality learning and teaching have changed
How will I improve, develop, and flourish my practice?
How will I generate my own living educational theory? What evidence do I have of my own living educational theory (LET) and its influence on myself and my leaners?

Hence, the focus of this study has been to self-reflect critically on improving my practice as an Anatomy and Physiology lecturer to enhance the academic performance of “at-risk” students and develop Whole-Being Learners who employ their head, heart and gut brain to facilitate their learning. Identified as feeling and willing individuals, our lives are dedicated as Whole-Beings as defined by Heinämaa (2020). As a result, we are convinced or insightfully confident that certain values are essential for our lives and must be pursued faithfully to attain them.

Jalaluddin Rumi, in a famous quote, stated: “Yesterday I was clever, and I wanted to change the world, today I am wise so I will change myself.”

As I reflect on my educational journey, I have come to realise that I love teaching, I love my students and care about them deeply and I love my learning journey. I would not have been able to role-model these values in my practice if it were not for the influences of each and every person mentioned in this Chapter (Laxer, 2021). Throughout my academic journey and teaching experiences, I have been inspired by the critical incidents in learning that have left a lasting impact on my life (Bedeian, 2007). These critical incidents have not only helped me to better understand the profound influence that educators and mentors can have, but they have also motivated me to strive to role-model the same level of care, dedication, and passion in my own practice (Patimo, 2021). In my own educational and teaching journey, I have been fortunate to encounter individuals who have role-modelled the very qualities that I now strive to embody.

I am reminded that:

Jeremiah 29:11: “For I know the plans I have for you declares the Lord, plans to prosper you and not to harm you, plans to give you hope and future.”

Jeremiah 1:5: “Before I formed you in the womb, I knew you, before you were born, I set you apart, I appointed you as a prophet to the nations.”

2.17 My Philosophy of Teaching and Learning

Throughout this journey, I have passionately nurtured the goal of improving my professional teaching, learning, and assessment practices by critically assessing myself and seeking how I might improve (Whitehead, 1989, 2017b; Whitehead *et al.*, 2020). This process of critical reflection to improve my professional practice will be ongoing.

I believe it is important that I, as a teacher/lecturer/educator, am committed to creating an environment that motivates students to focus on knowledge; they know that they need to enhance their abilities and capacities. I believe that commitment motivates me as a teacher to perform better at work (Tsui and Cheng, 1999).

As a teacher, I believe that it is imperative that I understand humanism and what it implies about human learning. I am intrigued by Humanistic theories of learning dating back to the ancients. Collectively, Socrates and Aristotle observed that “We learn by doing”. I believe in Socrates’ philosophy of ‘learning from within’ (470 to 399 BC) which we currently understand as the internal processing of information. I am equally intrigued by Aristotle’s (384-322 BC) belief that learners acquire knowledge by using prior knowledge.

This belief is related to Vygotsky's belief in the 'Zone of Proximity' which avers that we ‘learn-by-doing’ related to the close proximity of ‘new’ learning-by-doing to immediate ‘old’ learning-by-doing. In later centuries, these beliefs were supported by the theoretical pragmatists, Dewey, Piaget, and Montessori.

My belief is that academic achievement and academic performance encompass all the affective, intuitive, and spiritual implications associated with what a student is studying, in this case, Anatomy and Physiology (Timm, 2013; Jousse, 2004). I believe that every student should be able to engage their Whole-Beings in their learning, consciously and proactively. I will make it my responsibility to make Whole-Being-Learning a conscious and proactive option for all my students.

As a humanist, I believe every learner should be given the opportunity to embrace Whole-Being-Learning. I believe using Whole-Being-Learning teaching and assessment methods, my learners will become aware of how to learn effectively and efficiently using all their learning capacities. I believe that in so doing, learners will discover abilities that they did not know they had and use them with increasing facility and reward going forward (Timm, 2013; Jousse, 2004).

I believe that every learner is unique and special. I believe my learners can embrace their learning with their whole minds, bodies, and spirits. I believe in enabling my students to use their full capacity for Whole-Being-Learning (W-B-L) to achieve academic success.

I believe that it is important for me to recognize when whole-being-learning is happening and to support and encourage it to continue. I believe that I can recognise Whole-Being-Learning as it happens because I see, hear, and sense that the learners are not only becoming competent cognitively in their thinking but also affectively and intuitively. I can see and sense and feel the learners developing their whole selves as one "indivisible psycho-physiological complexus of actions" (Jousse, 2004, Timm, 2013).

In my professional practice, I enjoy providing learning content using a variety of teaching and assessment methods and media (Consult Chapter 5). I am mindful that assessments can be creatively used to reinforce previous teaching . I find that students respond enthusiastically to mini-quizzes, learning-in-groups, role-playing, knowledge-focused assignments, competitive assignments, using videos, using assessment rubrics, doing practical work in laboratories, peer teaching, and creative tasks, inter alia. I am constantly seeking out different ways of making the learning of my subject exciting and motivating.

I believe as universities in South Africa change their role and students become more diverse, learning development becomes even more vital (Mayet, 2016). According to Reason, Terenzini and Domingo (2006) studies indicate that attrition and high dropout rates are reduced by support strategies and mentorship from committed staff. I believe that matriculation examination pass rates do not necessarily indicate academic competence for university success.

I believe, like Boughey (2012), that it is clearly evident that a whole new set of skills is required for university learning, and that learning developments should ensure that students are able to set their own learning goals and become responsible for them. Furthermore, I believe that students should manage their time more systematically in order to develop their organisational skills. I will seek opportunities to assist students in achieving through these changes.

For students to thrive in the university setting, they must also need to adapt successfully to the new environment (Tinto, 2012). A study conducted by Reason, Terenzini and Domingo (2006) examined the factors that shape student academic competence, including individual, organizational, environmental, programmatic, and policy factors. According to their data, it is clear that students' learning and cognitive development are influenced by a variety of learning opportunities both inside and outside the classroom. In all institutions, academic interventions and support geared toward students should be available (Mayet, 2016).

I believe that I as a teacher should be patient and open-minded with my students. I believe that I should possess a cheerful mental disposition that is conducive to motivating and shaping any 'at-risk' students. If there are students in distress about their academic progress, I will find a way to adapt, and even interrupt where and when necessary, the academic program to assist and remedy the situation. I will do this by either providing extra tutorials myself, organising peer student groups for mutual assistance, or organising tutorials for any students who are affected.

I believe that I must be consistently fair, honest, and transparent at all times as role-modelled by my influences as recorded in the previous sections of this Chapter. I must be able to accept blame when I am at fault. I will make myself responsible for being abreast of current and new developments in the following areas: academic, social relations, administration, discipline, and management.

Academically, I will be consistently up to date with the academic programme and any changes that might occur. I will explore any and all avenues of the emergence of new knowledge in the relevant field. I will bring all of the following to the students' attention and make attendance possible: special events that will be useful for the students' learning, such as exhibitions, visiting scientists, local, regional, and national competitions, and national and international events which are being televised, inter alia.

In terms of human and social relations, and as a humanist, I believe that educational opportunity and economic and social justice are basic human rights. I need to be alert to any signs of distraction and distress among my learners and enquire discreetly into their origin and cause. Where I believe I can intervene without doing further harm, I will take steps to resolve the problem. When I believe that specialist intervention is necessary because the problem lies outside of my influence or resources, I will make the necessary arrangements for specialist intervention.

Discretion is of the utmost importance, particularly in situations which can be embarrassing for those involved, such as matters of social inequality, highly personal family disputes, or friction between members of the same group. Most significant among the ills of society are matters of abuse of all kinds: gender-based violence, sexual abuse, abuse of the vulnerable – babies and children, the aged and the infirm, those who are destitute, disabled - physically, emotionally, and intellectually, the visually and hearing impaired, and the homeless and those who have no nationality. Tensions and disputes referring to languages, and cultural, religious, and national differences can also be of significant concern and might require specialist intervention. I will

encourage solidarity among the members of the group so that they can grow in understanding and empathy for others. Ubuntu is an important perspective in all of such instances. I recall a story of Ubuntu shared below:

Children from African tribal groups were introduced to a game by an Anthropologist. In the vicinity of a tree, he placed a basket of fruits. At a distance of 100 meters, they were required to stand. In addition, it was announced that all the fruits would be given to the first person to reach the basket. As soon as he said ready, steady...go. They grabbed each other's hands and ran to the tree together. After dividing the fruit among them, they ate it. In response to the Anthropologist's question, they explained why they had done so.

Their response was 'Ubuntu'

Which meant:

When everyone around you is unhappy, how can one be happy?' (OliveNetwork, 2023)

I am keenly aware that I live in a country with a long and wise history of Indigenous Knowledge conveyed by an Oral Tradition much older than any written record. I believe that chief among these indigenous pieces of knowledge among Zulu people is the wisdom and cultural standard of Ubuntu, which calls for all citizens to ‘do unto others as they would have others do unto them’. This is colloquially known in English as ‘the do as you would be done by’ rule. In Zulu, it is expressed as "Yuh, unobuntu", which means he or she has Ubuntu, which is what you say when you wish to praise someone. Ubuntu is a bundle of life that we all belong to. We say, “a person is a person through other people” (in Xhosa, ‘Umntu ngumntu ngabanye abantu’ and in Zulu, ‘Umntu ngumntu ngabanye’). My humanity is rooted in belonging, participation, and sharing. Ubuntu is a critically important value that has restored harmony in times of social inequality, inequity, and injustice for centuries. According to Murthi (2006),

“An Ubuntu person is open to others, affirming of others, and does not feel threatened by the fact that others are capable and good, as he or she knows that they belong to a greater whole that makes them feel secure. The dignity of others is diminished by humiliating or diminishing them when they are tortured, oppressed, or treated as if they were less than who they are.”

Where administrative discipline is concerned, I will act responsibly. Within the institution, the faculty, and the department, I will ensure that students are aware of their obligations and rights and that they fulfil their obligations timeously and properly. In terms of their rights, I will provide support in whatever way that I can. In matters of administration, I will pay close

attention to keeping all my records up to date and recorded in protected spaces. I will ensure the safety of all digital records, with secure backup.

The process of teaching my students is very rewarding for me. In their learning-by-doing, I believe that my learners develop their educational, intellectual, social, emotional, physical, and spiritual capacities. I believe that when my learners become Whole-Being-Learners, they will become learning-centred, and will take responsibility for their own learning, which will benefit them and others life-long.

I will role-model my passion for the knowledge I share, and the people I teach. I will reflect critically on my teaching and the design of assignments and assessments with passion and commitment because I believe it is passion, which facilitates learning through its ability to create a sense of desire and enthusiasm. I value passion because it energises me to seek out the best of historical theories and practices, to experience and to experiment with new ideas, and to apply them where relevant to improve how I live personally and what I do professionally. I believe passion is an essential motivating factor for high-quality achievements of any kind. I have a passion for all values because they contribute to my personal and professional integrity. I am constantly mindful that values such as accountability, caring, creativity, empathy, honesty, kindness, love, responsibility, transparency, and Ubuntu are important contributors to the quality of my life.

I believe students' achievement depends on the teachers' commitment to the subject (Altun, 2017). I believe that my ability as a teacher to commit myself passionately to my work is one of the most critical components of effective teaching (Altun, 2017). I will invest my time and energy to indicate my commitment and enthusiasm (Carbonneau *et al.*, 2008, Altun, 2017).

Because I believe that learners learn optimally when they are taught and assessed as Whole-Beings, I believe that Whole-Being-Learning and a combination of traditional assessment and alternative assessment carefully designed, will best serve every learner.

Because I believe that learners learn both positively and negatively from role-models, it has been critically important to me that I have role-modelled behaviours that will serve the learners well. Any role-modelling which I provide which will include Ubuntu to guide them to make choices that will best serve them without harming or prejudicing others.

As part of the learning assignments and assessments, I ask for feedback on their thinking executions and intuitions. I believe in order to determine whether educational objectives are being met, Whole-Being-Assessment must be part of the teaching and learning process. I believe I can raise awareness of different modes of learning, and the roles of thinking feeling, and intuition in learning. I believe I can incorporate Whole-Being Learning in my classroom to help my students develop their cognitive, affective, and intuitive skills.

I believe I can and should incorporate increased activities in those areas of learning which are underperforming. I believe I can introduce assessment that uses both cognitive and affective sides to Whole-Being-Learning (Tan, 2012). I believe that I can use Rubrics that assess my students' cognitive, affective, and intuitive skills as teaching exercises.

I believe the learning process requires engagement with human experiences of the physical and social environments we live in, as well as insights gained from spiritual experiences. In my role as a teacher, I believe it is my responsibility to create a learning environment where my learners are well-known, valued, and feel safe. I believe in order to reduce anxiety, a supportive environment must include structures that promote continuity in relationships, consistency in practices, and predictability in routines.

I believe an empathic teacher recognizes and understands students' emotional states and creates an environment that supports learning by alleviating negative emotions that may distract students from learning and completing assignments (Gokaj, 2016; Jordan, 2018). I believe a self-directed learner takes responsibility for his or her own learning but is guided by an educator. I believe I will provide guidance and support to my learners.

I believe during the educational process, academic growth is not the only factor that is considered, but also intellectual, social, emotional, physical, and spiritual growth. I believe as a pragmatist teacher I will create an environment that supports my learners to embrace their intellectual; social, emotional, physical, and spiritual growth.

I believe that each of my learners has the potential to grow if nurtured correctly and cared for correctly. I believe like an apple seed; learners can develop and grow if the right environment is provided. I believe that I am the pivotal factor in my class. I believe it is in my approach to my learners that can create the environment of Whole-Being Learning. I believe it is my culture of teaching and assessing that creates the climate for my students to excel. I believe I have the

authority to create an environment for my learners to enjoy their learning. I believe I can be an instrument that plays beautiful, happy music. I can uplift my learners.

I now embrace the use of Alternative Assessment of assignments where appropriate. I value my learners' feedback about the exercises I require them to complete. My students' feedback now makes more sense to me and I use what I learn from the students on how to proceed with my professional practice. I now know how to interpret the results of assessments and students' remarks and questions. I value knowing that assessment must be part of the teaching and learning process to determine whether educational objectives are being met.

This chapter concludes with my belief affirmations that are summarised in a poem:

'I believe'

*I believe that I as a teacher must be committed
I believe that I as a teacher must be patient and open-minded
I believe that I as a teacher must have a cheerful disposition
I believe that I as a teacher must be consistently fair, honest
and transparent at all times
I believe that I as a teacher must understand humanism
I believe that every learner is unique and special
I believe that every learner should be able to
engage their Whole-Being in their learning
I believe that I should influence my learners
to be kind; and caring; compassionate and loving
honest and transparent
whole-being learners and future professional nurses
who embraces their head, heart, and gut
to navigate the flourishing of their families, patients, and societies
to role-model
'Ubuntu'*

2.18 Summary of my concerns and values

2.18.1 What are my concerns, and why am I concerned.?

I am concerned that some of my students are not passing Anatomy and Physiology. I am deeply concerned about the poor pass rate in the first- and second-year students at DUT in the possible ‘at-risk’ subject, Anatomy and Physiology. This concerns me not only because the failure rate impacts on the throughput rate in this subject, but more importantly, I am concerned about the lack of knowledge of the would-be professional nurses’ understanding of the structure of human anatomy and the functioning of human physiology. This concerns me deeply because, without this knowledge, any future nurses in this situation might not always be in a position to provide the appropriate care for their patients which could save their patients’ lives.

I am concerned that my subject may be identified as at-risk, that my students might be identified as at-risk learners, that I will be identified as an at-risk teacher of human Anatomy and Physiology, and that I might be failing to educate future professional nurses relevantly and adequately.

I am concerned that my learners are not embracing all their learning capacities and abilities in their learning. I am concerned when it becomes evident that my learners are not fully engaging their cognitive, emotional, and intuitional capacities.

I am concerned that my learners come from impoverished backgrounds which make any effective learning difficult if not impossible because they have no, or limited access, to the relevant and necessary resources.

2.18.2 What are my values and why?

My values of accountability and responsibility are more evident in Phase 3. Durban University of Technology ENVISION 2030 strategy map (Consult Chapter One) indicates that we should “nurture a people-centred culture that embodies our values and principles.” (DUT 2030 Envision Strategy Map). As a nurse educator, I agree with the ethos of living our shared values of accountability and responsibility by creating a culture of the Whole- Being Learners.

The next chapter presents an extensive discussion of the literature identifying what to transform in my practice and how to go about realising it.

CHAPTER THREE

LITERATURE REVIEW

“To get through the hardest journey,

We (I) need to take only one step at a time.

But we (I) must keep on stepping.”

Chinese Proverb

“There is nothing new under the sun” Ecclesiastes Chap 1, vs 18.

3.1 Introduction

In this chapter, I record the academic sources that have influenced and informed my study and allowed me to answer the next Action Research Framework question (Consult Chapter 1 Table 1): What can I do about it? As indicated earlier, I am basing my study on the premise that academic achievement and performance go well beyond cognitive engagement with the subject matter and achieving higher marks. I choose to begin this literature review by creating a brief context of a selection of the understandings of learning, teaching, and assessment in the Western world through the ages.

According to the following research paradigms, a significant pattern appears in Cognitive Theory: Socrates' philosophy of 'learning from within' *aka* the internal processing of information (470 BCE to 399 BCE); according to Aristotle (384-322 BCE), learners acquire knowledge by using prior knowledge: "We learn by doing"; the pragmatists include Dewey, Piaget, and Montessori who also advocate learning by doing; a humanistic perspective is: Vygotsky's 'Zone of Proximal Development. Aspects of behaviour: Pavlov and Skinner: 'conditioning'; Hoover's Whole-Being Learning and Assessment explores how humans can learn by utilising all of their senses and their intelligence at the same time.

3.2 Gut, Heart, and Head

I believe that academic achievement and academic performance reflect the engagement of a student in the process of developing and learning not only through a cognitive understanding of the subject matter but including all of the affective, intuitive, and spiritual influences in the practice of learning, teaching, and assessment, viz. Whole-Being Learning and Whole-Being Alternative Assessment. In order to learn and develop, it is necessary to use the whole human being, i.e., the gut, the heart, the head, the physical body, and the spirit, as one "indivisible psychophysiological complex" (Jousse, 2004; Timm, 2013), in accordance with the most recent advances in the neurobiological understanding of what constitutes a human brain and its purpose and operation.

Taking into account the number of neurons active in each of the Head-Brain (± 100 billion neurons), the Heart-Brain ($\pm 40,000$ neurons), and the Gut-Brain *aka* the Enteric Nervous System (ENS) (± 500 million neurons in the gastrointestinal tract from the esophagus to the rectum), scientists identify each brain has a specific function in all human capacities and behaviours (Gershon, 1998).

I have chosen to engage with the three brains in this literature review in accordance with the direction of neuronal messages. Relevant research has established that the vagus nerve connects these three brains (Soosalu and Oka, 2012; Jobs, 2018). It is estimated that 70-80% of nerve relays go up from the gut to the heart and head rather than down from the head and the heart to the gut (Soosalu, Henwood and Deo, 2019). This is why it is hard to talk oneself out of a reaction when one's gut and heart are in agreement about the matter and disagree with the head brain.

3.2.1 What are the functions of each of these brains?

Gershon (1999) identifies the gut brain as the second brain, which processes our core identity. Questions such as "How do I define myself?" and "How do I distinguish myself from others?" In essence, the Gut-Brain plays an essential role in ensuring one's safety and security. In addition to maintaining our immune systems, the gut-brain also plays a vital role in our core identity, self-preservation, and mobilisation. Using instinct is the function of the gut-brain. For example, my gut told me not to do this or conversely, I had a happy feeling in my gut about the choice I had made (Timm, 2013).

3.2.2 The Gut-Brain:

According to Soosalu and Oka (2012); Jobs (2018); Soosalu, Henwood and Deo (2019), the gut-brain is responsible for:

- Core identity: identifying what is self and what is not self on a deep and visceral level.
- Self-preservation: considering the protection of oneself, safety, boundaries, and hunger.
- Mobilisation: feelings of urgency, a passion for action, gutsy courage, and the desire to act

3.2.3 The Heart-Brain

The affective brain in the heart feels deep emotions being processed in the heart, along with our values. When asked where we feel an emotion, we will place our hands directly over our hearts (Timm, 2013). The emotions that we process in our hearts are all of the following: we feel anger, grief, hatred, joy, and happiness, *inter alia*.

According to Soosalu and Oka (2012); Soosalu, Henwood and Deo (2019) Jobs (2018), the heart-brain is responsible for:

- Feeling deep emotions being processed in the heart, along with *our values*.
- Where and how we experience our relationships with our aspirations, dreams, and desires,
- Where we process our values to establish our priorities and what is important to us.
- Where we experience the relational effect, where we become aware of our felt connection with others in our feelings of love/hate/indifference, compassion/uncaring, and like/dislike)

3.2.4 The Head-Brain

According to Jobs (2018) and Soosalu and Oka (2012) the primary function of the Head-Brain is the cognitive processing *viz.* 1. cognition, perception, pattern, and recognition; 2. thinking: reasoning, abstraction, analysis, synthesis, meta-cognition; 3. making meaning: semantic processing, language, narrative and metaphor making.

According to Soosalu and Oka (2012), a person's gut, heart, and head may not always be in agreement over a particular issue. There is a narrative in my head saying, "I should...my rules

are...but my gut says, "No, not safe". It is possible that the three brains do not work together for many reasons, but it is more likely that one or two of them override the others. Each individual has a different understanding of which of these brains dominates them most: "It is neural networks which expand as they are used more frequently (Soosalu, Henwood and Deo, 2019).

The human body is a complex machine, which we can use to create a happier, healthier society by understanding how these 'brains' work in conjunction with each other.

3.3 Active-Learning (AL)

The term "Active- Learning" refers to any activity students engage in in a classroom other than passively listening to an instructor/lecturer/facilitator lecture (Faust and Paulson, 1998). This includes listening exercises that help students absorb what they hear, short writing assignments that allow them to analyse lecture material, and group assignments that apply course content to real-life situations (Faust and Paulson, 1998).

It has been demonstrated by Brame (2016) that Active-Learning in the classroom has many advantages over passive encounters with course material through lectures. Whitehead describes inert knowledge as knowledge gained from a situation without direct relevance to the learner's needs (Whitehead, 1967). In Active-Learning, students may participate in listening exercises that increase their understanding, writing short responses to lecture material, and engage in complex group exercises where students apply course material in real-life situations. Grabinger and Dunlap (1995) believe students must learn to think critically and analyse and synthesise information to solve technical, social, economic, political, and scientific issues. As part of my action reflection cycle, I created a group assignment in Phase 1, Stage 2 (Consult Chapter 5 Section 5.2.3). The group assignment required students to create a PowerPoint presentation and build a model in a group setting. Group members were required to describe a disease from the perspective of a nurse practitioner and construct a model that corresponded to the physiological system that would be affected by the disease. The students could be creative in the dissemination of the project. The students could role-play a real-life scenario and apply their knowledge of the signs and symptoms to the situation.

For successful and fulfilling participation in our modern, competitive society, working in groups is also essential. Coined by Grabinger and Dunlap (1995), REALs are "Rich Environments for Active Learning". The development of REALs is intended as a response to the development of inert knowledge through conventional knowledge transfer activities between teachers and

students (Grabinger and Dunlap, 1995). REALs are essential because they provide authentic contexts for study and investigation, promote student responsibility, initiative, and decision-making, encourage collaboration between students and teachers, promote higher-order thinking processes through dynamic, interdisciplinary, and generative learning activities, and assess the progress of students' content knowledge.

Students must be given realistic tasks to perform in order to learn in authentic contexts. By engaging students in learning activities within REALs, students can build and reshape their understanding naturally as a result of their experiences and interactions within the learning setting.

A central component of Dewey's Theory of Constructivism is the ability to build social and individual knowledge (Jia, 2010; Suhendi, 2018). Piaget's cognitive development and Vygotsky's structural theory formed the foundation for constructivism, which significantly impacts technology development (Sample, 2002; Suhendi, 2018). In my practice, due to the COVID-19 pandemic, I had to create learning environments that empowered my at-risk learners to become "Whole-Being-Learners" by utilising constructivism's principles and technology's capabilities to develop the skills and mindsets required for academic success by actively constructing their own knowledge through the different Whole-Being Assessments allocated to them (Chapter 5 Figure 29). Constructivism opens learners' curiosity about something new, and it contributes positively to educational progress to improve students' abilities to be able to communicate in a group and build their social knowledge. Additionally, students can use their knowledge to design and create something relevant to their needs (Suhendi, 2018). There are a number of concerns that can be addressed by fostering creativity in education (Shaheen, 2010). According to Parkhurst (1999) fostering creativity in education includes handling ambiguous problems, adapting to rapid changes, and facing an uncertain future. Creative activity probably represents a number of learned skills. In spite of hereditary limitations, one can learn to extend these skills through learning (Lin, 2011).

In addition to aiding students in need, teachers should provide educational tools. It is possible for teachers to instruct students using tools that they are already familiar with, such as cell phones, texting, instant messaging, chat rooms, and wikis, to effectively disseminate information and academic content to them (Slaughter, 2009). My realisation of this came when I was required to teach my students online on a new learning platform (Chapter 4). Through the

use of technology aligned with students' social needs, these classrooms demonstrate Dewey's Social Learning Theory (Williams, 2017)

Higher education has become increasingly reliant on educational videos, using them to deliver content in flipped, blended, and online classrooms (Brame, 2016). Three elements are crucial to maximising video effectiveness as an educational tool: managing cognitive load, maximising student engagement, and promoting Active-Learning (Brame, 2016).

According to Craft (2005), there are many possibilities for framing and fostering creativity in schools and beyond. As empowerment grows and culture and creativity interact, significant challenges arise. Frequently, these are a result of discursive underpinnings (the deep currents) that infuse creativity in the classroom in ways that are impossible to reconcile.

Researchers and developers in creative fields draw upon a range of perspectives: specific epistemological and ontological positions informing enquiry. Epistemologically, I regard my role as a higher education teacher/lecturer and my Whole-Being Anatomy and Physiology practice as inseparable. Cited in (Rossouw, 2015:23), Bergman suggests that epistemology in a constructivist paradigm arises from the relationship between the researcher and the object of the research. My understanding of and acquisition of knowledge was subjective and constructivist. In an innovative and accountable manner using action research, I was directly involved in the research that transformed my practice. There is a wide range of approaches that explore creativity from a positivist perspective using quantitative methodological approaches, as opposed to those rooted in the interpretive tradition, which employ qualitative methods of inquiry. However, these positions cannot be reconciled, as the quantitative believes that knowledge is objective, and the qualitative believes that knowledge is subjective.

In the past, psychology dominated much of the research on creativity, but in the present, social psychology, sociology, economics, the arts, philosophy, and cultural studies of creativity have emerged. The ascendancy of social psychological, sociological, and cultural studies-informed approaches is notable - and each discipline possesses dominant epistemological and ontological norms that influence the discipline's culture and the way it examines problems, as well as a range of topics.

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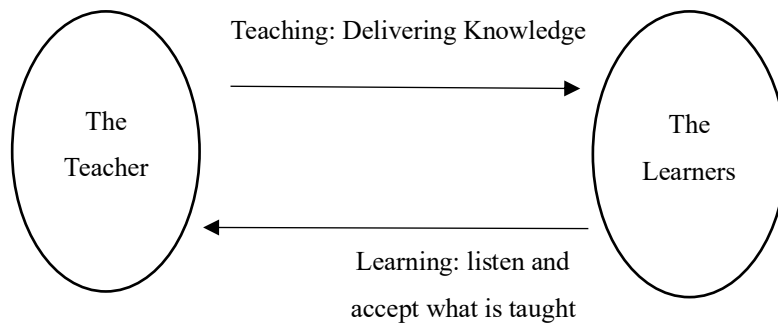


Figure 21: Conventional teaching and learning process (Lin, 2009)

To understand how creativity can be used in education, we must consider two premises: the first is a belief that creativity can be nurtured (Parnes, 1963; Fryer, 1996; Lin, 2011), and secondly, is that every individual has the potential for creativity (Esquivel, 1995; Craft, 2001).

To illustrate the relationship between creativity and pedagogical practices, a framework of creative pedagogy is proposed based on the assumption that aspects of creativity are nurtured within education (Lin, 2011). Pedagogy based on creative practice entails three elements that work together to enhance creative development: 1. creative teaching; 2. teaching for creativity; and 3. creative learning (Consult Figures. 21 (*above*) and 22 (*below*) illustrate conventional versus creative teaching).

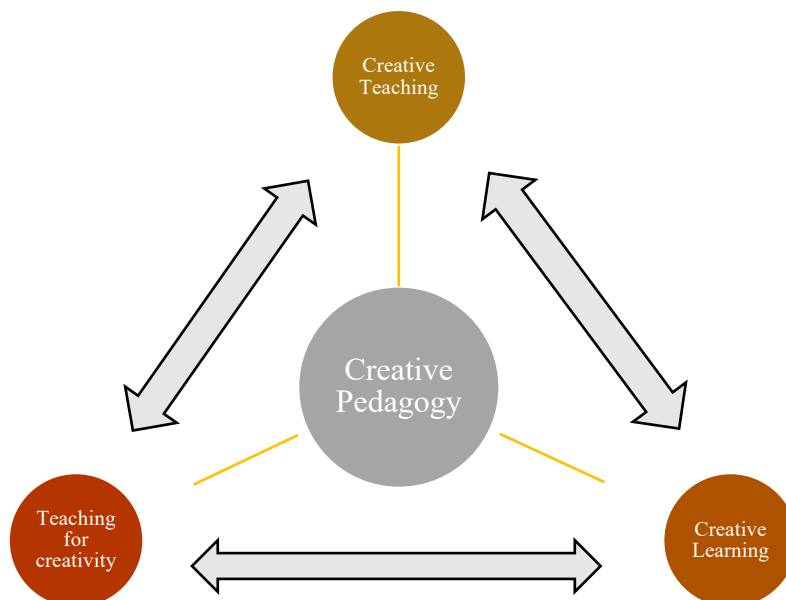


Figure 22: Three elements of pedagogy (Lin, 2009)

3.3.1 The Zone of Proximal Development (ZPD)

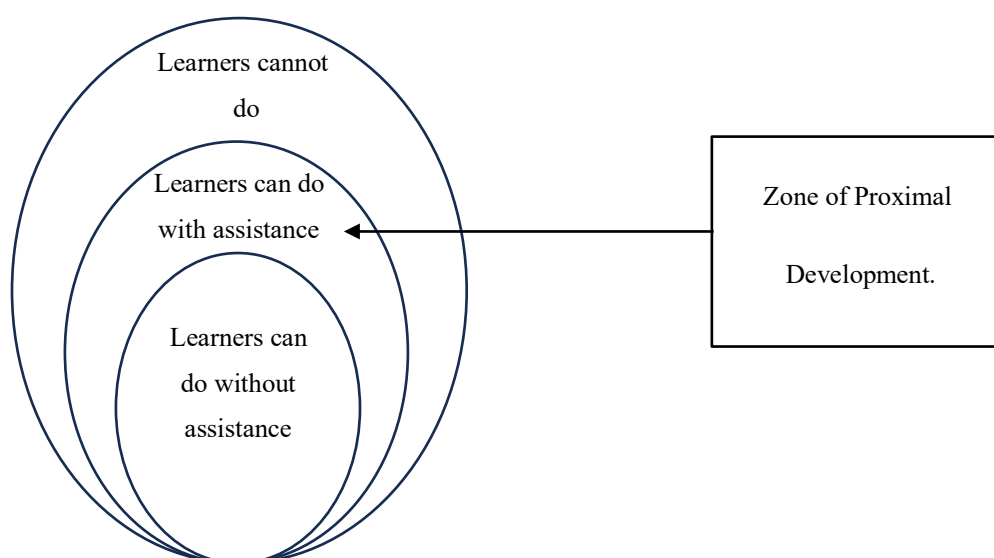


Figure 23: Zone of Proximal Development

A Zone of Proximal Development (Consult Figure 23) can be depicted as three concentric circles. There are two circles at the top of the graphic. The inner circle represents what learners are capable of achieving on their own, and the outer circle represents what learners are not yet able to accomplish. A Zone of Proximal Development (ZPD) is located in the middle of the circle, representing what learners can achieve with some assistance. Based on Vygotsky's theory, students' zones of learning and challenges vary according to their background knowledge, experience, and abilities (Saunders and Wong, 2020) and preferences for specific modes of thinking, as Herrmann advocates.

The Vygotsky model emphasizes mastery of content rather than the age of the student (Saunders and Wong, 2020). Based on Vygotsky's Zone of Proximal Development theory (ZPD), Figure 23 illustrates how learners acquire new knowledge or skills through three stages. The first zone, or the centre circle, represents tasks learners can accomplish on their own. Zone 2 refers to an area in which learners require assistance in acquiring knowledge or performing tasks. Students will be required to stretch their abilities slightly beyond their current skill level in this zone, but they won't be completely frustrated by the challenges. Learning tasks that are beyond the learner's capability are represented in the outermost circle or third zone. In Vygotsky's view, learners can increase their knowledge and skills by working within the ZPD (Zone 2) (Saunders and Wong, 2020).

In Active-Learning techniques, an instructor incorporates activities into the classroom to encourage student participation. In Cooperative Learning, students work together in groups of three or more as part of Active- Learning.

For students to learn together, teachers should provide group learning and peer learning opportunities throughout the discovery process. In today's diverse classroom, teachers must be sensitive to their students' cultural backgrounds and languages and be actively involved in their learning (Sample, 2002) by providing “critical empathy” to their students (Waghid, 2023b, 2023a). Nel Noddings is credited with coining the term 'critical empathy' (Waghid, 2023a). To accomplish this, teachers must possess what is known as 'empathic accuracy', or the ability to truly understand what their students are feeling. There is also a need for what is referred to as a "sympathetic response," in which teachers are not only able to recognize the feelings (happiness or sadness) of their students but are also able to empathize with them (Waghid, 2023a).

Lev Vygotsky believed that learning is not solely an individual process. As he argued, learning is a collaborative and social activity where people create meaning through interacting with one another. A constructivist approach to teaching involves changing the relationship between teacher and student from a telling-listening approach to a complex, interactive relationship that emphasizes the students' own efforts to understand (Schreiber and Valle, 2013).

As part of Cooperative Learning techniques, students are usually divided into formal groups for complex tasks, such as assignments, research projects, or presentations that require multiple steps. Learning cooperatively is different from learning collaboratively, which refers to situations in which groups work together. Working in cooperative groups to achieve a common goal requires positive interdependence, individual accountability, and diverse groupings (Cooper and Mueck, 1990; Faust and Paulson, 1998). “Groups of learners bring highly diverse lived experiences to the learning setting” (Yorks and Kasl, 2002).

Understanding how students acquire knowledge working in groups is based on Vygotsky's Social Constructivism theory (Schreiber and Valle, 2013). The Association of American Colleges and Universities advocates that teamwork be an outcome of a liberal arts education (Schreiber and Valle, 2013). It is recommended that students be evaluated based on their ability to participate in group meetings. In order to foster a constructive team climate, members of the group should encourage other members to contribute, make individual contributions to meetings (including outside of meetings), and resolve conflicts in an effective manner (Schreiber and Valle, 2013). In order to promote the skills needed prior to graduation, it is

imperative that students must be able to function in a group. This is possible by making group work the focus of the classroom (Schreiber and Valle, 2013).

3.4 Whole-Being Learning (W-B-L) and Assessing Whole-Being Learning

“Learning is an essential element of being” (Jarvis, Parker and Thorndike, 2006; Jarvis, 2018). Whole-being learning/teaching/assessment is to engage the whole person, mind, heart, body, and spirit as a single "indivisible psycho-physiological complexus of actions". (Jousse, 2004; Timm, 2013). Included in this indivisible psycho-physiological complexus of actions is the body (genetic, physical, and biological), the mind (knowledge, skills, attitudes, and senses), the heart (values, emotions, beliefs), and the gut (intuitions). These elements enable learning through engagement with human experiences of the physical world that we live in, the impact of personal and social experiences, and the insights of spiritual experiences. All these experiences integrate a multitude of interactions and combinations which are transformed intuitively, emotionally, cognitively, into action and into the person's individual being, resulting in a changed (more experienced) person (Jarvis, Parker and Thorndike, 2006; Jarvis, 2018; Longmore, Grant and Golnaraghi, 2018). Whole-Being values-based education is when learning occurs with the students' whole mind and whole heart (Timm, 2000; Timm, 2013).

The science of learning and development demonstrates how tightly related a learner is to a context s/he may experience (Darling-Hammond, Flook, Cook-Harvey, Barron and Osher, 2020). The context also impacts the outcomes for which educators are responsible (Darling-Hammond *et al.* (2020). Educators are an essential part of a supportive environment. Educators, ideally need to create a learning environment in which students are well-known, valued, and can learn in a safe environment both physically and emotionally. Additionally, a supportive environment must include structures that promote continuity in relationships, consistency in practices, and predictability in routines to reduce anxiety. One-dimensional Learning and Assessment are not enough for Whole-Being Learning and Assessment, but achieving a transcendent experience is not easy (Hoover, 2007).

Humanism understands that human learning is characterised as follows:

- a) Students are whole people, and learning must attend to their emotional as well as the cognitive state;
- b) Teachers should be empathetic;
- c) Learners are self-directed and internally motivated;

- d) The outcome of learning is self-actualisation (Madsen and Wilson, 2012; Sharp, 2012; Saunders and Wong, 2020). Schwarz (2000) notes that moods and emotions have a profound impact on cognitive function.

In some cases, student anxiety can interfere with the cognitive processes necessary for success on a test or in a research paper. Empathetic teachers recognize and understand students' emotional states, creating a supportive learning environment to alleviate negative emotions that might distract them from learning and completing assignments and assessments. These affective states are recognized in humanistic education, which aims to limit any negative effects on the learning. When feelings of anxiety are acknowledged, learners will know they are not alone.

Since humanists view people as autonomous beings, they believe that learning should be self-directed, meaning that students should have reasonable control over what they learn and how they learn it. Learners who engage in self-directed learning take responsibility for their own learning, and remain guided by their instructors (Lucas, 1996; Saunders and Wong, 2020).

In a supportive environment where students are encouraged to be creative and follow their interests, it is expected that students will engage in learning for its own sake. Several aspects of Maslow's hierarchy of needs are emphasized during the process of self-actualization (Saunders and Wong, 2020). In his book *Pedagogy of the Oppressed*, Freire as cited by Saunders and Wong (2020) advocates learner-centred humanistic education with a strong focus on social justice.

To understand Dewey's experiential learning theory, it is crucial to understand the nature of knowledge (Theuri, Waitherero and Nyabul, 2020). In order to prepare children for future responsibilities and success in life, Dewey suggests integrating the goals and methods of teaching and discipline. By acquiring organized bodies of information and preparing forms of skill, the material of instruction can be comprehended.

The social learning theory and educational beliefs of John Dewey can be seen in action in learner-centred classrooms (Theuri *et al.*, 2020). Dewey viewed the classroom as a social entity for learners to learn problem-solving together as a community. Rather than teacher-imposed knowledge or activities directed by the teacher, learners are viewed as unique individuals in these classrooms (Schiro, 2012). Hands-on learning is the main method used in these classrooms for students to solve problems (Theuri *et al.*, 2020).

It is not only academic growth that is included in the educational experience, but also intellectual, social, emotional, physical, and spiritual development as well. This idea is accompanied by the use of technology through student engagement (Theuri *et al.*, 2020). The relevant use of technology is echoed by Slaughter (2009) who points out “our world today has become the electronic world”. As technology plays an increasingly prominent role in students' social lives, it can be used to promote their engagement with knowledge of all kinds, resulting in a passion for learning for life (Williams, 2017). For students to learn effectively, teachers need to provide relevant, effective, and engaging instruction (Slaughter, 2009) and assessment.

Dewey's philosophy of humanism is focused on the learner 'discovering by doing'. According to Dewey, education is progressive and incremental (Theuri *et al.*, 2020). The progressive approach to education emphasizes the importance of 'learning by doing'. In Dewey's view, human beings learn better through 'hands-on' approaches that provide direct hands-on experience with a topic (Sikandar, 2015; Theuri *et al.*, 2020). In this sense, Dewey is advocating a pragmatism-based philosophy of education. A pragmatist believes that reality has to be experienced in order to be understood. Philosophers evaluate theories and beliefs based on their efficacy, success, and application in practice. According to Dewey, learning occurs when students interact with their surroundings and adapt to them (Theuri *et al.*, 2020).

All learning processes are explicitly centred around the learner as the main actor (Theuri *et al.*, 2020). Through active participation in the learning process, learners become active social actors who participate in social experiences. Dewey perceives the world around him as both an opportunity to understand and influence it, as well as a chance to be changed by it (Sikandar, 2015). Thus, learners' education should take into account all of the environments the learner is exposed to, *viz.* school, home, natural, civil, social, economic and spiritual environments.

Humanism recognizes that people have a right to exert some control over their surroundings. As a whole-person approach to education, humanist learning theory emphasizes the individual learner and their needs and embraces affective and cognitive aspects (Saunders and Wong, 2020). Traditional humanistic education emphasizes freedom, dignity, autonomy, and individualism as the foundation of human flourishing (Lucas, 1996).

Experiential learning is without question one of the oldest methods of learning (Drummond, 2003). In modern times, experience-based learning was first defined and advocated by Carl Rogers (1902-1987), who is considered the father of experiential learning (Drummond, 2003). A distinction was made by Rogers between two types of learning:

- a) Cognitive, which he considered meaningless; and
- b) Experiential, which he considered significant.

Rogers maintained that cognitive learning processes involve memorizing vocabulary, chemical formulas, multiplication tables, etc., whereas the experiential learning processes involve gaining knowledge through practice (Drummond, 2003). According to Rogers, the role of a teacher is that of a facilitator, someone who facilitates a learning and assessment environment. According to Drummond (2003), it is possible to achieve experiential learning when the following conditions are met: 1. participation by students; 2. control and direct learning processes; and 3. activities that are based upon interactions with nature. Experiential learning has been commonly defined as “learning by doing” (Dewey, 1986, 1998; Drummond, 2003; Hoover, 2007).

Knowledge is created through the transformation of experience (Kolb, 2014). It is Kolb's Theory of Experiential Learning that enhances the retention of information because it engages the Whole-Being by connecting the senses, intellect, and learning throughout the learning process (Kolb and Kolb, 2005). Kolb's theory involves components that occur in a cyclical process.

The four components of Kolb’s learning cycle are as follows:

- a) Concrete Experience (CE) is the opportunity for an experience;
- b) Reflective Observation (RO) makes sense of breakdowns and transforms the experience through reflection;
- c) Abstract Conceptualisation (AC) is the formation of theoretical knowledge from which new behaviours and thinking emerge; and
- d) Active Experimentation is the practical application of concepts (Kolb and Kolb, 2005).
Chan, Kwong, Shu, Ting and Lai (2021) add that experiential learning is important because it points to improving critical thinking and personal insight.

Hoover (2007) concludes that Experiential Learning is whole-person learning. That is, it functions integratively, combining the spiritual, emotional/affective, and behavioural domains with the cognitive domain always found in the educational process.

Timm (2013) describes Whole-Being Learning as learning that encompasses the body, mind, and spirit. .



Figure 24: Holistic Education: Learning with Your Whole-Being - by Satish Kumar
<https://www.youtube.com/watch?v=nWo1k4jrbgk>

Satish Kumar shares his knowledge about wholeness, which includes the head, heart, and hand (Consult Figure 24). During the video (4:05-5:56 minutes), he uses the metaphor of an apple seed becoming a tree bearing fruit. Kumar reminds us that apple seeds are tiny and, once bitten into, can produce nothing. But the tiny whole apple seed is the genesis of each apple tree, which collectively annually produces thousands of apples. Kumar extends the metaphor by describing how an orchard keeper provides good soil, water, and sunlight for seedlings. Kumar sees that in this metaphor, the seed is like every human learner, and the orchard keeper is like every human educator. Kumar maintains that the orchard keeper must provide a loving and caring environment for the seeds, just as teachers must do for their students. Every seed has the potential to become something more than a seed if it is nurtured. Likewise, every human learner has the potential to become a Whole-Being when nurtured.

According to Saunders and Wong (2020), humanist learning theory is a whole-person approach to education that considers both affective and cognitive aspects of learning. The humanistic approach to learning emphasizes the needs of each individual learner and considers the affective as well as cognitive aspects of learning (Saunders and Wong, 2020). It is important to emphasize

that students are whole people, and their emotional and cognitive needs must be met. Additionally, teachers should be empathetic (Saunders and Wong, 2020).

3.5 Whole-Brain Learning

In his groundbreaking work on Whole-Brain Learning, Ned Herrmann has contributed valuable insights into optimising educational practices and realising human cognition's full potential. According to Herrmann's model, individuals have distinct cognitive preferences and learning styles based on their varying dominance of the four quadrants of the brain (Consult Figure. 25): the left brain is logical and analytical; the right brain is interpersonal, empathic; the limbic system is organised, detail-oriented; and the cerebral cortex is holistic and intuitive (Colvin, 2016). Individual differences can be acknowledged and catered to by educators so that learning environments can be tailored to each students' unique needs and strengths. This leads to greater engagement, retention, and overall academic success.

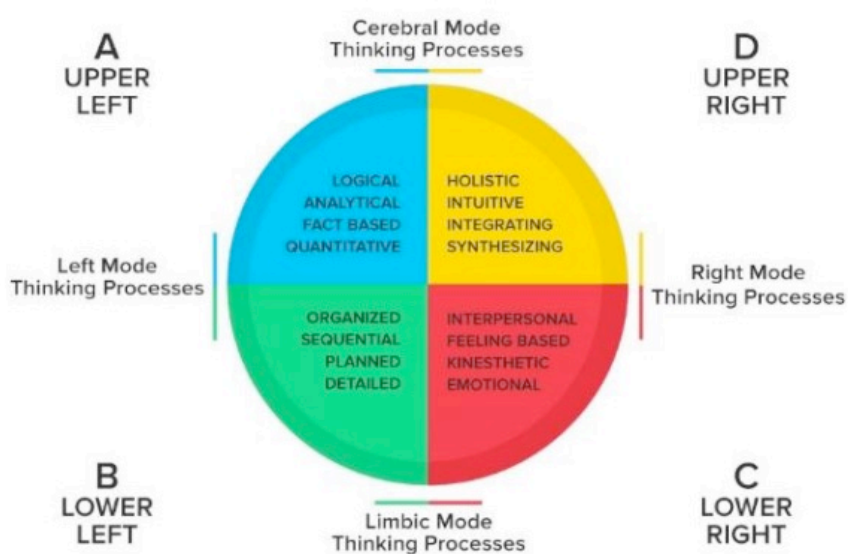


Figure 25: Herrmann's metaphoric Whole brain model (Herrmann, 1999)

It is becoming increasingly apparent in the field of education that Whole-Brain Learning is closely related to Whole-Being Learning. Furthermore, I agree integrating Whole-Brain Learning with Whole-Being Learning can enhance the learning experience and make it more engaging and meaningful. By integrating learning, teachers and students can develop learning that is intact, comprehensive, and meaningful in accordance with each students' needs, abilities, and expectations.

In his reflection, Ginott (1972), reminds teachers of the importance of role-modelling in education.

“I have come to the frightening conclusion that I am the decisive element.

It is my personal approach that creates the climate.

It is my daily mood that makes the weather.

I possess tremendous power

to make life miserable or joyous.

I can be a tool of torture or an instrument of inspiration,

I can humiliate or humour, hurt or heal.

In all situations, it is my response that decides

whether a crisis is escalated or de-escalated,

and a person is humanized or de-humanized.

If we treat people as they are, we make them worse.

If we treat people as they ought to be,

we help them become what they are capable of becoming.”

3.6 Assessments

It is essential that assessment be a part of the teaching and learning process in order to determine whether the educational objectives are being met or not (Nasab, 2015). In its simplest form, assessment is the process of determining a students’ current level of knowledge (Dietel *et al.*, 1991). There is a lack of understanding among students regarding what their teachers teach them. There would be no need for assessments if they fully understood what they were taught. No matter how teachers design and implement instruction, it is impossible to predict exactly what students will learn (Nasab, 2015). Therefore, assessment serves as a bridge between teaching and learning (Earl and Cousins, 1995; Stiggins and Assessment, 1997; Black and William, 1998; Nelson and Nelson, 2001; Nasab, 2015).

There is often confusion about what type of assessment to implement. Traditional assessments and Alternative assessments are both forms of evaluation in education (Belle, 1999; Dikli, 2003; Lustgarten, 2022). Teachers are working on developing excellent assessment methods that take into account all the skills and abilities of a student. A new method of assessment known as Alternative assessment has emerged as an alternative to the traditional, conventional approach to assessment (Alderson and Banerjee, 2002). Students can demonstrate creativity within an Alternative type of assessment (Lustgarten, 2022).

In most classrooms, traditional assessments include tests or quizzes, with multiple choice answers, true/false questions, short answers, and essays are some of the most common traditional assessments (Dikli, 2003; Nasab, 2015; Lustgarten, 2022).

The concept of alternative assessment has gained significant attention in the field of education in research years. Alternative assessment involves other methods of assessing students' progress, including group projects, research projects, ideas for demonstrating achievement, or other methods not commonly seen in classrooms (Lustgarten, 2022). The Traditional assessment method may be more effective for some, while Alternative assessment tools may provide superior insights into Learning (Dikli, 2003). Different ways and methods are used in assessments to collect information at different times and in different contexts (Law and Eckes, 1995). In terms of assessment and testing, there is a significant difference. The purpose of assessments is to gather information about what students know and can do, while tests are formal and often standardized. As a result, students receive exact instructions on how to administer and score tests. Traditional assessments are the best method for evaluating traditional teaching. Traditionally, education is based on presenting and reproducing facts, which cannot be directly assessed using Alternative assessments, which evaluate the application of the facts.

Tan's concept framework of alternative assessment offers a comprehensive analysis of different perspectives in alternative assessment, categorising them as conservative, pragmatic and progressive, as seen in Table 3 (Tan, 2012). A significant change in assessment practices is necessary to reap the potential benefits of alternative assessment practices (Tan, 2012). Among teachers, Alternative assessments are becoming increasingly popular. According to Tan (2012), alternative assessments can be conservative, pragmatic, or progressive.

Table 3: Tan's Concept of Alternative Assessment (2012)

	Conservative	Pragmatic	Progressive
Focus	Accepts the current situation.	Emphasises the effectiveness of evaluation.	Emphasises the sustainability of assessment.
Concept	Alternative assessments as a supplement or fun factor.	Alternative assessments as improvement of existing practices.	Alternative assessments as opposition to existing practice.
Application	Addition to existing practice without major significance to the subjects.	Addition to existing practice with important meaning for subjects.	Improving the assessment within and outside of school subjects.
Approach	Conformist: Acceptance of the current way of assessment and avoiding change	Conciliatory: Seeks to reconcile the different views of assessment and accepts a compromise.	Critical: Belief about the critical need for alternative assessment. Resists compromise.

Within Tan's Concept (Consult Table 3), Traditional assessment systems, such as written exams and oral exams, would be advocated by those following the conservative concept of Alternative assessments. Those who follow a conservative Alternative philosophy prepare students for success in external or internal summative examinations. Accordingly, Alternative assessment is considered useless, as it does not improve performance in the final exam. As far as Alternative assessment is concerned, Conservatives do not dispute its value, but they maintain that it can only serve as a supplement to existing practices.

A Pragmatic approach to Alternative Assessment emphasises the effectiveness of different assessment methods. With reference to Table 3, the goal of the Pragmatic approach is also to focus on the need for improvement in order for each student to achieve the desired outcomes. A Pragmatic teacher recognises that Traditional assessments have limitations. Alternative assessment is used to supplement traditional conservative practice.

According to pragmatic teachers, traditional and Alternative assessments complement each other. Developing alternative assessments emphasises the importance of realising educational achievements as the goal of the educational process, implying that achievements extend beyond the bounds of a subject and are sustainable and applicable beyond a school year.

Alternative assessment is viewed by Progressive teachers as an innovation that advances the profession. Those with progressive concepts point out that Traditional assessment is inadequate in evaluating student learning outcomes that can be applied in the future (Tan, 2012; Letina, 2015).

Various alternative assessments can be conducted, including assessing students' ability to solve open-type problems, students' self-assessments, student portfolio assessments, and coordinating and realizing individual and collaborative student projects. Recordings such as anecdotes, audio and video recordings, checklists, diaries, journal designs, and mind maps can also be used as alternative assessments.

Alternative assessments measure students' thinking and analysis skills, as well as their ability to apply knowledge to new situations and understand the relationship between contexts (Letina, 2015). A significant advantage of this Alternative method of assessment is the possibility of collecting a wide range of information about the students' understandings. In addition, Alternative assessments require the students to reason, describe, or explain their answers (Consult Table 3).

As seen in Table 2 below, alternative assessments encourage students to take responsibility for their own learning with these types of assessments, which are student-centered by stimulating students' cognitive and meta-cognitive abilities instead of merely reproducing facts, Alternative assessment helps students monitor their own learning process while developing critical thinking and metacognition skills (Wolf, Bixby, Glenn III and Gardner, 1991; Earl and Cousins, 1995; Stiggins and Assessment, 1997; Letina, 2015). Additionally, Alternative assessment implies a continuous and informal evaluation of the students' work. Alternative assessments require more time from teachers to design tasks that allow students to express an understanding of concepts rather than simply repeating information.(Consult Table 4).

Table 4: Comparison of philosophical beliefs and theoretical assumptions of alternative and traditional assessment (Anderson, 1998)

Traditional Assessment	Alternative Assessment
Assumes knowledge has a single (universally) consensual meaning	Assumes knowledge has multiple meanings
Treats learning as a passive process (emphasis is learning about something, rather than on learning how to do something).	Treats learning as an active process (the emphasis is on learning how to do something).
Separates the learning process from the final product (evaluate only the final product)	Emphasises the learning process and the final product of learning (taking into account what, why, and how students learn).
The focus is the use of pieces of information	The focus is on the research i.e. developing the ability to solve problems
Assumes the purpose of assessment is to document and monitor the student learning and to classify students by their scores	Assumes the purpose of the assessment is to facilitate learning
Students' cognitive, affective, and conative abilities are separate	Recognises a connection between the students' cognitive, affective, and conative abilities.
Embrace a hierarchical model of power and control (students do not participate in decision-making)	Embraces a shared model of power and control
Perceives learning as an individual enterprise	Perceives learning as a collaborative process

According to Brown and Knight (2012), assessments are an integral part of the student experience. The assessment process is also part of the learning process (Hernández, 2012). According to Hernández (2012), assessments are used to grade and report students' achievements, as well as to support their learning. As well as reporting on students' achievements, continuous assessments often provide support for them.

An assessment method called Continuous Assessment (CA), which is mostly formative, involves assessing all the outcomes of a module in various ways and providing feedback frequently and timely. Students' cumulative marks are determined by Continuous Assessments without formal summative university examinations (DUT, 2019).

According to Heywood (2000), in the United Kingdom and Ireland, Continuous Assessment predates the lexicon of formative or summative assessment. According to Trotter (2006), continuous assessment practices motivate students to learn continuously.

Previously in my practice, I was a conservative educator who thought alternative assessments simply added variety to the assessment process. It did not challenge or transform the existing paradigm of testing-centricity in any significant way. However, as I have delved deeper into my study and experienced the COVID-19 pandemic, I have come to appreciate the value of a more progressive and critical approach to alternative assessment (Janisch, Liu and Akrofi, 2007).

I concur with Tan and Mansory that for alternative assessment to be truly impactful, it must go beyond mere supplementation and instead challenge the fundamental assumptions and limitations of traditional assessment (Tan, 2012; Mansory, 2020). While adopting a pragmatic or conciliatory approach may make it easier to bridge the gap between different perspectives, I believe addressing the deeper systemic issues in education requires a more critical and transformative approach (Demir, Tananis and Trahan, 2019). It is my belief that educators can cultivate a learning environment that fosters authentic and meaningful Learning, as well as a holistic view of student progress and development, by embracing a progressive view of alternative assessment, as seen in Table 2. Overall, Tan's framework provides a valuable lens through which to examine alternative assessment perspectives. Although conservative and pragmatic approaches provide valuable insights, I believe the progressive approach has the greatest potential to enact meaningful change and to transform the assessment landscape in education (Shute, 2017; Majuddin, Khambari, Wong, Ghazali and Norowi, 2022).

In the past few decades, educational research and practice have been shaped by Bloom's Taxonomy, a framework for organising and evaluating learning objectives that has been widely accepted for many years (Anderson, 1999, 2005; Dwyer, Hogan and Stewart, 2014; Alammmary, 2021). This taxonomy in Figure. 5 identifies six levels of cognitive skills that range from lower-order thinking skills (remembering and understanding) to higher-order thinking skills (applying, analysing, evaluating, and creating) (Dwyer, Hogan and Stewart, 2014; Alammmary, 2021).

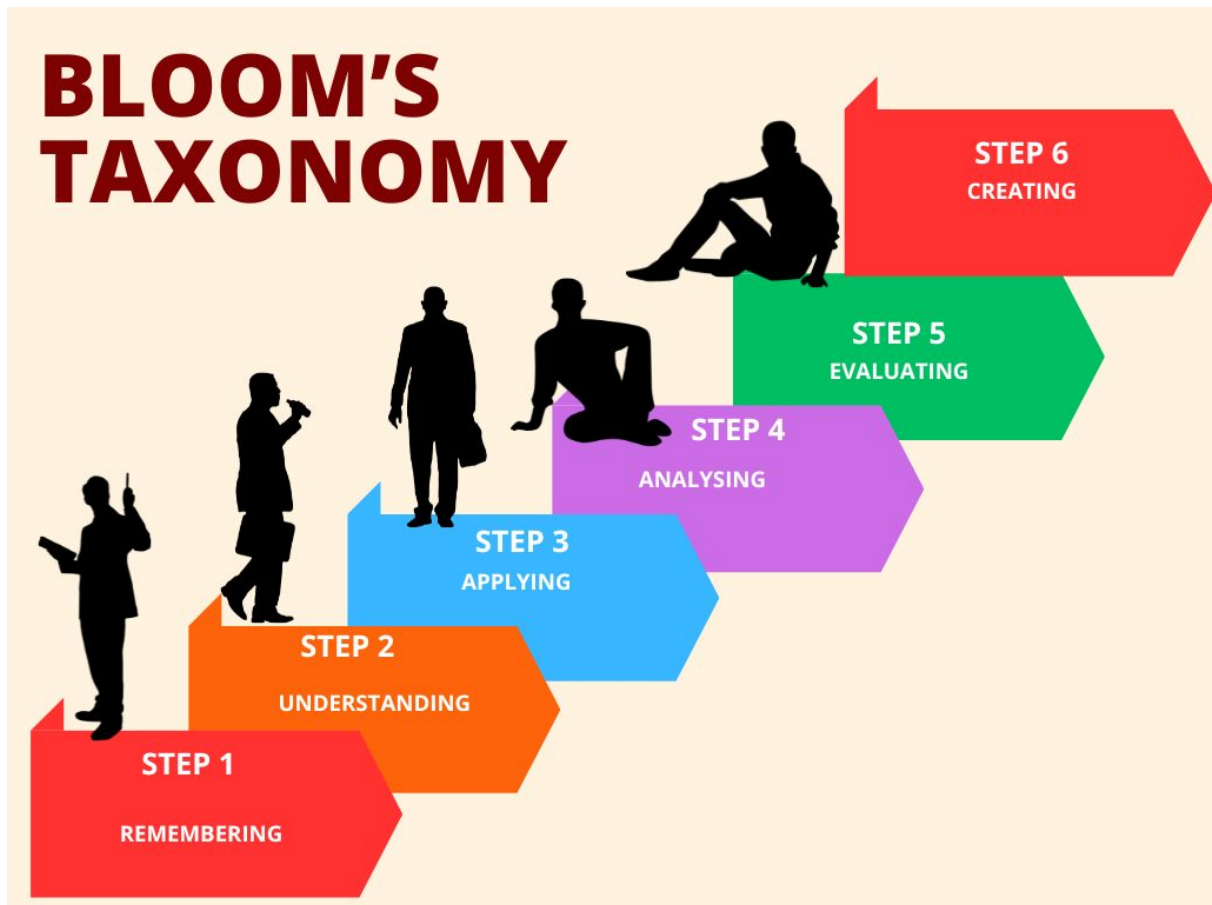


Figure 26: Bloom's Taxonomy

There has been a growing interest in higher-order thinking in recent years, as educators and researchers seek to cultivate the skills necessary for success in the 21st century. The Conceptual Framework of Progressive Alternative Learning, developed by Tan, offers a promising approach to nurturing these higher-order thinking skills (Dwyer, Hogan and Stewart, 2014). An important aspect of this framework is the emphasis on moving beyond traditional teacher-centred instruction and moving towards a more student-centered, inquiry-based learning environment (Dwyer, Hogan and Stewart, 2014). I believe the inclusion of Bloom's Taxonomy and Tan's conceptual framework can form the foundation for the design and implementation of effective instruction as developed in my Whole-Being-Learning Teaching and Assessments.

3.7 Values-Based Professional Nursing

"Nursing is founded on caring for life." (Martinsen, 2021). Nursing is founded on compassion, care, and respect for the weak and suffering (Hem and Heggen, 2004). As listed in the Nursing Handbook (*The Nursing Handbook*, 2023), the Department of Nursing values (Consult Table 5 and Figure. 27 below).

Table 5: DUT Nursing Department Values (The inter-connectedness of the 5-Cs. Nursing Department Handbook, 2022)

Values	Description
Competence	To practice within the educational and professional frameworks and standards.
Commitment	To be accountable and responsible. To have integrity and autonomy. To be a lifelong learner.
Communication	Assertive, respectful, and transparent.
Compassion	To care, do no harm, and have empathy and humility.
Courage	To think critically, act courageously, and advocate.

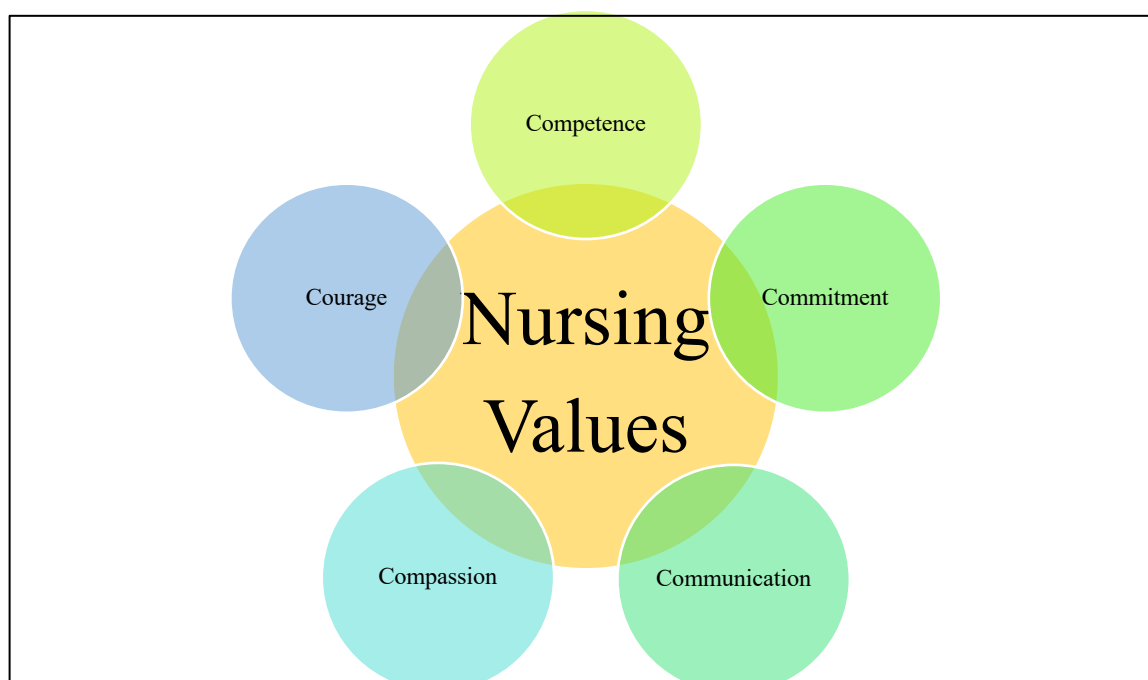


Figure 27: Nursing Values

Lovat and Toomey (2009) note that “Values-Based Education reflects good practice pedagogy.” Values-based education is seen as influencing a narrowly defined moral or citizenship agenda; it is at the centre of all that a committed teacher and school could hope to achieve through teaching (Lovat and Toomey, 2009). Values-based education is regarded as the missing link between excellent and poor-quality teaching.

A description of the values can be found in Table 6 below and Figure 27 above, as described by Lovat and Toomey (2009)

Table 6: Values and Descriptions

Values	Descriptions
Caring	Caring for oneself and others (society, patients)
Honesty	Be truthful always and be sincere in your approach to seeking the truth.
Accountability	Behave in a manner that equals principles of morals and ethical conduct. Be consistent in your actions.
Responsibility	Be accountable for your actions. Always try to find a resolution in an amicable, peaceful way. Contribute positively in a non-violent way in dealing with your peers, colleagues, and patients.
Transparency	Be open and approachable to others and their differences. Be aware of your diversities as well as your patients.
Love	Respect your peers, respect your colleagues, and respect your patients. Show affection for what you are doing
Being creative	Be imaginative, inventive, and resourceful.

Lovat and Toomey (2009) believe that Values-Based Education builds students’ social skills and resilience. In addition, the fundamental component of Values-Based Education in nursing

is the understanding that professional values (Figure 6) play a significant role in delivering high-quality, ethical nursing care (Bimray, Chipps and Ticha, 2023).

3.8 Philosophy of Teaching and Learning

Chonko (2007) stated that after thirty-one years of teaching, a student asked him: “Why are you teaching?” The question took him on a journey of self-introspection that forced him to focus on the question, “Do teachers need a philosophy of learning?”

Chonko’s (2007) study cited in, (Brookfield, 2015), illustrates that four primary purposes are characterized by a teaching philosophy in the skilful teacher. Having a personal teaching philosophy serves four purposes.

First, a teaching philosophy serves a personal purpose: “A distinctive organizing vision- a clear picture of why you are doing what you are doing. At points of crisis, personal teaching philosophy is crucial for one’s personality, sanity, and morale” (Chonko, 2007: 111);

Second, a teaching philosophy also serves a political purpose. It affords “a sense that your position is grounded in a well-developed carefully conceived philosophy of practice. You are more likely to gain respect for your thoughtfulness and commitment, which is important for your self-esteem and for your political survival” (Chonko, 2007: 111);

Third, a teaching philosophy serves a professional purpose. “A commitment to a shared rationale for teaching is important for the development of a collective identity and hence, for the development of professional strengths among teachers” (Chonko, 2007: 111);

Fourth, a teaching philosophy serves a pedagogical purpose. “Teaching is about making some dent in the world so that the world is different from before you practiced your craft. Knowing what kind of dent, you want to make in the world means you must continually ask yourself the most fundamental evaluative questions of all what effect am I having on students and their learning?” (Chonko, 2007: 111).

Fung (2005) recognises the importance of values and reflections in practice and maintains that philosophy includes values and the personal involvement of the teachers’ knowledge, mind, feelings, and actions. As an educator of higher education, I have indicated in Chapter One my philosophy of teaching and learning. I have passionately nurtured the goals of improving my

practice by improving my teaching, learning, and assessments by following the Living Theory Educational Research Framework.

3.9 Reflective Practice and Action Research

Over the past 60 years, the educational community has taken an interest in Reflective Practice and Action Research (Leitch and Day, 2000). Professional development of teachers is seen as critical to both dimensions in their various forms. Although both received academic attention in the 1930s and 1940s (Dewey, 1933; Lewin, 1946). Stenhouse's (1975), notion of the teacher researcher educational action research began to be reformulated in Britain as a process which holds different types of reflection at its centre (Carr, 1994).

Leitch and Day (2000) believe that “Reflective Practice” and “Action Research” are the most influential concepts that have influenced the education community in the last sixty years. Dewey and Zugsmith (1933), cited in Leitch and Day (2000), believe that reflection can be identified as a process or action essential to developing practices. Loughran and Russell (2002) believe that it is imperative that reflection can be seen or identified as a thoughtful and deliberate act of thinking, which will cause a reaction to a problem, or how one will respond to a problem. These concepts have been identified as tools for the professional development of teachers.

Reflective thinking can be applied to problem solving before action and after action (Dewey and Zugsmith, 1933; Schön, 1983). Schön (1983) identified, reflection-in-action and reflection-on-action. Reflection-in-action focuses on the process of thinking during the practice, which can cause a continuous modification of an ongoing practice that allows for learning to occur (Leitch and Day, 2000). However, reflection-on-action is seen as the “teacher’s thoughtful consideration and retrospective analysis of their performance to gain knowledge from experience (Leitch and Day, 2000). Schön (2017) commented that “when someone reflects in action, s/he becomes a researcher in the practice context. S/He is not dependent on the categories of established theory and technique but constructs a new theory of the unique case.”

Zeichner (1993) notes that critical reflection theorising has since broadened Schön’s models by including “reflection-about-action.” Reflection-about-action is a means of certifying that teachers reflect on social and economic purposes and conditions related to teaching and learning, including the classroom context.

“The positive mind no longer asks ‘why’ and ceases to speculate on the hidden nature of things. It asks ‘how’ phenomena arise and ‘what’ course they take, it collects facts and is ready to submit to facts, it subjects thinking to the continuous control of ‘objective facts’ (Kolakowski, 1972), cited in Carr (1994). Carr (1994), describes how Action Research first came into importance in America through the work of Kurt Lewin in the 1940’s. In addition, Lewin noted that social problems cannot be effectively solved without developing theory and practice simultaneously, hence Action Research. Action Research resurfaced in Britain in the 1970s. Carr (1994) advocated Action Research as a means of clarifying and developing teachers' educational values through systematic reflection on their classroom practices.

Rather than offering theories, reflexive action research proposes to critically analyse the theories of common sense and professional expertise in the context of practice, within which they are situated. As a result, action research proposes moving 'beyond' theories, which prescribe and justify interpretative bases for action, toward a reflexive understanding of dialectics that engender mutuality while transforming them. (Dewey and Zugsmith, 1933; Winter and Burroughs, 1989), as cited in (Carr, 1994).

McNiff (2017) notes that everyone can investigate and evaluate their work through Action Research, which is a practical form of inquiry. The following sets of questions were used by McNiff (2017) as a means of conducting Action Research:

The question they ask is “What am I doing?”?

Is there anything I need to improve?

What should be done if so? What can I do to improve it?

What is the purpose of improving it?

McNiff (2017) explains that Action Researchers develop accounts of practice to demonstrate that: it is important for them to first think about how to learn and improve what they do to improve everything they do in doing so, they can give meaning to their lives and to their work in what ways they try to influence others to follow their lead.

This has led to an increase in the popularity of Action Research around the world. The process involves identifying a particular concern, attempting a new method, gathering, analysing, and interpreting data over a period, reflecting on the results, and communicating them with others.

In light of your reflections, you may or may not attempt a different approach that may or may not prove effective (McNiff, 2017) (Table 7).

Table 7 Original Action Research Framework (McNiff and Whitehead (2006) and two adaptations: McNiff (2010) and Timm (2013)

McNiff & Whitehead (2006)	McNiff (2010)	Timm (2013)
What really matters to me?		1. What really matters to me? What do I care passionately about? What kind of differences do I want to make in the world?
What do I care passionately about?		2. and why?
What kind of difference do I want to make in the world?		3. What is my concern? Why am I concerned?
What are my values and why?		4. What evidence do I have for my concern?
What is my concern?	1. What is my concern?	5. What have I done about my concern?
Why am I concerned?	2. Why am I concerned?	6. How did theology influence my whole-being-learning of Christian Spirituality? What evidence can I present of this influence? What influence can I present of my impact on the Christian spirituality of others?
What kind of experiences can I describe to show the reasons for my concern?	3. How do I show the situation as it develops as I take action	7. How did participating in liturgical dance influence my whole-being learning? What evidence can I present of this influence? What evidence can I present of my influence on the Christian spirituality of others?
What can I do about it?	4. What can I do?	8. How did participating in floral arranging influence my whole-being-learning of Christian Spirituality? What evidence can I present of this influence? What evidence can I present of my influence on the Christian spirituality of others?
What will I do about it?	5. What will I do?	9. How did I use Bible Studies to influence the whole-being learning of Christian Spirituality of others? What evidence can I present of this influence? What evidence can I present of my influence on the Christian spirituality of others?
How do I evaluate the educational	6. How do I generate evidence from the data?	10. How did I use Quiet Days to influence the whole-being learning of Christian Spirituality of others? What evidence can I

influences of my actions?		present of this influence? What evidence can I present of my influence on the Christian spirituality of others?
How do I modify my concerns, ideas, and actions in the light of my evaluation?	7. How do I check that any conclusions I come to are reasonably fair and accurate?	11. What do I see as future explorations following on my study?
	8. How do I explain the significance of my action research?	
	9. How do I modify my ideas and practices in light of my evaluation?	

3.10 Reflective Practice and Action Research in Professional Nursing Practice (Application)

John Dewey (1933) defines reflection as the active, persistent, and careful examination of any belief or so-called knowledge, considering the reasons and consequences associated with it cited in (Cotton, 2001). Schön (1987) supports Dewey's conceptualization of reflection, arguing that it is an important learning strategy that enables professionals to recognize their implicit knowledge.

Johns (2011) defines reflection in nursing as a window through which an individual practitioner can see and focus on their own lived experience in such a way that they can confront, understand, and resolve their contradictions as practitioners. Nursing education has welcomed Reflective Practice with open arms (Duffy, 2007). Reflection remains an interesting concept due to its influence on education and practice throughout the world, according to growing evidence in the nursing literature (Galutira, 2018). Based on strong interpretive and phenomenological philosophical roots, Reflective Practice is a middle-range nursing theory (Galutira, 2018). During nursing practice, reflection is a form of knowledge that emerges from subjective, explanation, and contextual experiences. The purpose of reflection is to help individuals become aware of the contradictions between what they would like to do in practice and what they actually do in practice (Driscoll and Teh, 2001). Galutira (2018) further concluded that Professional Nursing Practice is ultimately advanced through Reflective Practice. The authors Driscoll and Teh (2001) argue that reflection goes beyond just thinking

and is a practice-based learning process that seeks to improve future clinical actions by reflecting upon past experiences.

According to Holter and Schwartz-Barcott (1993), there has been an increasing popularity of Action Research across a wide range of disciplines, including nursing. A key characteristic of Action Research is that it focuses on bridging the gap between theory, research, and practice by incorporating both humanistic and naturalistic scientific methods. Consequently, Action Research is an extremely compelling nursing method. Munten, Van Den Bogaard, Cox, Garretsen and Bongers (2010) describe Action Researchers as individuals who wish to gather knowledge about a particular situation while making improvements during investigations.

3.11 Self-Study Research

In the words of Samaras (2013) “If I wanted discussion in the arts and humanities classroom to be different, I would first have to know myself better as a teacher; and from there, transformation must take place from the inside out”.

As Samaras (2010) suggests, Self-Study research can help transform teaching by providing new insights into one’s practice. According to Hiralaal (2018) studying your practice through self-study allows you to reinvent yourself and, in so doing, improve not only your pedagogic practice but your imagination as well.

Mitchell and Weber’s 1999 study cited in (Whitehead, 2018) found that in order to transform oneself and grow professionally, reinvention through self-study can be highly effective and powerful. We can strengthen or weaken hidden parts of ourselves by incorporating certain ignored elements into our professional identity or by imagining a different image of ourselves in action. As a teacher, its ability to bring home painful or beautiful truths can be incredibly motivating, as it can help us appreciate and even create our most meaningful moments. It is not always necessary to make major changes to study ourselves. Sometimes it is sufficient to revalue what is already there and use it in new ways that are informed by social and personal factors.

Self-Study research is fundamental for researchers to explore, improve their practice, and contribute to the scholarships of professional learning and one’s own development, as stated by Berry and Russell (2014) cited in (Pithouse-Morgan, Coia, Taylor and Samaras, 2016a). During the early 1990s, teachers who began their work in practitioner enquiry began to develop Self-

Study research methodology. Self-Study research allowed researchers to understand better the connection between their personal learning histories, cultures, and professional practices. They also develop self-understanding personally and professionally by investigating their practices with peers and ultimately improve their professional practice.

Whitehead, Delong, Huxtable, Campbell, Griffin and Mounter (2020) ask, "Why bother with Self-Study research?" As teachers strive to improve their practices, they can draw upon the theories of psychologists, sociologists, and others concerned with education. According to Whitehead *et al.* (2020), Self-Study research is a crucial element of classroom instruction and professional responsibility for teachers. Teachers must undertake Self-Study research so that they can create an energising and life-affirming learning environment where students can thrive instead of just survive. In addition, Whitehead *et al.* (2020) explain that the point of Self-Study research is not to boost one's ego but to explore one's own involvement in teaching and learning that contributes to personal and professional knowledge bases.

Berry and Russell (2014), as cited in Pithouse-Morgan *et al.* (2016a), discuss the importance of Self-Study research in developing and growing professional practice and for contributing to the scholarship of professional learning and development. Samaras, Karczmarczyk, Smith, Woodville, Harmon, Nasser, Parsons, Smith, Borne and Constantine (2014) cited in (Pithouse-Morgan, Coia, Taylor and Samaras, 2016b), state that Self-Study research involves vulnerability and confidence because it challenges scholars on a personal level and prompts a heightened awareness of the 'messiness, uncertainties, complexities and elisions' of professional practice. I used Self-Study in my research to understand and improve my practice by focusing on the details of Alternative Assessments that I designed and used to assess my students' assignments.

3.12 Autoethnography

A researcher using Autoethnography's tenets combines Autobiography and Ethnography to write an Autoethnography (Ellis, Adams and Bochner, 2011). As described by Luitel (2003), Autoethnography is derived from three words: *auto-* (self), *-ethno-* (nation, people or culture) and *-graphy* (writing, describing or recording), defining the significance of a person's personal experience in relation to his or her social, political, economic and cultural context.

As cited by (Jones, 2008) Autoethnography is described by various authors as follows: The study of research, writing, and methods that link the autobiographical and personal to the cultural and social. There is usually concrete, action, emotion, embodiment, self-consciousness,

and introspection in this form of writing which claims to follow the convention of literary writing (Ellis, 2004a).

Autoethnography describes the relationship between oneself and other individuals within social contexts (Spry, 2001) in texts that seek to democratize culture's representational sphere by exposing the contrasting experiences of individuals to dominant expressions of power. (Neuman, 1996)

In Autoethnography, personal experience is described and systematically analysed in order to obtain a better understanding of societal experiences (Ellis, Adams and Bochner, 2011). Traditionally, Autoethnography involves the author writing in the first person, making them the subject of research (Belbase, Luitel and Taylor, 2008). Due to this, there is no longer a separation between researcher and subject.

Over time, however, scholars across a wider range of disciplines started to think that social science would be a more literary discipline than a scientific one. In opposition to pretending to be value-free, they believed if they offered stories over theories and were self-consciously value-centered, the results would be different (Bochner, 1994).

Autoethnography was frequently used by scholars seeking to respond to critiques of conventional notions of what research is and how it should be conducted. Specifically, they focused on the creation of evocative, meaningful, and accessible research. Thus, creating awareness of issues of identity politics, of experience shrouded in silence, and of forms of representation that undermine our ability to empathize with those who are different from us through research (Ellis and Bochner, 2000). In autoethnography, subjectivity, emotion, and the researcher's influence on research are acknowledged and accommodated, rather than displaced or ignored (Ellis, Adams and Bochner, 2011).

The process of autoethnography expands and opens up a broader perspective. Using autoethnography, it is possible to eschew rigid definitions of what constitutes useful and meaningful research. In this manner, we also gain insight into how what we study, how we study, and what we say about our topic are influenced by who we claim, or how we are perceived (Adams, 2005; Wood and Fixmer-Oraiz, 2018).

Autoethnography as a methodology combines the characteristics of an autobiography and an ethnology (Ellis, Adams and Bochner, 2011). The use of auto-ethnography prompts the use of

the cultural “I” (Timm, 2013). I used Autoethnography (in Chapter 4) in my research to focus on my personal lived experience of my Vales-Based Whole-Being upbringing. This was important as it provided me the opportunity to frame my Values-Based Whole-Being upbringing in a scholarly way without de-humanising it in any way.

3.13 Action Research Living Educational Theory

Since this is a Living Educational Theory thesis, perhaps I should begin by defining Living Educational Theory (or living theory). Considering that Whitehead originated the Living Educational Theory, I want to use his words to clarify my meanings initially: ‘I use the idea of living theories (Whitehead, 1989) to distinguish the explanations of action researchers from the general explanations in propositional theories that dominate the refereed international journals. I am thinking particularly of living theories that are constituted by the unique explanations of action researchers of their educational influences in learning. In propositional theories, explanations for the actions and learnings of individuals are derived from conceptual abstractions of relations between propositions. In living theories individuals generate their own explanations of their educational influences in their own learning. The explanatory principles in living-educational-theory explanations are energy-flowing values embodied and expressed in practice.’ (Whitehead, 2009a: 85-86)

Whitehead’s (2008, 2017b) approach is based on a Living Educational Theories approach for improving practice and building on knowledge by asking the questions with the intention of self-reflection, “How do I improve what I am doing?” He believes that the Living Educational Theory is about embodying values in practice. According to Whitehead (2009b, 2022), a living theory is an explanation offered by an individual regarding their educational inspiration in their learning, in the learning of others, and the learning of the social establishment in which they live and work.

“Why Living Theory?” asks Whitehead *et al.* (2020). Professional teachers are continually researching their practices, which differentiates them from other teachers. As a means of improving their own and students' education and contributing to the evolution of educational knowledge, they must improve their educational influences. Through critically engaging with knowledge from others, teachers can integrate insights into their own practice. In addition to holding themselves accountable by adding their validated knowledge to an educational knowledge base, teachers can share their knowledge with their colleagues. Researchers using

Living Educational Theory generate evidence-based explanations of educational influence in learning, which makes it different from forms of Self-Study (Whitehead *et al.*, 2020).

Research on the Living Educational Theory describes the ‘I’ as a living contradiction. Asking: ‘How can I improve what I am doing?’ is indicative of this type of inquiry. It has frequently been our practice to use action reflection cycles to help us advance when we do not live our values in our practice (Whitehead *et al.*, 2020). In an action plan, we imagine ways forward and decide on one for action. Our actions and data are gathered to enable us to judge whether our actions are making a difference in living out our values as fully as possible. By evaluating our actions, we evaluate their educational impact. Another of the distinguishing characteristics of our living theory.

Action researchers can generate their own distinctive descriptions of their influences as they explore the effects of asking, researching, and answering the question, “How can I improve what I am doing?” (Whitehead, 1989: 41-52; 2017a). Whitehead alludes to educational action researchers as “hope carriers” who sustain and help their communities flourish by generating educational values in learning that they find in their own practices. Whitehead (2017b) believes this is what separates Educational Action Research from other action research, such as Social Action Research. He goes on to explain that we, as Action Researchers, need to be accountable for our Living Educational Values. In this way, we can account for ourselves and our practices by sharing our enquiries and values in public forums.

To summarise my writings, I now use capital to distinguish Living Educational Theory Research from an individual's living education theory. Living Theory research involves the researcher evolving their understanding of their educational influence as they work to improve their values-based practice. My living-theory account includes narratives and explanations of what I have done to enhance my educational influence (Consult Chapter 7).

3.14 Blended Learning

Garrison and Kanuka (2004) and Ellis (2004b) record the Blended Learning program as an integration of face-to-face classes with online classes. Blended Learning can be identified as a mixture of instructional methods (Driscoll, 2002). In higher education, this type of learning can help redefine the institution to be more learning-centred and student-focused.

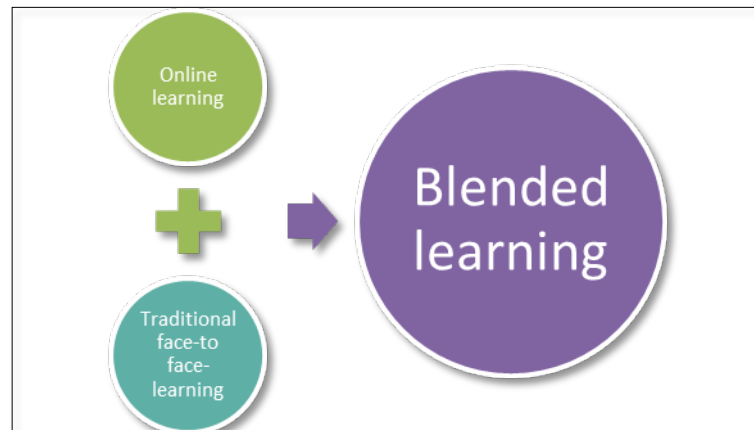


Figure 28: Blended Learning Environment (*Tayebinik and Puteh, 2013*)

Bonk, Kim and Zeng (2005) provided three mutual explanations of blended learning. First, Blended Learning is an amalgamation of instructional modalities (or delivery media). Second, Blended learning has a variety of instructional methods. Third, Blended Learning is a combination of online and face-to-face methods, as seen in Figure. 9, above (mainly accepted by scholars (Bonk, Kim and Zeng, 2005; Picciano, 2006; Collis and Moonen, 2012).

Picciano (2006) identified two essential elements in defining blended learning: online and face-to-face teaching, as in Figure 28 above. However, Collis and Moonen (2002) define Blended Learning, as “a hybrid of traditional face-to-face and online learning so that instruction occurs both in the classroom and online. The online component becomes a natural extension of traditional classroom learning” (Consult Figure 28).

It has been argued that Blended Learning can address essential needs such as communication and human interaction between students and lecturers, according to (Bliuc, Goodyear and Ellis, 2007). Blended Learning is imperative as it permits opportunities to address students ‘needs (Rovai and Jordan, 2004). According to (Oh and Park, 2009) Blended Learning is crucial because it allows students to access information flexibly. According to (Davis and Fill, 2007), Blended Learning can improve students' learning experiences.

At DUT online teaching began with a blended approach. The DUT online platform was cultivated through communities of practice for more than ten years (Peté and Fregona, 2004; Hiralaal, 2013). Professor Graham Stewart was charged with fulfilling the then-Vice Chancellor’s goal of placing at least 50% of the courses offered at DUT online by January 2015

(partly classroom-based, partly online). In addition, in 2012, DUT Executive Management committed to rolling out and building an infrastructure for e-Learning so that teaching and learning could be blended, incorporating both face-to-face and online education (Coopasami, 2014). Despite these measures, the COVID-19 pandemic caught teachers and learners off guard (Cahapay, 2020).

3.15 Conclusion

The chapter was structured as a literature review and provided a theoretical framework. Relevant concepts and theories addressed in the chapter clarify how important Whole-Being Learning is and why transforming my practice is essential, especially during the COVID-19 pandemic. The relevant literature was reviewed in a reflective manner; by engaging with the literature, I constructed my own meaning. In my practice, I use all of the constructed information as I continue with Action Research.

This chapter provides the theoretical foundation for the action research self-study design using the Living Educational Theory Framework, which will be discussed in the next chapter. The next chapter addresses all the methodological strategies adopted for the study in detail.

CHAPTER FOUR

METHODOLOGY, METHODS AND MEDIA

“The secret of life
is to fall seven times
and get up eight times.”

Paulo Coelho 2012

4.1 Introduction

This chapter is entitled Methodology, Methods, and Media. As part of this research, I introduce the meanings that method and media portray. Methods have two meanings in this study: It refers to the methods of assessments and pedagogical strategy I developed to improve my students' learning. The other meaning refers to the research methods I used to generate data on my students' learning and my own learning. I used Media in the following way: to communicate with students. I use the media to gather data for various purposes, such as evidence to support my claims that I have an educational influence on my learning and the learning of my students. I also use Media to provide me with the ability to explain my educational influence on the learning of my students based on the values I used to evaluate the educational influence I am having and the use of these principles as explanatory principles as a framework for explaining how my education has influenced my own learning, that of my students, as well as that of DUT, the social formation that informs the practice I engage in.

4.1 Type of Research

Methodologically, this study is a Qualitative inquiry into Educational Practice in the field of Health Sciences.

4.2 Methodology

As part of my efforts to develop my values-laden living theory and transform my practice, I utilise Living Educational Theory Research as a conceptual framework. In order to understand and transform the world in which I live and work, I conducted a living theory of my professional practice (Whitehead, 2012). By using self-study action research, I was able to make claims

about my understanding of my own learning and teaching, as well as that of my students (Samaras, 2010; Pithouse-Morgan *et al.*, 2016a; Hiralaal, 2018). In order for my explanations to be clearer, I engage in critical autoethnography (Ellis; Ellis and Bochner, 2000; Ellis, 2004b, 2004a; Ellis, Adams, and Bochner, 2011). In this chapter, I answer the next question in the Action Research Framework (Consult Chapter 1 Table 1), what evidence do I have of my intentions, actions and interventions?- (how can I show my practice as it is and as it changes?)

4.3 The aim and objectives of this study

The aim of this study, as mentioned in Chapter 1, was to conduct a critical self-reflection on the impact of my teaching and assessment practices on the academic performance and security of nursing students registered for Anatomy and Physiology in the Department of Nursing in the Faculty of Health Sciences, DUT, with specific reference to the subject being ‘at-risk’. In this study, I set 3 phases of traditional tests, examinations, and continuous assessments, each assessed against a marking memorandum.

In addition, I designed 19 W-B-L-T-a-A-A assignments that were assessed using alternative professional assessment practices and relevant assessment rubrics (Consult Figure 29). I engaged with my students after each phase with an online focus group interview during Phases 1 and 2 and an in-person interaction in Phase 3, which focused on the students’ concerns about their studies operating under Lockdown (Appendix D: TLSA).

The first objective of the study was to critically self-reflect on my current perceptions, expectations, and practice of teaching, with specific reference to the teaching of Anatomy and Physiology.

The Second Objective of my study was to evaluate the perceptions, expectations, and academic outcomes of the ‘at-risk’ subject Anatomy and Physiology among first- and second-year professional nursing students in the Department of Nursing at DUT Faculty of Health Sciences.

The Third Objective of my study was to implement and evaluate the impact of Whole-Being-Learning Teaching and Alternative Assessment (W-B-L-T-a-A-A) practices on the academic security and performance of nursing students studying the ‘at-risk’ subject, Anatomy and Physiology.

4.4 Research Methods

4.4.1 The Study Population

The study population of this research enquiry included all the Bachelor of Health Sciences in Nursing (BHSc) students registered for a course in Anatomy and Physiology at Durban University of Technology (DUT) during 2020/2021 (N=100).

Ideally, pre-COVID-19, any 'at-risk' subject would have been identified early in the semester after the students wrote the first Anatomy and Physiology test. Students who received 50% or less for their first assessment would have been identified as needing extra assistance.

When the COVID-19 Pandemic and the consequent Lockdown occurred in March 2020, DUT suddenly transitioned from blended multimodal learning and assessment to fully online learning and assessment. This put all the students 'at-risk' of failing the semester. To avoid disadvantages for any Anatomy and Physiology students, I decided that all students enrolled in Anatomy and Physiology should be included in my study. All students who agreed to participate in the study were given an informed consent form to sign (Appendix M).

The most significant of these changes in my professional educational practice was the switch from in-person (I-P) teaching, learning, and assessment interactions to online (O-L) interactions with my students. From the outset, I considered it imperative that my students and I had Focus Group Interactions after each phase of assessments, whether traditional or alternative. I considered these interactions necessary to fill the gap created by the Lockdown of in-person daily contact and interaction.

My intent to use action research as one of the principal research methodologies was a testament to the adaptability of our research. I saw significant value in focusing on Whole-Being-Learning, Teaching and Alternative Assessment (W-B-L-T-a-A-A) methods because of their broad and inclusive pedagogical nature. This adaptability was further demonstrated in our use of 'Methodological Inventiveness', first introduced by Marion Dadds and Susan Hart (Dadds, Hart and Crotty, 2001; Dadds and Hart, 2002; Hart, 2002), to accommodate Action Research using W-B-L-T-a-A-A.

Dadds, Hart and Crotty (2001); Dadds and Hart (2002), define "methodological inventiveness" as the ability to generate, represent, and analyse data in novel ways that push the boundaries of

what counts as evidence for generating new knowledge (Pithouse-Morgan, 2020; Pithouse-Morgan, Pillay, Naicker and Masinga, 2020).

I applied “methodological inventiveness” (Dadds, Hart and Crotty, 2001; Dadds and Hart, 2002) within my use of action research methodology. I refer to the action research movement as ‘Phases’. In light of using W-B-L-T-a-A-A as a method to generate data from one phase of its own wholeness to the next phase of its own wholeness. There were three phases in total, with stages of assessments appearing in each Phase, as seen in Figure. 1 of Chapter 1 and Figure 29 below. A more detailed table is provided in Appendix C.

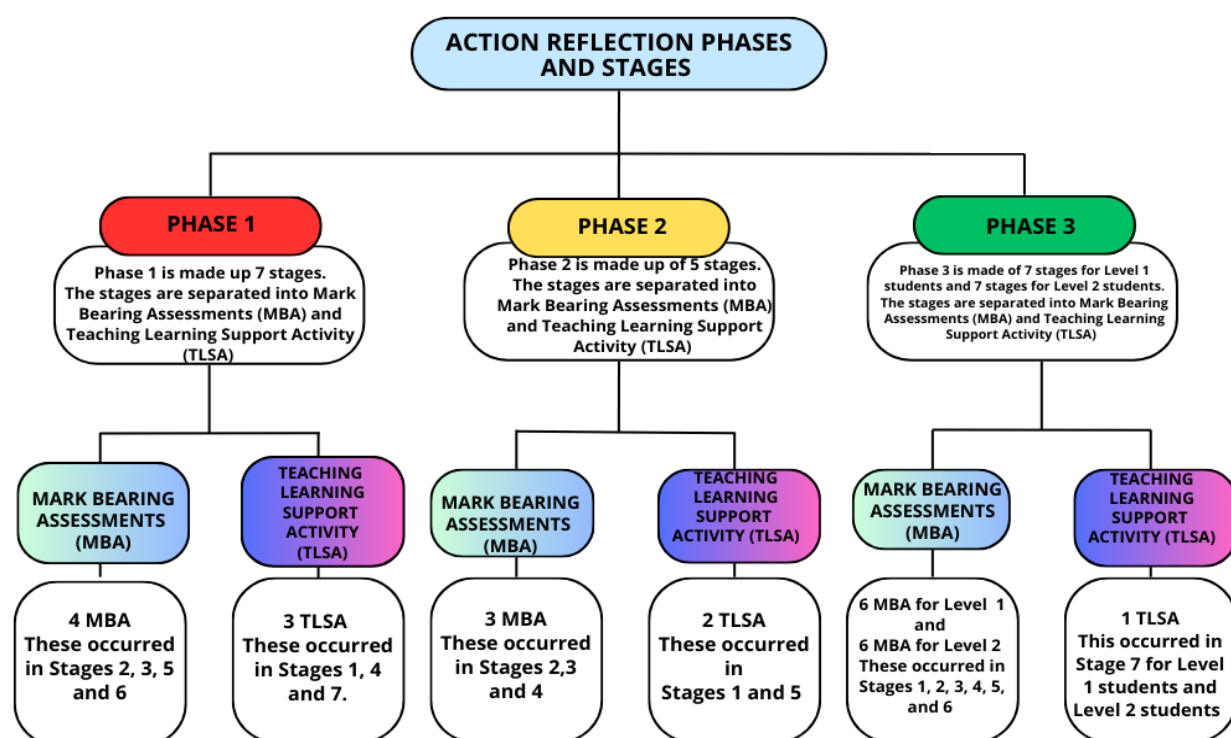


Figure 29: Action reflection Phases and Stages

In addition, the stages were divided into Mark Bearing Assessments (MBA), as seen in Figure 29 above. Appendix C provides a more detailed description of Mark Bearing's assessment, and Appendix D provides a more detailed description of Teaching and Learning Support Activities (TLSA).

I have used Action Research inventively to generate data in stages, which yielded evidence that W-B-L-T-a-A helped improve my practice and my students' academic performance and security. I am pleased to observe that this 'methodological inventiveness' has served my study well, as I will demonstrate in the chapters that follow.

Earl and Cousins (1995), Stiggins and Assessment (1997), Black and Wiliam (1998), Nelson and Nelson (2001), and Nasab (2015) agree that assessment serves as the bridge between teaching and learning. Therefore, I needed to create relevant and appropriate Assessment Methods for the Whole-Being Learners that I hoped my Whole-Being-Learning-Teaching professional practice was developing.

4.4.2 Traditional and Alternative Assessment Methods (T-a-A-A)

I used traditional methods of assessment, such as tests, exams, and continuous assessments, to establish the students' subject knowledge and encourage their independence and confidence. All individual tests and examinations were designed to demonstrate the students' understanding of the facts pertaining to the subject matter either orally or in writing. These tests and examinations required that students provide:

- One-word answers.
- Definitions,
- True/False identifications,
- Multiple-choice tests and/or
- Concise answers.

Such tests and examinations were relatively easy to design, quick to administer, and easy to mark using the Marking Memoranda, which I designed specifically for each individual assessment.

Guided by Bloom's Taxonomy (Consult Chapter 3, Figure 26) and Tan's conceptual framework (2012), I found that designing Whole-Being-Learning assignments and the relevant rubrics for Alternative Assessments was much more challenging and required more imagination, creativity, and time than the traditional assessments. That notwithstanding, I thoroughly enjoyed being inventive while designing the assignments for Alternative Assessments.

I used Alternative assessments to measure not only the relevant subject knowledge but also assessed the students' uses and applications of the relevant knowledge. Alternative Assessments required that students demonstrate that they could use their knowledge appropriately in a range of socio-cultural and professional situations. So Alternative Assignments were either individually performed or in small groups, ranging from pairs to five, which demonstrated students' relevant professional and socio-cultural skills, attitudes, and conduct. Alternative Assignments also required the use of a broad spectrum of different communication media. In addition to speaking and writing, students were required to use technology, such as PowerPoint presentations, drawing, painting, acting, dancing, singing, and writing poetry. They also built functioning models and explained how the models had been built and demonstrated how they worked. The students also designed games and explained the rules and aims of the games, and demonstrated on video how the games were played, and scored. These group scores were added to each students' semester records. In addition, the individual marks they were each awarded for their personal assignment efforts. The students also designed and explained diagrams and how they went about solving problems, both individually and in groups.

In addition, the nature of each assignment assessment demanded that I provide a detailed rubric for each aspect of the assessment. So, for Alternative Assessments, I designed a number of rubrics which accounted for the different aspects of each assessment. These included a rubric for each of the following:

- the subject matter,
- the media used,
- a detailed explanation of processes and proceedings,
- and the use of socio-cultural aspects such as sensitivity, awareness, and engagement with appropriate values.

Designing, managing, and assessing these assignments/ projects was extremely time-consuming and required careful attention to a variety of fine details. However, I considered the time and effort I spent on this process effective in helping students improve their academic performance and security. In addition, these exercises rewarded me with valuable and useful professional and personal insights.

4.5 Data Generation During Lockdown

4.5.1 Online Teaching

Due to the COVID-19 Pandemic and the Lockdown, I could not access the Anatomy Laboratory in the normal way. Therefore, I supplemented my online teaching of Anatomy and Physiology with interactive videos I found on YouTube.

4.5.2 Durations of Phases

The collection of data occurred over three phases:

1. Phase One in July 2020-November 2020,
2. Phase Two in September 2020-January 2021,
3. and Phase Three in May 2021-June 2021.

I have recorded a summary of the dates and assessment details of the data-gathering process in the table in an appendix to the thesis-Activity Schedule (Appendix C: Mark Bearing Assessments and Appendix D: Teaching Learning and Support Assessments).

As a consequence of the spread of COVID-19 around the world, Mukhtar, Javed, Arooj and Sethi (2020) noted that the manner in which traditional offerings and classes were conducted had to be modified. The manner of conducting research was also affected.

4.5.3 Changes in Teaching and Learning -Media

During Phase One, the semester started as normal with in-person teaching at the university. However, because the Anatomy and Physiology course was being offered in a blended way, we used both in-person and online teaching before the onset of the COVID-19 pandemic.

However, with the onset of the COVID-19 virus Pandemic, educational institutions such as ours had to be locked down. This meant that students were denied access to campus and its amenities, viz., libraries, laboratories, on-campus study groups, and computers, *inter alia*. We, both teachers and students, were all restricted to the use of the online teaching platform only.

All teaching, assignments and assessments that had previously been taught and assessed in the conventional way had to be adapted to being taught and assessed online only. During

Lockdown, the mode of communication included WhatsApp, emails, and the Anatomy and Physiology online classroom in Microsoft Teams. In addition, a Class Representative was elected by the class members to facilitate communication between students and lecturers regarding teaching, learning, and assessment of Anatomy and Physiology tests and assignments. Furthermore, I created an Anatomy and Physiology WhatsApp group for the Class Representatives, the Students, and the Lecturers. I sent out messages weekly to ensure that the students received their work on time.

I had to ask myself, “How do I adapt my teaching and assessment practice to working online?” I responded by adapting my teaching method to the modes of communication that were available. I conducted oral lectures, tutorials, examinations, and tests in an online classroom. Written assignments were handed in using the online platform or emails with attachments.

Unfortunately, using online teaching and assessment was almost impossible for many of the students registered for Anatomy and Physiology. This created an extremely disturbing and disenfranchising educational environment for these students, whose reflections on their feelings of desperation are documented in Chapter 5.

4.5.4 Data Tools Used -Focus Group Interactions

All Focus Group Interactions (FGI) were conducted to replace the daily interactions which my students and I had before and after the Lockdown. I organised and conducted these interactions not for marks but to provide the students and me a space to talk about what was happening with the pandemic in mind. We used the FGI’s to talk about what was troubling them, the difficulties they were having, how they were adapting to the Lockdown, what they were learning because of the Lockdown, how they were solving the problems being created by the Lockdown, how their perceptions and priorities were changing, and what they were learning to appreciate. These FGI’s occurred after each Phase of the study.

4.5.5 Demographic Questionnaire and Coding of the Data

Due to the Lockdown, there was no in-person contact, so the pre-lockdown manner of distributing the demographic questionnaire in person was prohibited (Durban University of Technology, 2020). Therefore, the demographic questionnaire was e-mailed to all learners using their student email addresses. It was also uploaded to the Microsoft Teams classroom so

that all students could access it. The demographic questionnaire focused on the demographic information data of each student (Appendix F: Demographic Data Tool).

Additionally, the students' names and numbers were not recorded during the FGI. Each student received a code, which can be found in the attached Appendix titled (Schedule of Participants). Gender and the phases of the cycle were considered when administering the code. An example of a student code is FP39D3L2, which is translated as Female Participant 39, Phase 3 (D3), and Level 2 (L2).

4.6 Data Analysis

I generated data in the form of video recordings of my lectures and the Focus Group Interactions with my students. I also had the students' PowerPoint videos and recordings of their skeletal system videos accompanied by their posters. In addition, I had to explore their individual journals. I had to 'mine' the data for evidence (Timm, 2013).

I transcribed the video recordings. By reducing the amount of information and organising it into themes and sub-themes, I was able to analyse the data systematically (Braun and Clarke, 2006; Mertler, 2021).

The students presented their stories using images and narratives through their reflection journals. To better understand how the students are Whole-Being Learners who aspire to become nurses, I compared their findings with my own observations and reflective notes (This will be explored in Chapters 6 and 7).

During the research process, I also used the Action Research Self-Study framework to structure and direct the reporting (McNiff and Whitehead, 2006; McNiff, 2010)

4.7 Measures to ensure rigour and validity

I ensured the rigour and validity of this study using the guidelines provided by Whitehead (2010), and Habermas (1976).

Following Whitehead (2010b), I tested for validity according to the living educational standards of judgement by asking the following questions:

a) Is the enquiry carried out in a systematic way?

- b) Are the values used to distinguish the claim to knowledge as educational knowledge clearly shown and justified?
- c) Does the claim contain evidence of a critical accommodation of propositional contributions from the traditional disciplines of education?
- d) Are the assertions made in the claim clearly justified?
- e) Is there evidence of an enquiring and critical approach to an educational problem?

I used Habermas (1976),

- a) to support the comprehensibility and truth of the propositional context, the understanding of the normative background of my writings, and the authenticity of my accounts.
- b) I aim to clearly demonstrate the rigour and validity of my educational research and how I influence the learning/ research of others and communicate with the wider academic community.

I respond to these rigour and validity criteria in Chapter 8.

4.8 Review and Ethics Approval

The research proposal was reviewed by the Faculty of Health Sciences Ethics Committee, the Durban University Institutional Research and Innovation Committee (IRIC), and the Institutional Research Ethics Committee to conduct this study. Approval of this study was obtained on 28 February 2020. Ethical approval of this study was granted on 12 March 2020 under the Ethics Reference number IREC 192/18 (Appendix A).

4.8.1 Recertification Ethics

At this point, I, as the researcher, had to apply for ethics recertification (Appendix B). Although I had full ethical approval, I was required to apply for recertification since the ethics approval was only valid for one year. Therefore, Phase 3 Stages 1-7 were completed in May/June 2021.

4.9 Conclusion

A description of the methodology and the research design is presented in this chapter. The next chapter explains the different Phases and Stages examined during the action-reflection process.

CHAPTER 5

PHASES AND STAGES

5.1 Introduction

This chapter provides a detailed explanation of the phases and stages of the action-reflection process.

5.2 Phase 1

5.2.1 Generation of Data: Assignment and Assessment

Accordingly, some assessments were Mark Bearing Assessments (MBA), while others were classified as Teaching, Learning, and Support Activities (TLSA). As we progress through the Phases and Stages, the **MBA assessment and TLSA will be identified (Consult Figure 30 .)**

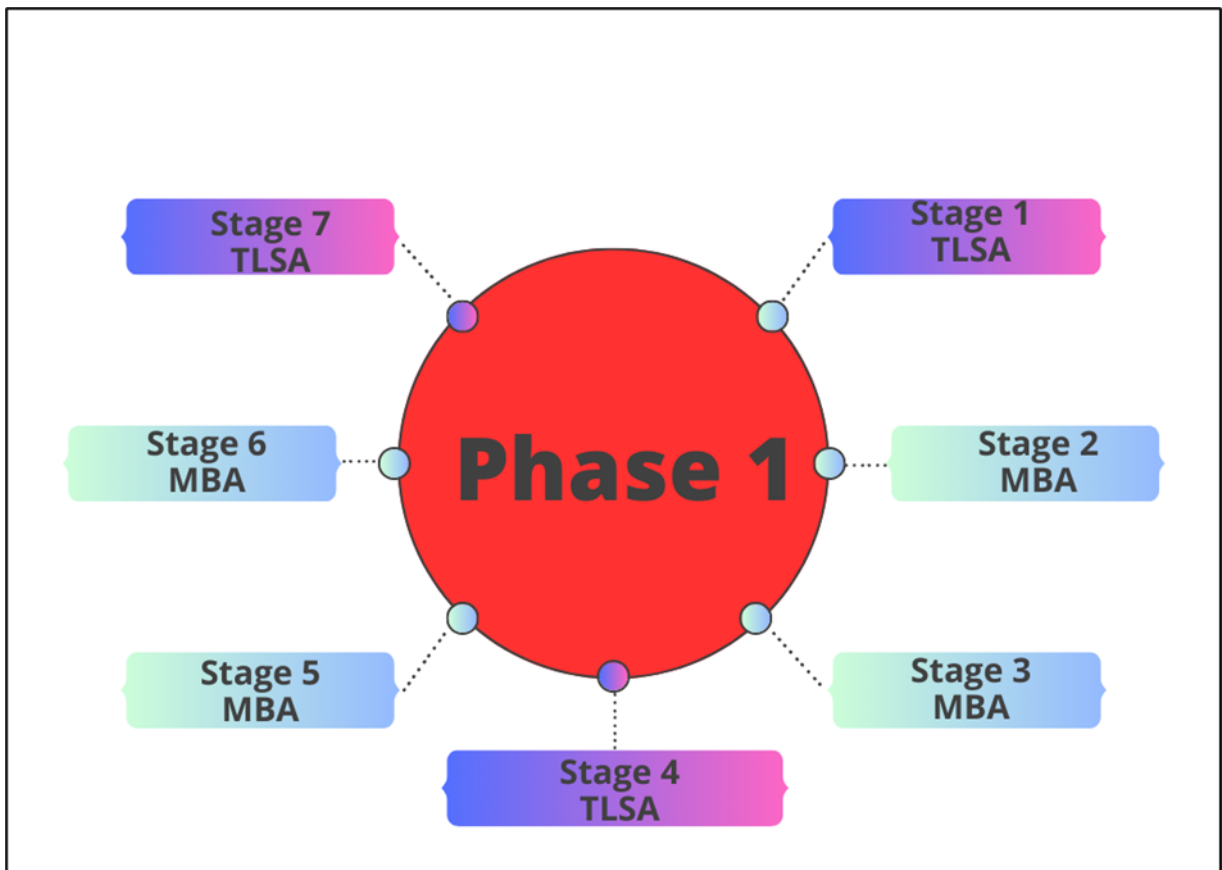


Figure 30: Phase 1

5.2.2 Phase 1: Stage 1

During Phase 1 Stage 1 of the project (Consult Appendix G), a Teaching, Learning, and Support Activity was conducted. Each learner was required to complete a Tissue Assignment and submit it online via email or upload it to the Microsoft Teams Classroom.

5.2.3 Phase 1: Stage 2: The Group PowerPoint and Model Building assignment

Phase 1 Stage occurred in July 2020. For this assignment, I organised the students into small groups of four to five members each. I designed the Group PowerPoint and Model Building assignment to provide an opportunity for students to interact in small groups. Each small group was required to choose a Group Leader, keep a record of their meetings, and account for the developments of the design in a group journal. I requested that each small group choose a particular Anatomical/Physiological system from the list provided. I then required that they answer the questions related to a disease in the Anatomical/Physiological system.

As seen in Table 8 below, I then requested that they build a model that demonstrated the functioning of the selected Anatomical/Physiological system (Consult Appendix P) and prepare a PowerPoint presentation to account for the construction and functioning of the model they had built.

I then required each small group to use Microsoft Teams to present their PowerPoint presentation and demonstrate the working model they had built. I assigned each small group a time slot on a certain date and at a specific time. I required that they log onto the Microsoft Teams Platform and invite me to attend so that I could watch and evaluate their PowerPoint presentation and demonstration of their functioning model.

Once The Group PowerPoint Model and assessment were given, each group had to log onto the MS Teams Classroom and discuss their chosen topics. They had to record their presentation and demonstrate how their model worked. I logged into the classroom as each group booked a time with me to view their presentation.

The relevant rubric (Consult Table 9) was divided into three sections: the PowerPoint presentation, the Content of the Presentation, and the Model Building and Functioning. Each group was awarded a group mark, which was awarded to each student; in addition, there was

an individual mark for each member in each group. (I provided two rubrics: Consult Tables 9 and 10). The Small-Group PowerPoint presentation, model building (Consult Table 11), and demonstration project were successfully presented online, despite the students being off-campus because of the COVID-19 Lockdown.

Table 8: Phase 1: Stage 2 Group assignment: PowerPoint Assignment

PART A: (50%)

The following topics will be considered:

Cancers
 Systemic Lupus Erythematosus
 Osteoporosis
 Rickets & Osteomalacia
 Muscular Dystrophy
 Myasthenia Gravis
 Multiple Sclerosis
 Epilepsy
 Anaemias
 Leukaemia's
 AIDS
 Sickle cell disease
 Angina Pectoris
 Coronary Artery Disease
 Arrhythmias
 Hypertension
 Allergic Reactions
 Autoimmune diseases
 Asthma
 Chronic Obstructive Pulmonary diseases
 Tuberculosis
 Cystic fibrosis
 Pneumonia
 Emphysema
 Splenomegaly
 Pulmonary edema

Each Group of students MUST prepare a PowerPoint presentation on their topic:

What is the disease/ Definition, Epidemiology and Aetiology?
 Normal Physiology of the related system AND Pathophysiology/Pathogenesis
 Signs/symptoms
 Current treatment options

ASSESSMENT

Assessment will be attained by the written format of the topics given according to the departmental rubrics.

PART B (50%)

Build a model

Test and make sure your model work

Use recyclable material or any other valuable materials

Be creative as possible

ASSESSMENT

Assessment will be attained by the written format of the topics given according to the departmental rubrics.

LOGISTICS:

- *Keep a name of who did what in terms of participation in doing the assignment.*
- *Keep a record in a Journal or diary.*
- *Dates of meetings, what was discussed, and decisions taken also include the issues and or challenges that the group is experiencing.*

Table 9: Phase 1: Stage 2 Rubric per group for Model design, construction and demonstration

Categories	Excellent 5	Good 3-4	Fair 2	Poor 1	Total
Construction of Model	<i>The model clearly represents the anatomical system linked to the group presentation</i>	<i>The model was constructed in a logical pattern representing the system allocated</i>	<i>The model was built but not in a logical pattern.</i>	<i>The model was built but does not represent the system allocated to the group</i>	
Materials used	<i>All Materials used for the project were made from recyclable material</i>	<i>Some Material used for the model was used from recyclable material</i>	<i>2-3 components of the models were used from recyclable material</i>	<i>No recyclable materials were used.</i>	
Creativity	<i>The model was creative in structure-colours/ thought was applied in the construction of the model</i>	<i>The model depicts areas of creativity. Some colours are used.</i>	<i>The model depicts certain areas of creativity. Some colours are used.</i>	<i>No creativity or thought was put into developing the model.</i>	
Function	<i>The model function works 100% depicting anatomically/physiologically functioning</i>	<i>The model functions but does not efficiently depict anatomically/physiologically functioning</i>	<i>The model shows functioning but not anatomically/physiologically correct</i>	<i>The model does not function.</i>	

Table 10: Phase 1: Stage 2 Rubric per individual for Model design, construction and demonstration Rubric

NAME/S OF STUDENT/S	Disorder or Disease	Excellent (5)	Good (3-4)	Fair (1-2)	GROUP Total	INDIVIDUAL TOTAL
	Description	<i>Student/s has/ve provided a clear description of the condition and a comprehensive list of the relevant signs and symptoms. Risk factors (who is at risk?) are listed.</i>	<i>Students has/ve provided a description of the condition and listed the most common signs and symptoms of the condition/disease. Risk factors are also listed.</i>	<i>Student/s has/ve provided a description of the condition and listed a few of the common signs and symptoms of the condition/disease. Risk factors may be missing.</i>		
	Biological Explanation	Excellent <i>Thorough description of disorders (or diseases) effect on the body. (E.g. area of the skeletal system affected, their role and function, and specifically how rickets affects the body). The information is accurate and very informative. The project shows a depth of understanding of disease/disorder studied.</i>	Good <i>The report is mostly thorough with strong information regarding the disease/disorder biological explanation. The information is accurate and informative. Minimal errors. Good understanding of disease/disorder studied. Shows for the most part accurate research.</i>	Fair <i>Biological explanation of disease/disorder missing/incomplete. Information is confusing, and numerous errors are present. Satisfactory understanding of disease/disorder studied. Shows some accurate research.</i>		

	Treatment and Impact	Excellent	Good	Fair		
		<i>The student has provided a thorough description of how the condition is diagnosed and treated. Condition is well researched so that the student could put herself in "someone else's shoes" to explain ways the condition/disease affects the functioning of the person in daily life.</i>	<i>The student clearly describes the diagnosis and treatment of the condition. The student has a good description of several ways in which the condition impacts the person in daily functioning.</i>	<i>The student does not present thorough information for the diagnosis and treatment of the condition. The student has identified a couple of ways the condition impacts daily functioning.</i>		

Table 11:Phase 1: Stage 2 Rubric for Group PowerPoint Presentation

	Excellent 5 pts	Good 4 pts	Fair 2 pts	Poor 1 pts	TOTAL
Overall Delivery <i>Organized, Creative, and Enthusiastic</i>	<i>Presentation is excellent, extremely organized, interesting, creative, and easy to follow. Demonstrates originality.</i>	<i>Presentation is clear and understandable, interesting, and organized.</i>	<i>Presentation is fairly organised and slightly engaging.</i>	<i>Presentation is unclear, unorganized, unengaging, and difficult to follow. Did not seem to know the material. Heavy reliance on notes.</i>	
PowerPoint and Video <i>Relevancy, Correlation</i>	<i>Excellent development and use of visual aids. Slides contain a reasonable amount of 'white space' and contain no more than 25 words per slide.</i>	<i>Good use and development of visual aids. Visual aids enhanced the presentation and related to the material. Slides followed most of the rules</i>	<i>Adequate use of visual aids. Visual aids slightly enhanced the presentation. Questionable relevance of terms/pictures. Too many words per slide.</i>	<i>Poor visual aids did not enhance/relate to the topic. Slides were filled with cut-and-paste paragraphs.</i>	
Time	<i>Lasts 10 minutes with time devoted to content.</i>	<i>Lasts less than 10 minutes and is devoted to content.</i>	<i>Lasts less than 8 minutes; not devoted to content.</i>	<i>Presentation lasts between 2 and 5 minutes</i>	

5.2.4 Phase 1 Stage 3: The Skeletal System Project

Phase 1 Stage 3 occurred in August of 2020. The Skeletal System Project was an individual assignment that was discussed with learners prior to Lockdown. It was the first assignment I gave to the learners, which required them to create and present a poster of the human skeletal system.

The Skeletal System Project assignment instructions and rubrics were sent to the Class Representative via WhatsApp to forward to all students since most of them had not yet received data from the institution. The assignment instructions and rubrics were also uploaded to the Anatomy and Physiology Microsoft Teams classroom. Upon request from the students, I also sent them emails with the relevant information. This repeated communication was to ensure all students received their assignment details fully and timeously.

The Skeletal System Project assignment had two parts to it:

1. Part one was to answer the detailed subject matter questions in the assignment in a document which they submitted online (Consult Table 12 below).
2. Part two involved building a model, creating a poster, or being as creative as they wanted, as indicated in the attached (Consult Table 13 below).

Table 12: Phase 1:Stage 3 Skeletal System Project

<p style="text-align: center;">Anatomy and Physiology Assignment</p> <p style="text-align: center;">Skeletal System Project</p> <p style="text-align: center;">Ms. M Coopasami</p>
<p>Your assignment is based on the skeletal system. <u><i>You need to be as creative as possible.</i></u></p> <p>As a student, you have been assigned the task of creating a children's book, song, poem, magazine, or poster board display about the skeletal system, as well as any other approved form of media not mentioned above. Please include the following information in your project to receive all points:</p> <p>There should be a minimum of three functions of the skeletal system</p> <p>A description of the purpose of the skeletal system</p> <p>There should be a minimum of 20 bones in the skeletal system</p> <p>There should be a minimum of three joints in the skeletal system</p> <p>A minimum of 3 diseases associated with the skeletal system</p> <p>In what ways does the skeletal system contribute to the maintenance of homeostasis?</p> <p>Age-related changes in the skeletal system in at least two ways</p> <p>The presentation portion will be graded based on delivery, visual/lyrical articulation of the skeletal system, and audience engagement.</p> <p><i>This assignment was sourced from Google and adapted for relevance before being used.</i></p>

Table 13: Phase 1: Stage 3 Rubric for Skeletal System Assignment Assessment Presentation

Categories	5	4	3	2	1
Content	<i>Content is accurate and all required information is presented in a logical order</i>	<i>Content is accurate but some required information is missing/or not presented in a logical order but is still generally easy to follow.</i>	<i>Content is accurate but some information is missing and/or not presented in a logical order, making it difficult to follow.</i>	<i>Content is questionable. Information is not presented in a logical order, making it difficult to follow.</i>	<i>Content is inaccurate. Information is not presented in a logical order, making it difficult to follow.</i>
Presentation	<i>Presentation flows well, and logically, and reflects extensive tools in a creative way. Individuals' information is presented clearly.</i>	<i>Presentation flows well. Tools are used correctly. Overall presentation is interesting.</i>	<i>Presentation flows well. Some tools are used to show acceptable understanding.</i>	<i>Presentation is unorganized.</i>	<i>Presentation has no flow. Insufficient information.</i>
Pictures. Clip Art Background	<i>Images are appropriate to the skeletal system. Layout is pleasing to the eye.</i>	<i>Images are appropriate to the skeletal system. Layout is cluttered.</i>	<i>Most images are appropriate to the skeletal system.</i>	<i>Images are inappropriate for the skeletal system.</i>	<i>No images.</i>

5.2.5 Phase 1: Stage 4: Mini quiz (Consult Appendix C)

Phase 1 Stage 4 occurred in the latter part of August 2020. This assessment was not a mark-bearing assessment (MBA). The assessment was part of a teaching and learning supported activity (TLSA) (Appendix H). I presented the Mini-Quiz online. This was the first time the students had used online for a formal assessment. At the beginning of the semester, before the COVID-19 pandemic and Lockdown, we had started blended learning as described in Chapter 3, using the Moodle classroom. However, when the COVID-19 pandemic started, causing the Lockdown, Microsoft Teams became the available online platform. I preferred using the Microsoft Teams classroom because it was easier to use.

The students experienced problems with the online Mini-Quiz, as this was the first time they had used technology to engage with an assessment that was allocated a time limit. Because of difficulties, some students had trouble accessing data, and some did not submit their responses on time.

5.2.6 Phase 1 Stage 5 and 6 In-Person Test Main and Supplementary (Consult Appendix J)

Phase 1, Stages 5 and 6 occurred in October 2020. As a result of the COVID-19 Pandemic and the Lockdown, most departments within the DUT Faculty of Health Sciences offered some of their modules via continuous assessment. Students at DUT were informed that Continuous Assessment is also available in other departments within the Faculty of Health Sciences. Due to the South African Nursing Council (SANC) approval of the curriculum, the first-year Anatomy and Physiology students at DUT were scheduled to write an examination for implementation in Stage 5 and Stage 6. In a public protest, DUT Nursing students argued that it was unfair that they were required to write the examination scheduled for 16 November during the pandemic, which exposed them to possible transmission of the COVID-19 Virus (<https://www.citizen.co.za/witness/news/pietermaritzburg/dut-nursing-students-protest-against-assessment-unfairness-20201110/>).

As a result of the validity of the students' objections, the Interim-Dean of the Faculty of Health Sciences, Professor Ashley Ross, agreed to resolve the issue amicably. In the midst of the COVID-19 pandemic and Lockdown, Continuous Assessment online was considered a safer

method of assessing students. Because this was a process prompted by the Lockdown it was not arranged and approved in advance. Hence, Phase 1: Stages 5 and 6 of Phase 1 resulted in an in-person evaluation where all students had to write a test as their final assessment. It was decided that 2 assignments and an in-person test would form the Continuous Assessment mark.

5.2.7 Phase 1 Stage 7 Focus Group Interactions

Phase 1 Stage 7 occurred in November 2020 at the peak of the COVID-19 Virus Pandemic. This Focus Group Interaction was arranged using Microsoft Teams, during which I presented a PowerPoint presentation (<https://youtu.be/KA0nnqjZwIM>). Through the focus group, I posed questions regarding the MBA and TLSA they had done during Phase 1 of the research, viz., the Skeletal System Project and the Group PowerPoint and Model Building. There was a sense of reluctance and anxiety among the students when it came to participating in the discussion. In response to my assurances and promptings, they participated enthusiastically and responded to my questions effectively. During Phase 1, students were informed that the FGI's were not Mark Bearing Assessment, and their responses contributed to the development of Phase 2 of delivering the Anatomy and Physiology curriculum.

In my personal professional journals during Phase 1, I documented my search for and discovery of ways to improve my teaching and assessment of my nursing students' relevant understanding of Anatomy and Physiology. In Phase 1, the students informed me, as the researcher, how I needed to observe, reflect, act, evaluate, modify, and move in a new direction upon reflecting on the FGI. I observed their responses in their participation in doing their assignments in groups and their concerns regarding the ability to meet with their peers. I reflected on how I could include assignments that would help them become Active- Learners. I acted by modifying the assignments in Phase 2.

5.3 Phase 2

At the beginning of 2020, the DUT calendar was amended to include Terms 1 and 2 (Consult Appendix I: DUT Academic Calendar). The first term of the 2020 academic year began on 03 February and ended on 18 September. The second term began on 28 September and concluded on 24 December 2020. Thus, students who failed Anatomy and Physiology in the 2019 cohort were invited to participate in the study. These students were repeating the second semester as

part of their level one (first-year) program. These repeating students joined the 2020 first-year cohort.

The same cohort of students that was followed in Phase 1 of the academic year 2020 was followed in Phase 2. Phase two was conducted in the second semester of 2020 in the second wave of the COVID-19 pandemic. The Lockdown was still in force, which meant that all of my 74 students had no access to campus facilities. Classes were taught online, and the assessments were also conducted online. This notwithstanding, I invited all of the 74 students to participate in the study because I believed that they needed as much contact with the university and their studies as possible. All students agreed to participate in the study by signing the informed consent form (Appendix O). As seen in Figure 31 below Phase 2 comprised of 5 Stages.

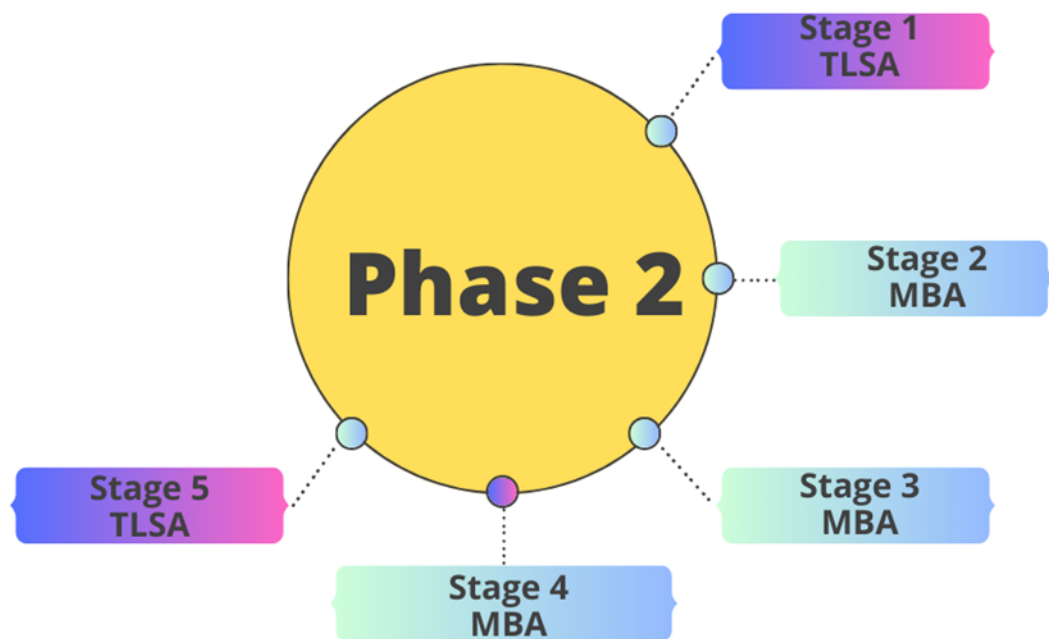




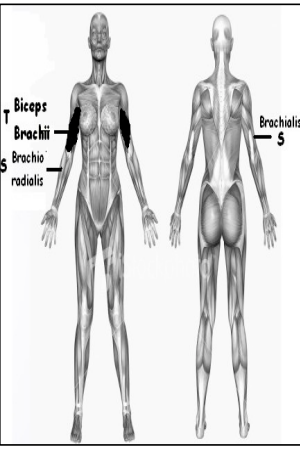
Figure 31: Phase 2

During Phase 2 continuous assessment became the Focus Group Interactions Topic for discussion. This meant that students wrote their assessments timeously. There was no formal

exam. The three assessments that were included in this stage of Continuous Assessment and Mark Bearing Assessments were the Cardiovascular Assignment (Consult Figure 31 Stage 2) (Consult Table 14), the in-person written assessment, and the Online Test (Appendix J). The Muscular System was a TLSA assessment. This strategy was employed as the semester was still being conducted online, and students were not on campus to collaborate in person with their peers and colleagues.

5.3.1 Phase 2 Stage 1: Muscular System Tutorial (TLSA)

Table 14: Muscular System (TLSA) (Muscular System Assignment assessment (This assignment was adapted and used from open access source Google.)

<div style="text-align: right;">  </div> <div style="background-color: #cccccc; padding: 5px; text-align: center;"> Department of Nursing </div> <hr/> <p style="text-align: center;"> SUBJECT: ANATOMY AND PHYSIOLOGY ANPB 103 </p> <p style="text-align: center;"> QUALIFICATION: BHSC: NURSING EXAMINER: MS M COOPASAMI </p> <p style="text-align: center;"> MUSCULAR SYSTEM ASSIGNMENT </p> <hr/> <p style="text-align: center;"> PLEASE ANSWER ALL QUESTIONS </p> <hr/> <p>Step 1</p> <p>You will have 5 athletes coming to you (Their Personal Trainer) asking for a workout designed especially for them and the sport that they play. You must pick 5 from the following list:</p> <ul style="list-style-type: none"> Football Swimming Gymnastics Soccer Basketball Wrestling Track/Cross Country Tennis Volleyball Softball/Baseball Cheerleading/Dance Golf Diving Hockey Martial Arts Boxing Figure Skating Skateboarding Surfing Snowboarding/Skiing 	<p>Step 2: Workout Routine</p> <p>After you have picked your 5 clients you will be making a workout routine for each.</p> <p>The workout must include: Name of Client and the Sport they Play</p> <p>A minimum of 7 exercises per client (7 DIFFERENT MUSCLE GROUPS MUST BE USED)</p> <ul style="list-style-type: none"> 2 Machines 2 Free Weights 2 Floor/Mat Exercises 1 Exercise Class (Ex: Spinning, Step Aerobics, Yoga, etc) <p>Name of Machine or Exercise Name</p> <ul style="list-style-type: none"> A picture of the exercise (drawn or off the internet—COLOR) Exercise Machine Person doing the exercise (with or without weight) A picture of the muscle (wo)man with the following: <ul style="list-style-type: none"> Target: Main muscle group highlighted/colored & Labeled Synergist: Muscles that assist in the exercise different highlight/color & Labeled Sets Reps KGs (lighter weights for muscle toning...heavier weights for muscle building) Explain how to do the exercise <p>Step 3: Layout</p> <ul style="list-style-type: none"> Cover Page Your First & Last Name / Period / Exercise Picture (Color) / Anatomy & Physiology 2020 / Muscular System Project: Personal Trainers Guide to Your Workout Refer to Left Page for a possible layout idea (but get creative!) 1 page per exercise Group (1 Page for Machine, 1 Page for Floor) All information must be placed in a 3 PRONG FOLDER All pictures need to be in color!!! <p>Information must NOT be copied!!! Write your descriptions in your words!</p> <p>Work must be referenced.</p>	<p>Possible Websites to Get You Started:</p> <p>Weightlifting For Women: http://health.howstuffworks.com/weight-lifting-for-women.htm</p> <p>Slide show: Weight training exercises for major muscle groups: http://www.mayoclinic.com/health/weight-training/SM00041</p> <p>Exercise for Beginners - Strength Training: http://exercise.about.com/cs/exbeginners/a/begstrength.htm</p> <p>Muscular System: Possible Layout</p> <p>Client: Betsy Smith</p> <p>Sport: Tennis</p> <p>Exercise 1: Bicep Curl</p> <div style="display: flex; justify-content: space-between;"> <div> <p>Name of Exercise</p> <p>Bicep Curl</p> <p>Sets: _____</p> <p>Reps: _____</p> <p>Lbs: _____</p>  </div> <div> <p style="text-align: center;">Bicep Curl</p> <ol style="list-style-type: none"> 1. Assume starting position 2. Bend the right arm and raise the weight to shoulder height. 3. Slowly lower the weight to starting position. 4. Repeat with the left arm and perform... <p style="text-align: right;">Sets: <u>2 to 3</u></p> <p style="text-align: right;">Reps: <u>15</u></p> <p style="text-align: right;">Kgs: <u>20</u></p> </div> <div>  </div> </div>
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5.3.2 Phase 2 Stage 2 CVS Assignment

The Cardiovascular system assignment was divided into two parts. In Part A, the students answered questions about the Cardiovascular system, and in Part B, they built a working model to demonstrate how the cardiovascular system functioned. The students uploaded their videos into the classroom so I could access and assess them.

Table 15: Cardiovascular Assessment

Cardiovascular Assignment



Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPB 103

DATE: 19/10/2020
MINUTES
TOTAL: 100

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

PLEASE ANSWER ALL QUESTIONS

MODEL ANSWERS

1. **Each student** will draw and label the heart. (10)
 - a. The heart is to be coloured RED and BLUE representing the oxygenated and deoxygenated blood. (5)
 - b. Place in the heart arrows showing the flow of blood through the heart. (15)
2. **Each student** using their picture will answer the following questions:
 - a. Describe how the two sides of the heart differ in terms of the kind of blood they receive and pump. (5)
 - b. Describe the route of blood through the heart. Include circulation through the lungs, and specify whether the artery or the vein carries oxygenated or deoxygenated blood. (14)
 - c. Describe all the main parts of the heart. (12)
 - d. Identify the structure that prevents blood from mixing between the left and right sides of the heart. (2)
 - e. Explain what prevents blood from flowing from the ventricle back into the atria. (5)
 - f. Describe the cardiac conduction system of the heart (5)
 - g. A doctor uses a stethoscope to listen to your heart.
 - (i) What is he listening for. (2)
 - (ii) How is this caused. (2)

Total: 77

Marks will be allocated for presentation:

Cover page (5) Table of contents (5) Page numbers (3) Font (5) Referencing (5)

Please note that all assignments needs to typed and not handwritten. No late assignments will be accepted.

5.3.3 Phase 2 Stages 3 and 4

As part of Phase 2, Stages 3 and 4 were devoted to MBA assessments. An in-person test was administered during Phase 2, Stage 3 (Consult Appendix J), and an online quiz was administered during Phase 2, Stage 4.

5.3.4 Phase 2 Stage 5 Focus Group Interactions

As the semester's assessments were offered through Continuous Assessment, the group interaction focused on gathering information regarding the changes that had been implemented (<https://youtu.be/SGxKSXL9N7o>). The focus group interaction for Phase Two was conducted online using the Microsoft Teams Platform. The video can be accessed from 12 minutes to 25:30 minutes.

The Focus Group Interactions explored the strengths and weaknesses of Continuous Assessments. Students were also asked to write their comments and email them to me in addition to participating in the Focus Group Interaction online. Additionally, they were able to provide feedback through their Microsoft Teams Online classroom. The alternative platforms mentioned above were used by some students who were too shy to participate in face-to-face focus groups.

5.3.5 Phase 2 Stage 5 -At-risk students

I observed in Phase 2 that a group of students from the Phase 2 cohort were at risk of failing Anatomy and Physiology that semester after Stage 5 (the FGI). To provide these students with additional assistance, an online tutorial session was organized. After the online tutorial session, I asked the students who had participated to provide feedback in a Focus Group Interaction.

5.4 Reflections of Phase 1 and Phase 2

I reflected on the previous Phase 1 Stage 7 (Consult Appendix D TLISA) before planning the following Phase 2 Stage 5 (Consult Figure 31). Students' extreme resistance to the Nursing Department's insistence that they write in-person examinations in accordance with the Nursing Council's regulations was noted. My position at the time was in agreement with that of the Nursing Department. It was agreed that continuous assessment would replace the examinations

after strong protests from students, and with the assistance of Professor Ross, the Acting-Dean, the issue was resolved.

As I reflected on Phase 2, I realised that my support for examinations revealed that this support constituted a ‘living contradiction’ (Whitehead, 1989: 41, 1996, 2009a) because it revealed my lack of empathy and caring for the students who felt betrayed and abused by the Nursing Department’s insistence on writing examinations in a dangerously infectious environment.

5.5 Phase 3

In Phase 3, there were two levels of students (Consult Figure 29). My students included first-year students (who were repeating Anatomy and Physiology) and second-year students.

The assessment types in Phase 3 were a combination of those in Phases 1 and 2. The assessments for Level 1 students and Level 2 students were the same, as seen in Figure 32.

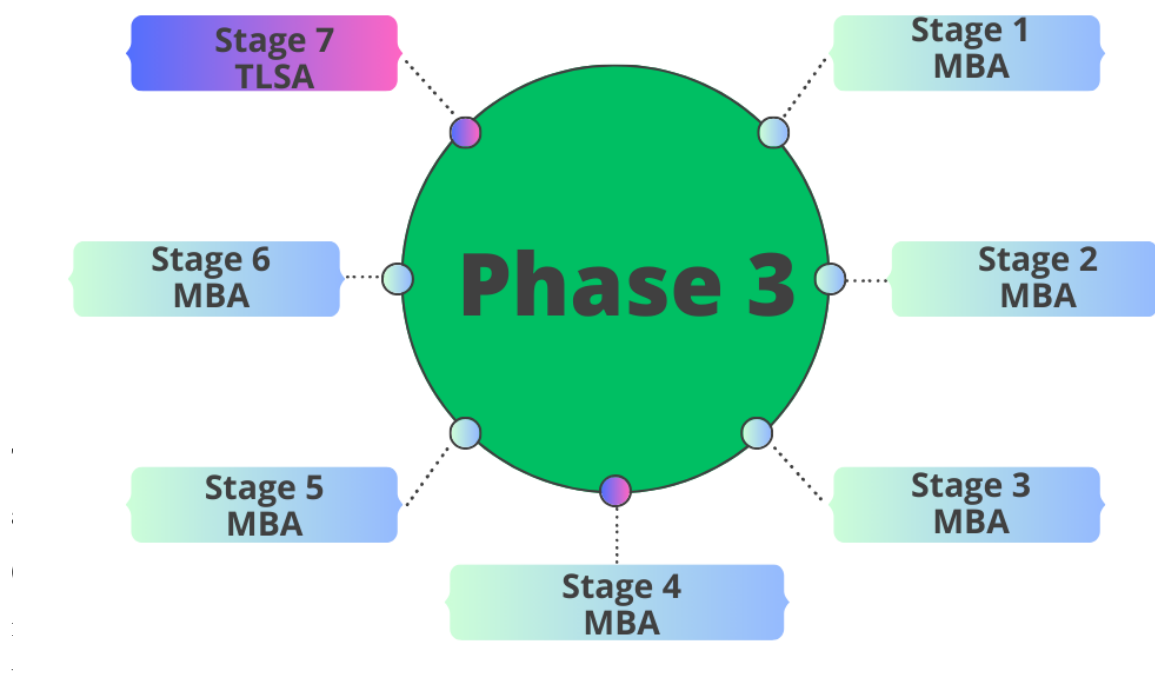


Figure 32: Phase 3

Table 16: Phase 3 First Years and Second Years

Phase and Stage	First Years	Second Years	Type of Assessment
Phase 3: Stage 1	Individual Journal Reflections	Online Quiz	MBA-
Phase 3: Stage 2	Online quiz	Individual Journal Reflections	MBA-
Phase 3: Stage 3	Building a Game Assignment	Neurotransmitter Assignment	MBA
Phase 3: Stage 4	Online Quiz	Online Quiz	MBA
Phase 3: Stage 5	In-Person Test	In-Person Test	MBA
Phase 3: Stage 6	In-Person Test	In-Person Test	MBA
Phase 3: Stage 7	Focus Group Interaction	Focus Group Interaction	TLSA

5.5.1 Phase 3 Stage 1: Second Years

The first MBA assignment for second-year learners was an online quiz (Consult Table 16 and Appendix C).

5.5.2 Individual Journal Reflections: Phase 3 Stage 1 (First Years) and Stage 2 (Second Years)

I assigned individual assignments to first- and second-year Anatomy and Physiology students. As a result, they developed a sense of responsibility for their learning and a sense of accountability. I was inspired to design this assignment after speaking with Jack Whitehead about his encounter with a researcher named Joy Mountner, who gave her primary school students journals to write in as a means of creating accountability for their learning. I was inspired by what Joy did and Jack's advice. I knew the students needed a more constructive way of sharing what they were going through because I sensed that most of them were not forthright in the focus group interaction I held.

After much self-reflection followed by deliberation with my supervisors as a result of my concern that my students were not taking responsibility for their own learning, I asked my

students to write a self-reflective narrative essay so that they could share their feelings freely without having to expose themselves to a public audience. I requested that they each write a journal about their experience with Anatomy and Physiology.

I selected the aspects indicated below for the assignment (Consult Tables 17 and 18). As a result of mining the data, I will present my findings in Chapter 5. Using collages of my students that illustrate their positive and negative experiences with pictures and poetry, I will share the evidence from Phase 3 in Chapter 5

**Table 17: 11 May 2021 Phase 3 Stage 1 (First Years) and Stage 2 (Second Years)
Individual Journal Reflections**

This assignment is an individual reflection.

My difficulties as an anatomy and physiology student/learner and my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and Physiology.

You may be creative in describing your journey, from the beginning to now. You may use a story with pictures and reflections, you may draw, add pictures, or be constructive in your illustrations. You may use poems to help you channel your creativity to describe how you felt or feel. Remember you are a cohort that has faced something that no other group has ever been through, this being the COVID-19 pandemic. Please include this in your write up.

As a student how do you prepare yourself to handle the challenges pose/d in the anatomy and physiology module? You may share your positive and negative experiences.

How did COVID-19 impact you as a student and still impacting you?

What strategies did you put in place to help you cope with the challenges that COVID-19 pose/d?

Living Your Values

At DUT, it is essential that we are able to live our values (DUT envision 2030. <https://www.dut.ac.za/wp-content/uploads/2020/03/Envision-2030-strategy-map.pdf>) and also, the values that help/s us within the module (anatomy and physiology) and use this as a way of rethinking the central role of values in our lives, both professionally and personally. Remember you are going to graduate as a professional nurse. Please note certain values are embedded in the profession like “caring” (Code of Ethics for nursing practitioners in South Africa. <https://www.sanc.co.za/wp-content/uploads/2021/04/Code-of-Ethics-for-Nursing-in-South-Africa.pdf>)

Not all of us may live this value, and that is okay; however, we need to reflect on what are our own values.

For e.g., last year, we experienced something that was both new and traumatic – COVID-19 to the normal way of doing things.

How did this make you feel when you were asked to do an assignment online by yourself? (Think of the skeletal system project, which you had to record and upload in the MS Teams classroom.)

What strategies did you employ to help you with this?

What value/values would you say best equipped you to conduct this assignment efficiently?

Please share your positive and negative experiences.

Please ensure that you do not only tell the story but also reflect on it. “Reflect” means you need to describe how an event/events influenced you, shaped you, and perhaps changed you. As part of your preparation for this assignment, you will need to do some reading on reflective essay writing and what it means before you start. (You have done both Cornerstone and some have done PPDV 101, use that experience to help you with this assignment.)

References are essential in conducting this assignment. As much as you are reflecting on your personal journey and values, I need you to have at least three references and a maximum of five to support what you are saying.

References

The Corner Stone Study Guide

The PPDV Study Guide

SANC Document. (2013). Available online: <https://www.sanc.co.za/wp-content/uploads/2021/04/Code-of-Ethics-for-Nursing-in-South-Africa.pdf>. (Accessed 12 April 2021).

Submission dates must be adhered to. If you default on your assignment submission, you will be penalised 5% for every day (weekends inclusive) that the work is late. If a reason for late submission is given in writing, then the penalty will be left totally to the lecturer's discretion.

NB: No submission, no mark.

Table 18: Rubric Individual Assignment Journal Rubric

Criteria	Score
Reflecting on the Research Process <i>You need to provide a detailed understanding of the research process in terms of what you have set out to do and whether you were able to do it. A mind map should be used.</i>	10
Reflecting on Personal Experience <i>Provide a detailed understanding of your own personal experience (whether positive or negative) and how you have grown and developed through it.</i>	20
Coherence and clarity <i>Your writing needs to be laid out in an organised manner. It needs to be structured and logically arranged so that the reader can see the development of your ideas. Your writing needs to be clear and concise with correct spelling and grammar.</i>	15
References	5
Total	50

5.5.3 Phase 3 Stage 2 (First-Year Students)

For the first-year students, an online quiz served as the second assessment (Consult Appendix C) (Consult Tale 16).

5.5.4 Phase 3 Stage 3 Level 1 (First Years)

Phase 3 Stage 3 was inspired by a colleague at the Durban University of Technology, who spoke enthusiastically about how he had required his student to design a game that focused on knowing the fine details of the many concepts informing the Health and Safety Act (Singh and Niranjana, 2013). This motivated me to adapt his idea for Anatomy and Physiology. When the COVID-19 pandemic Lockdown disrupted everyday teaching and learning, I prepared an assignment for small-group participation, which required that the students design a game which tested in fine detail the subject matter prescribed for Anatomy and Physiology Level 1 (Consult Appendix P).

I believed that the focus on the fine detail of the subject in a Design-a-Game assignment would serve a number of purposes:

- It would provide excellent revision for the students who were repeating Anatomy and Physiology.
- It would focus on the fine details of Anatomy and Physiology.
- It would focus the students' attention creatively and unusually, which would excite them and heighten their interest.

I divided most of the students into small groups. Some chose to work individually. I allocated a specific system (Consult Appendix P) as the focus of each game to each small group or to individual students who had been taught in the first semester. Each group or individual had to construct the game physically, along with the rules for playing the game with prizes and penalties. Each group/individual had to develop questions about that specific Anatomical or Physiological system (Consult Tables 19 and 20). The students then had to play their games and their classmates' games with each other so that every student could play every game in the large group at least once. Each game was scored, and each individual's score became a mark allocated towards his or her semester score. I have designed a collage to illustrate the games that my students developed and played in Chapter 5. In addition, I have recorded the marks and analysed the outcomes of these games for each individual student. Below is the brief given to students on how to Design a Game.

Table 19: Game Design

Anatomy and Physiology Assignment 2

Due Date: May 31, 2021

Ms. M Coopasami

GAME DESIGN

Guidelines

- Formulate the rules of the game to ensure consistency, uniformity, and congruency for each participant.
- Formulate at least twenty-five (25) questions and place each question on a separate laminated card. The answer to each individual question had to appear on the reverse side of the card or opposite end of the card but concealed from the individual who was asked the question.

The question should be unambiguous and concise.

There should be no double-barrelled questions. Essentially, there should be no confusion when questions are constructed.

- Design a playing board, such as a square, rectangle, hexagon, pentagon, etc. The colours of the shapes on the board should correspond with the categories.
- The theme of anatomy and physiology and appropriate pictures must be predominant.
- Provide the educational game with a name, for example, “30 seconds Cell Board Game.”
- Provide playing beads, for example, stars.
- Provide a means to commence the game, for example, dice.
- Place appropriate clip art or digital pictures from the internet, and scan appropriate pictures.
- Make the game fun and insert items such as forfeiture or penalties. For example, go back to begin or go back three squares.
- Overall presentation and global appearance.

Table 20: Games Rubric Assignment

Ms. M Coopasami

Category	Good (4-5)	Satisfactory (2-3)	Poor (1)	Group score
Rules of the (5) game,	<i>Ensured clear consistency, uniformity, and congruency with each participant.</i>	<i>Ensured some consistency, uniformity, and congruency with each participant.</i>	<i>No consistency, uniformity, or congruency to each participant.</i>	
Questions (5)	<p><i>Formulated twenty-five (25) questions each question recorded on a separate laminated card. The answer to each individual question had to appear on the reverse side of the card or opposite end of the card but concealed from the individual who was asked the question. Each question was unambiguous and concise.</i></p> <p><i>There were no double-barrelled questions. There was no confusion when questions were asked.</i></p>	<p><i>Formulated fewer than twenty-five (25) questions and Not all questions were recorded on a separate laminated card. The answer to each individual question did not appear on the reverse side of the card or opposite end of the card but was concealed from the individual who was asked the question.</i></p> <p><i>The questions were unambiguous and concise.</i></p> <p><i>There should be no double-barrelled questions. Essentially there should be no confusion when questions are constructed.</i></p>	<p><i>Formulated fewer than twenty (20) questions and each question recorded on a separate laminated card was not done. The answer to each individual question did not appear on the reverse side of the card or opposite end of the card but was concealed from the individual who was asked the question.</i></p> <p><i>The question was ambiguous, and not concise.</i></p> <p><i>There were double-barrelled questions. confusion when questions are constructed</i></p>	
Playing Board (5)	<i>The game had a playing board that was visible and easy to see</i>	<i>The game had a playing board but was not clearly visible and hard to see</i>	<i>There was no playing board</i>	

Shapes on the board (5)	<i>Colours of all shapes corresponded with categories on the board</i>	<i>Colours of most shapes corresponded with categories on the board</i>	<i>Colours of very few shapes corresponded with categories on the board</i>	
Theme of anatomy and physiology (5)	<i>The theme given to the group was excellently portrayed in the game</i>	<i>The theme given to the group was portrayed well in the game</i>	<i>The theme given to the group was not satisfactorily portrayed in the game</i>	
Game was fun (5)				
Game had beads and dice (5)				
Game had pictures (5)				
Game had penalties. (5)				
References (5)				

Comments

Signature of lecturer: _____

Date _____

5.5.5 Phase 3 Stage 3 (Second Years)

As part of Phase 3 Stage 3, the Whole-Being Assessment was administered to Secon Year Students (Table 19). The rubric in Table 20 was used to mark the assessment,

Table 21: Neurotransmitter Assignment

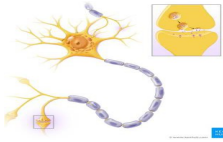
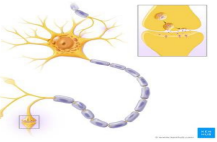
	<p style="text-align: center;">DEPARTMENT OF NURSING ANATOMY AND PHYSIOLOGY (ANPA 201/202)</p> <p style="text-align: center;">MS M COOPASAMI</p>	
<p style="text-align: center;">NEUROTRANSMITTER PROJECT</p> <p style="text-align: center;">DUE DATE: 31/05/ 2021</p> <p>Each <u>INDIVIDUAL</u> will be responsible to research and present their topic as accurately as possible.</p> <p>Each <u>INDIVIDUAL</u> has the freedom to present their project as creatively as possible using any means of technology (POWERPOINT/MS WORD) in the form of a poster, brochure, and pamphlet, or story book.</p> <p>Assignment Question:</p> <ol style="list-style-type: none">1. Define the term neurotransmitter.2. Explain in general how neurotransmitter functions.3. Briefly describe the neurotransmitter allocated to your group.4. Explain in great detail if there was a deficiency of this particular neurotransmitter, and what clinical condition may present.5. Explain in great detail how the patient may present.6. State what would be the course of treatment for this particular condition?		

Table 22: Phase 3 Stage 3 Neurotransmitter rubric

Category	Excellent 5	Good 4	Fair 3	Satisfactory 1-2	Students mark
Define the term neurotransmitter.	<i>Student has provided an excellent definition of the term with examples.</i>	<i>Student has provided a good definition with examples.</i>	<i>Student has provided a fair explanation without examples.</i>	<i>The information provided by the student was poor and inconsistent.</i>	
Explain in general how neurotransmitter (NT) functions	<i>Student has provided an excellent description of the function of how the NT works with examples.</i>	<i>Student has provided a good description of the function of how the NT works with examples.</i>	<i>Student has provided a fair description of the function of NT without examples.</i>	<i>The information provided by the student was poor; and inconsistent.</i>	
Briefly describe the neurotransmitter allocated to your group/to you.	<i>Student has provided an excellent description of the assigned NT.</i>	<i>Student has provided a good description of the assigned NT.</i>	<i>Student has provided a fair description of the assignment.</i>	<i>The information provided by the student was poor and inconsistent.</i>	
Explain in great detail if there was a deficiency of this particular neurotransmitter, and what clinical condition may present.	<i>Excellent description including 2-3 clinical conditions.</i>	<i>Excellent description including 1-2 clinical conditions.</i>	<i>Excellent description including 1 clinical condition</i>	<i>The information provided by the student was poor; inconsistent</i>	
Explain in great detail how the patient may present.	<i>Clear Signs and symptoms including explanations.</i>	<i>Signs and Symptoms are given without explanations</i>	<i>Signs and symptoms are given in a confusing way</i>	<i>The information provided by the student was poor; inconsistent</i>	
State what would be the course of treatment for this particular condition?	<i>Clear treatment plan is made available with alternate treatment.</i>	<i>Clear treatment plan made available without alternate treatment</i>	<i>Treatment plan available without explanations</i>	<i>The information provided by the student was poor; inconsistent</i>	
Creativity	<i>4-5 Images and</i>	<i>Less than 4 Images and</i>	<i>Few images. 2-3</i>	<i>No images</i>	

	<i>diagrams. Illustrations</i>	<i>Diagrams. No Illustrations</i>			
References	<i>5 or more references</i>	<i>4 references</i>	<i>3 references</i>	<i>1-2 references</i>	
Total					

The W-B-L-T-a-A-A (Consult Tables 21 and 22) was presented to the Second-Year Students. They were requested to be as creative as possible.

5.5.6 First Year: Phase 3 Stage 4; 5 and 6

Phase 3 Stage 4 involved the first-year learners writing an online quiz. As part of Phase 3 Stages 5 and 6, the first years were required to write an in-person test (Consult Appendix C).

5.5.7 Second Year: Stages 4; 5 and 6

Phase 3 Stage 4 involved the second-year learners writing an online quiz. As part of Phase 3 Stages 5 and 6, the second-year learners were required to write an in-person test (Consult Appendix C).

5.5.8 Phase 3 Stage 7 Focus Group Interaction (FGI)

In Phase 3, students registered for Anatomy and Physiology in Level 1(First Year) and Level 2 (Second Year) formed the cohort. The assignment was given to all students registered for Anatomy and Physiology. I explored a more intentional route to gather information, requiring that the students record their responses in a journal. Thus, the students became accountable for their own learning by recording their lived experiences.

The focus group interaction for Phase 3 was conducted in person. The first-year students were repeating Anatomy and Physiology, which they had failed the previous year (2020). They were very excited to participate in this focus group interaction, as they believed they had a lot to share about their experiences during the COVID-19 Pandemic and the Lockdown that followed.

This Chapter presented the Phases and Stages of the action-reflection cycle. The next chapter will provide my students' results, insights, and realisations, as well as a brief look at my insights and realisations (which will be explained further in my living-educational-theory Chapter).

CHAPTER SIX

RESULTS, INSIGHTS AND REALISATIONS

“Be the change you wish to see in the world.”

Mahatma Gandhi

6.1 Introduction

Following Mahatma Gandhi's injunction, in this study, I have increased my sense of professional responsibility deliberately and overtly, in the hope that my students would be influenced by my role-modelling. I believe that to be able to change (influence) my students, I must first change (influence) myself. Whitehead (2018) describes that I can do this by asking, “How do I improve my practice?” It is essential to highlight this question here because as I mined the data for evidence, I needed to be constantly mindful of emerging themes.

I have made significant changes to the conventions of such a study throughout this study (Dadds, Hart and Crotty, 2001; Dadds and Hart, 2002; Hart, 2002). In this chapter, I have deliberately added ‘Insights and ‘Realisations’ to the Chapter's conventional title focused on Results. I have done this because in the context of W-B-L-T-a-A-A, Insights and Realisations are a significant part of the Results. I have recorded the numerical results of the students' performance in assessments, and have added the students' Insights and Realisations, which record the students' academic security, or lack thereof.

In Chapter One, I recorded Kinzie's (2012, p.4) question about who is responsible for the dismal throughput rates in higher education globally.

“Who are the culprits of depressed success rates?

Is it underprepared or unmotivated students?

Or is it underperforming institutions and ineffective pedagogies? Or are we ignoring emotional and physiological phenomena among a diverse student population?”

My Insights and Realisations, along with those of the students' Insights and Realisations expressed in my and their comments during the online interactions and journals, qualify their numerical results significantly. These Insights and Realisations point unequivocally to the responsibility for higher rates of Higher Education throughput at DUT on all parties, to a greater or lesser extent.

The insights I have gained have enabled me to realise the implications of these insights, which provide me, the teacher, with indications of how I can and must improve my professional practice in the future. In this chapter, I move from interaction to interaction, from assessment to assessment. I record the details of each interaction, whether assessed for marks or not and the marks the students earned (Consult Appendix Activity Schedule MBA and TLSA). I further record the insights of the students together with my insights, and I use the ARF to clarify my insights and realisations.

6.2 Phase 1

During the Phase 1 Stage 7 Focus Group Interactions held on 11 November 2020, the theme that emerged was good collegiality among peers and creativity employed to do assignments. Following are the details of the discussion.

I believe that the YouTube videos I uploaded influenced my students' learning positively. In our Focus Group Interactions, student MP11D1 shared his challenges and what he did to overcome them. He continued to share that he used the videos I uploaded to the MS Teams classroom to prepare for the upcoming exams. *"I think I will be comfortable writing the exam"* He also recommended videos that were helpful to him; this can be heard in the recording, which is available at <https://youtu.be/KA0nnqjZwIM> (the recording can be heard from 18:15-19:31).

Student FP25D1 shared as follows: *"The challenges that I found were mostly to lock down and online learning. It was very hard to adapt to such things as making videos, and I found that Mam like(s) us to be creative and arty, but I am not that type of person. I am not arty or creative."*

I found this a most significant comment as I realised that the student was basing her understanding of being 'creative' and 'arty' on a narrow and limiting definition. I made a note to myself to extend this narrow understanding of 'creative' and 'arty' to include problem-solving, which uses the same cognitive, affective, and sensory experiences as creativity as

guided by Blooms Taxonomy and Tan's conceptual framework (2012) (Consult Chapter 3). In addition, I explored the idea as a nursing educator to use elements of the Whole-Being-Learning framework to guide in the development of the assignments. As part of the assessment process, it is crucial to consider not only the content, but also the cognitive skills. According to the literature, students should demonstrate their knowledge by analysing, synthesising, and evaluating information (Mokgwathi, 2019). This aligns with Bloom's taxonomy's higher-order thinking skills (Allen, 2002).

To demonstrate their answers to the assignment that was given in Phase 1 Stage - The Skeletal System Project, the students had to do a video to demonstrate their answers. Student FP25D1 can be heard in the following video: <https://youtu.be/KA0nnqjZwIM> (the recording can be heard at 29:41 -30-23).

Student FP74D1 shared that she appreciated the videos I had uploaded to the classroom, including Dr. John Campbell's video, which she found most helpful. *"I found him explaining things much better,"* she said.

I was glad that she had found the relevant video helpful. I was also glad that she recorded her view, which indicated that she was taking responsibility for her own learning and, in turn, taking advantage of the situation to influence her peers to become responsible for their learning, too and develop good collegiality in the group. Students' sense of shared responsibility for learning and the development of collegial solid relationships are crucial to academic success and professional development in higher education. Creating an academic and personal integrity culture in which students strive for excellence and recognise their responsibilities to the academic community can dramatically enhance the quality of learning (Wong, 2016).

6.3 Phase 2

In Phase 2, in the focus group interaction, I asked the students how they felt about the Anatomy and Physiology module being assessed by Continuous Assessment. This focus group interaction was important as it revealed the students' perception of Continuous Assessments. Some students were reluctant to speak, and so did not participate in the focus group interaction. I allowed them to write their thoughts down and email them to me. The themes that emerged from Phase 2 identified the students' emotional instability regarding online learning. In addition, their insecurities of anxiousness, fear and stress became apparent. The subtheme of favouring the continuous assessment method was apparent.

My students shared how difficult it was to adapt to Anatomy and Physiology. Student FP25D1, a student, who finished school thirty years ago, said that when she was accepted into the nursing program, she believed she would be able to recall the “*Biology*” she did so many years ago. However, she was unprepared for the COVID-19 pandemic, which isolated her from her peers. Also, she did not anticipate the university moving to an online mode of teaching and becoming a university that was identified as a distance learning institution. She had deliberately registered to attend university classes in-person and was stressed and disappointed about the change.

6.3.1 E-mail conversations with my students

Student FP8D1 was registered for Anatomy and Physiology. She described how stressed and panicked she felt in the first semester at the thought of writing an examination. She believed her marks improved in the second semester because the module was converted to Continuous Assessment.

Student FP42D2, a mainstream student who was doing her degree in four years, shared that her Anatomy and Physiology marks improved when Continuous Assessment was used. She felt that she had a lot more subjects to study. She felt that the COVID-19 pandemic had made it evident that working online was not easy, and there were many problems with the networks and poor connections. When the assessment of the module became a continuous assessment module, she had enough time to comply with submission dates. She found continuous assessment less stressful without an examination looming over her head. She believed her grades improved because of this. She thought that writing online assessments was challenging but less confusing. She shared that on their way to writing a test, her classmates would revise and explain certain sections just before a paper; this would confuse her, which would cause her to believe that she did not study sufficiently. It will also cause her to black out in an exam.

Student MP12D2 shared his positive thoughts on Continuous Assessment: “*Mam, I did not grasp that Continuous Assessment is the best.*” He stated that he did not know that when doing the Continuous Assessment, one writes a test after finishing a particular chapter/section. He further explained that since he found Anatomy and Physiology to be challenging subjects, Continuous Assessment is the best method of teaching students with challenges with Anatomy and Physiology. He believes that writing a test after a particular section is best because I (he) could “*freshly* remember” the content taught. He considers that writing an exam creates confusion because all chapters need to be covered and learned, tested in one paper.

Student MP14D2 shared that Continuous Assessment helped him a lot. He had enough time to study for his assessments and complete his assignments. He was not worried about writing an exam at the end of the semester. He believed his results improved since Anatomy and Physiology were taught using the continuous method. I (he) “*appreciated Continuous Assessment.*”

Student MP48D2 found Continuous Assessment to be very useful. He acknowledged that he passed Anatomy and Physiology because the module was offered in this way. He states that since he is a first-year student, he expected physical sessions with lecturers, but due to the COVID-19 pandemic, he was introduced to “remote” teaching and learning. He found it to be not easy at all. He faced many challenges, but because Anatomy and Physiology were offered in a Continuous Assessment way, it made his learning less stressful. He could balance all his modules and set time for each. I concur with Trotter (2006), as stated in Chapter 3 that continuous assessments motivate students to learn continuously.

6.4 Phase 3

In May of 2021, I conducted Phase 3. I included the students who failed Anatomy and Physiology and were repeating their first year. I believed they needed to be a part of my study because of their experiences and values. I believed that they would contribute significantly to my study by sharing their experiences. I also included the second-year students who participated in the Anatomy and Physiology teaching and learning. In my first-year class of repeat students, there were fifteen students. In my second-year class, fifty-six students participated. I want to record that no new students were registered in 2021. The nursing department was in the process of applying for re-curriculation of the degree, which prevented the enrolment of any new students.

The themes that emerged in Phase 3 were the students' values in relation to DUT's Envision 2030 framework. Phase 3 explored the relationship between students' values and the Durban University of Technology's Envision 2030 framework, a strategic plan that outlines the university's commitment to sustainable development, technological innovation, and social transformation as depicted in Chapter 1, Figures 2 and 3.

6.4.1 Building a Game Assignment - First Years

I separate and discuss the assessments in First Year and Second Year categories to maintain clarity (Appendix C and D). Here is a collage (Consult Tables 23, 24, and Figures 34 and 35) of the games that my students developed. The games' names and rules, which were adapted from famous board games such as Snake and Ladder, are explained.

Table 23: Rainbow Skeleton



<p><u>What is the game about?</u></p>	
<p>The game is about anatomy and physiology body system terms where a name is written in the block then the participants will answer the term of the name written on the block where the dice has landed and have included some general questions in order to make the game more fun and enjoyable.</p>	
<p><u>HOW IS THE GAME PLAYED?</u></p> <ol style="list-style-type: none"> 1. The game is only played by two participants using a board game and a dice for rolling. 2. Each participant must have a coin at hand. 3. Each participant is given a chance to play by rolling a dice and questions will be asked according to where the dice has landed. 4. If the participant answers the question displayed to where the dice has landed correctly then he/she moves the coin to the next level. But if the player fails to answer the question about where the dice landed, then he/she does not move to the next block but will wait until it's their turn to play again. 	
<p><u>RULES OF THE GAME.</u></p> <ol style="list-style-type: none"> 1. Only two players are allowed to play on the board game. 2. Each player must bring their own coin which they will use to progress on the next block in the board game. 3. No questions are to be repeated, 4. Cheating is not allowed, if you cheat then you will be disqualified. 	<p>NB: THE QUESTIONS ON THE BOARD GAME ARE ONLY MEANT TO EXPAND AND BOOST YOUR GENERAL KNOWLEDGE.</p>

Table 24: 30 Seconds Game

<p>30 SECONDS</p> <p>INTRODUCTION</p> <p>30 Seconds is a South African fast-paced general knowledge game. Players generally play in teams of two to sixteen. One player must guess a word from their teammate's explanation, much like Charades, with the aim to guess as many</p> <p>RULES OF THE GAME</p> <p>One player must guess a word from their teammate's explanation with the aim to guess as many possible answers as possible in 30 seconds.</p> <p>OBJECTIVES OF THE GAME</p> <p>Each team strives to reach the FINISH square first. Teams advance by correctly identifying the name that their teammate is describing.</p> <p>Teams must strive to identify as many names as possible during each turn of 30 seconds.</p> <p>The most being five</p> <p>ANSWERS FOR THE BLUE TEAM</p> <ol style="list-style-type: none"> 1. Anatomy 2. Septum 3. Plasma 4. Blood group O 5. A 6. Cell membrane 7. Bladder 8. Superior 9. Metabolism 10. Voluntary muscles 11. Cardiovascular system 12. Mitochondrion 13. Red blood cells 14. Cartilage 15. Functions of bones (give one) 	
---	---

ANSWERS FOR THE GREEN TEAM

1. Urethra
2. Tissues
3. Homeostasis
4. Axial skeleton
5. White blood cells
6. Physiology
7. Right Ventricle
8. Blood group B
9. Deltoid
10. Function of Blood (Give one)
11. Skeletal System
12. Involuntary muscles
13. Cell wall.
14. Dorsal
15. Excretion

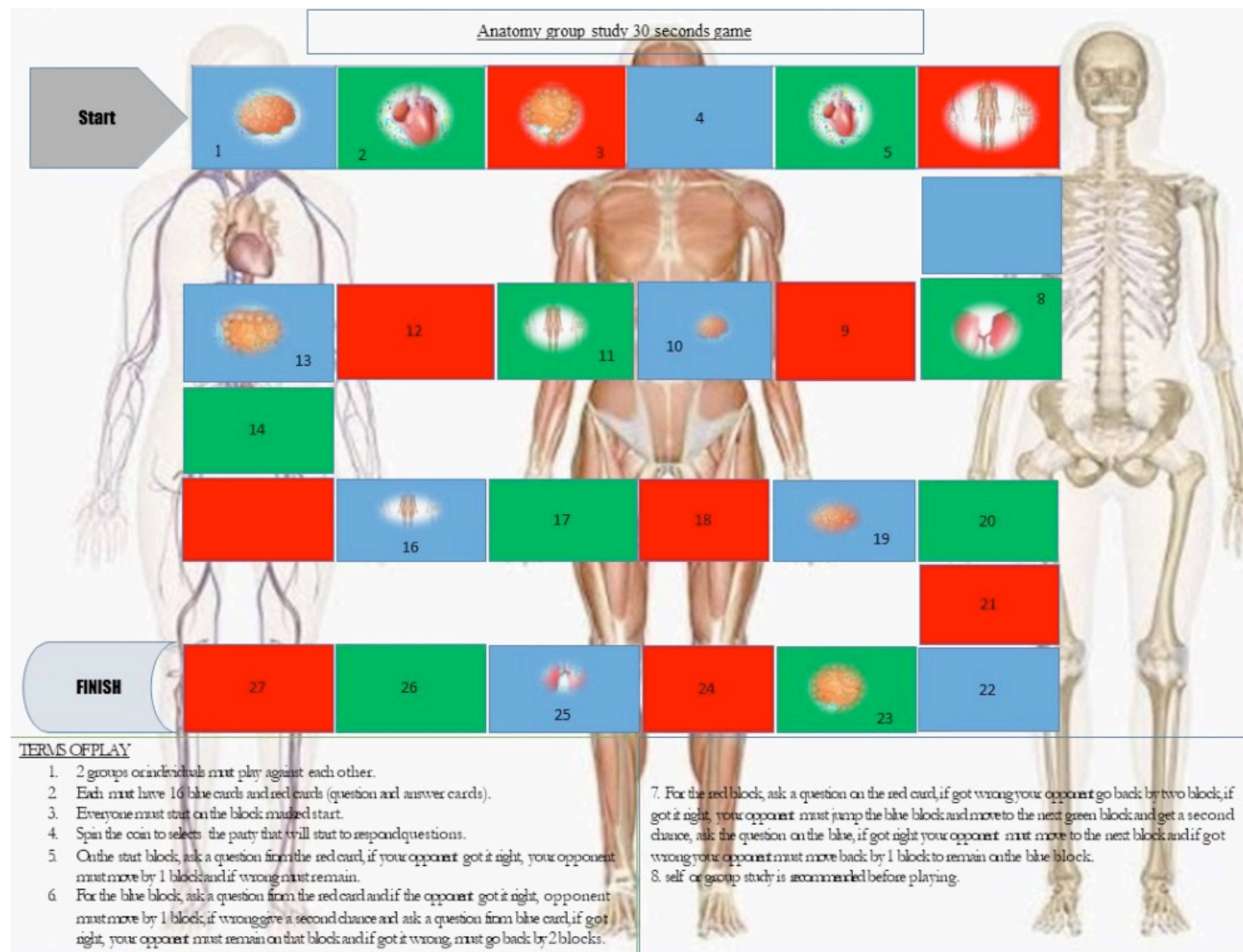


Figure 34: 30 Seconds Board Game

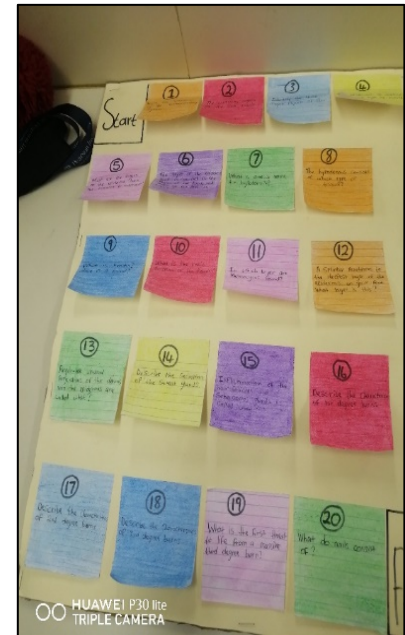
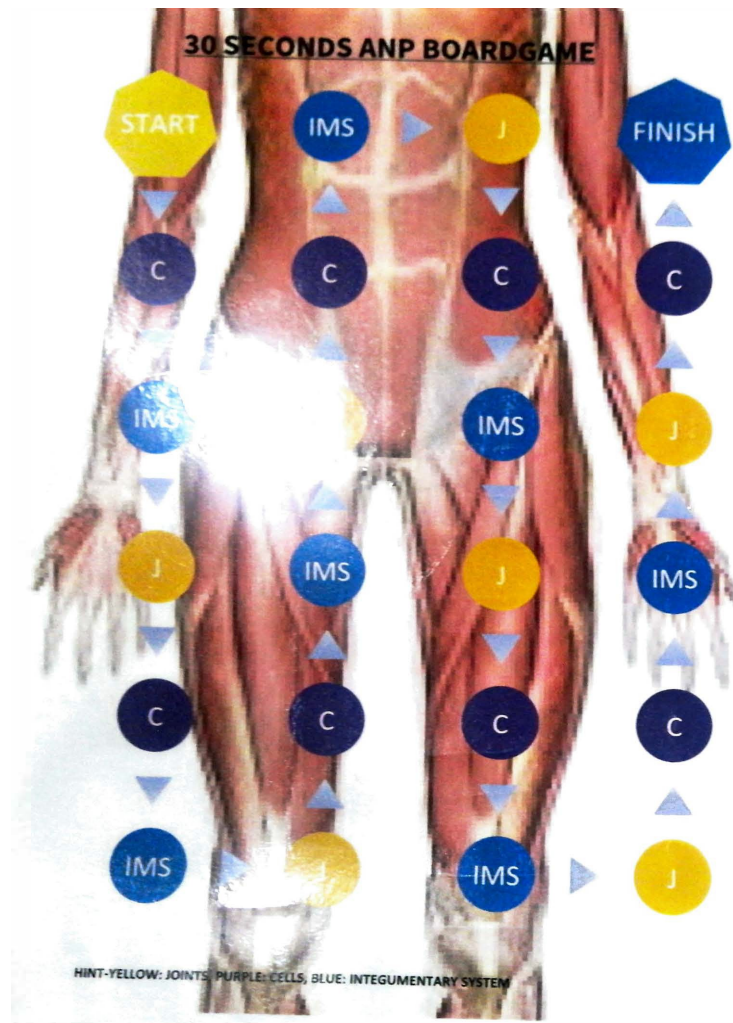


Figure 35: Students Playing their Board Games



GAME RULES

1. To BEGIN the GAME, You Must toss the dice. The Number You Get ON The dice Means the NUMBER OF CIRCLES You Will Move If You Get the Correct answer.
2. If You do NOT Get the Correct answer You move one circle back.
3. The ONE WHO Finishes FIRST IS the WINNER.
4. Each Player Is GIVEN 30 Seconds TO PLAY

Figure 36: Board Game

The student above (Consult Figure 35 and 36) is seen with the game she developed. She titled the game “30 Seconds” and she focused on the Muscular System. Developing the game and playing with her colleagues were enjoyable experiences for her.

6.4.2 Phase 3- Second Years Students

In Phase 3, what was most important to me was that all of my students had the opportunity to express their views and communicate their values and experiences. I knew that each of them had something important to add to my teaching practice, and I needed to hear what they had to say. The value of care became a guiding principle for Phase 3. My objective was to ensure that my students share their thoughts and feelings about the people who have influenced them in their teaching and learning. Further, ENVISION 2030 (Consult Chapter 1 Figures 2 and 3) became an integral part of the university's DNA. In order to achieve this goal, I needed to make sure that my students were held accountable for their own learning.

6.4.3 Phase 3 Second Year Focus Group interaction

Explanatory Note

In this assignment I wanted my students to share their positive and negative experiences with anatomy and physiology. I wanted them to reflect on their journey. I wanted them to become accountable for their learning by documenting their reflections.

Here, I share the focus group interaction in the form of a conversation. I created the reflective dialogues from the focus group transcriptions and compared this to my students' reflective journals.

I will refer to the students, not as their coding identified in the schedule of participants (Appendix Schedule of Participants). Instead, I refer to them as Mr. for male and Ms. for female with the initials of their first name. As I became intimate with my data, I recognised as I told their narratives that they are a person who would remain anonymous. I have chosen these three students because they contributed significantly to the focus group interactions. My students refer to me as Ms. C. I will adopt this title in the dialogues.

6.4.4 Phase 3 A reflective dialogue: values, ‘positive and negative experience.’

Ms. C: Did you’ll know about DUT’s Envision 2030? Did you know about the institution’s values highlighted in the ENVISION 2030?

Second-Year Students: No, mam, we did not know about ENVISION 2030.

Ms. C: What were some of the challenges you faced during the pandemic that impacted your Anatomy and Physiology module?

Mr. S (Response 1): Before the COVID-19 pandemic, I could attend the library, face-to-face classes, and tutorials. Now, everything is online, which has impacted me very severely. I had to work without any group meetings. I could not attend tutorials, which also affected me. I could not go to campus, and there was no access to the library. This also affected me. I did not have money to buy books, so the library was my only resource for getting the books.

Ms. D (Response 2): Life became hard during the pandemic. Staying at home made me crazy. When I started to attend my clinical practice, my mum would wait at the door and spray my whole body with disinfectant. I did not want to die. I saw so many people dying. I dreamt that I had died and had to receive counselling from my pastor. In addition, there was so much pressure from school. We had to write exams for the first and second semesters. This resulted in students striking, causing our superiors to postpone the exams. I had to submit my skeletal system project online and found that somebody had deleted my assignment. I nearly went crazy. I told Ms. Coopasami about the incident and thank God she was patient with me.

Ms. T (Response 3): We were attending face-to-face classes, and because of the COVID-19 pandemic, we were sent home to our respective homes. Here I had to participate in all my lectures online using Microsoft Teams. I was physically focused on passing my Anatomy and Physiology. I was not going to let the COVID-19 pandemic disrupt my learning. However, I became stressed and anxious. The COVID-19 pandemic impacted my mental health in a significant way.

Ms. C: What were some of the positive strategies and values you have developed through your journey of doing Anatomy and Physiology? I want to share with you what I mean. I know I asked you to leave when you were late for the classroom. I need you to understand why. The

values of responsibility, honesty, and transparency are essential. All of you are going to become nurses. If you are let to the ICU, your patient may die. It is essential to be punctual. This indicates you are responsible.

Ms. D (Response 1): I was introduced to online learning. In my village, there is a poor network connection. I had to do house chores, and focusing on my books was hard. I appreciated the semester being changed to Continuous Assessment.

Ms. T (Response 2): I decided to attend every online class and tutorial session. I knew this would help me. I also watch YouTube Videos. In addition, the module was changed to Continuous Assessment.

Mr. S (Response 3): I had to put more effort into my learning. I repeated this module over and over. This was the most embarrassing thing for me. I had to believe, and asking for help from my colleagues, senior colleagues, and lecturers made it easier for me to cope with the learning technique.

6.4.5 Phase 3 Subthemes

In Phase 3, themes that emerged were connectivity issues (Consult Table 25), data issues, and preference for lecturing mode. Tables and student commentary will be used to present data analysed in Phase 3.

Table 25: Connectivity Problems and Improvement of Technology

Participants	Data Stage	Problems with Connecting to the Internet and Data Issues	Online lectures/ teaching/ assessments were hard	Preferred Face to Face Lectures
63	3	63	45	20

As shown in the table above, there was a problem with connectivity for all students (Table 25). Some students preferred face-to-face (n=20) instruction over online instruction (n=45), which was difficult for them.

6.4.6 Problems with Connecting to the Internet and Data Issues

There has been a significant impact of COVID-19 on various aspects of life, including education. There have been a range of challenges associated with remote learning, particularly in regard to internet connectivity and data accessibility, as highlighted below recorded by the responses of the students:

According to FP25D3L2, *“online learning posed its own issues, including having devices that are not suitable for connecting well enough, poor network connections. Although we were provided with data it would also sometimes cause delays when some of us had not received it on time and wasted even more time of teaching and learning.”*

FP55D3L2 responded, *“Online classes made the module a bit challenging because I feel that the module would make better sense when you have lecturers and peers in proximity to assist when you are having difficulties. Network connectivity was an issue, as well, as in my area, we have a problem with network connection, so this created a greater challenge in my studies. I had to come up with a solution to move to my aunt's place as theirs was better.”*

MP13D3L2 also indicated, *“Network and load shedding was also a problem sometimes which makes me miss some online lectures. And also, data was an issue sometimes, making me miss some lectures.”*

FP31D3L2 responded, *“Online learning was introduced. Meanwhile, this was my first exposure to technology, and I was still battling with my computer skills. This was challenging. We had data and connectivity issues.”*

According to UNESCO, more than 1.5 billion students in 188 countries were affected by the pandemic, which prompted the adoption of online teaching and learning techniques to maintain educational standards (Armoed, 2021). As a result of the shift to online learning, students from disadvantaged backgrounds experienced greater challenges in gaining access to the necessary technological resources and digital literacy skills to participate effectively in remote classes (Barrot, 2021). According to Newlin (2021), It was difficult to successfully implement these online learning platforms due to the socio-economic challenges South Africans faced, including the lack of access to information and communications technology infrastructure and internet connectivity.

“This traffic light inside my head

Is always green and never red.

My thoughts, my dreams, and all my fears,

They all speed past my listening ears.”

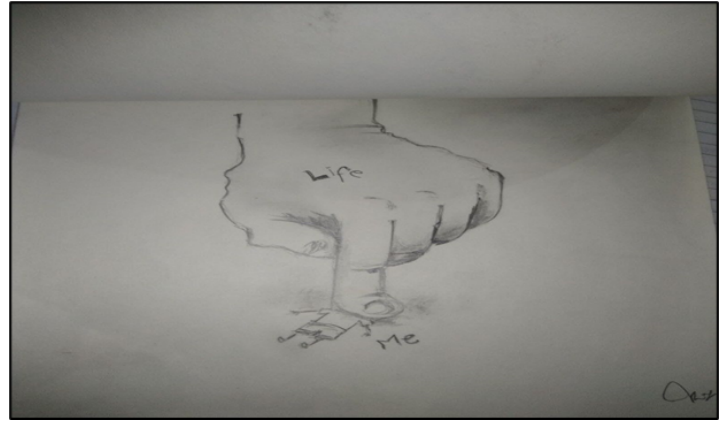


Figure 37: Students Response

In addition, MP26D3L1 explained, *“As we started attending online, it wasn’t easy. I remember the other day we were asked to do a project, a skeletal system project, whereby we were taking a video and uploading it on Teams. It was hard for me to upload the video as at that time, I didn’t have a device. I ended up not uploading it, which led me to not meet the DP, which led me to fail ANPA103 (Consult Figure 37).”*

6.4.7 Preferred Face to Face Lectures

The theme of preference for lecture mode was evident. Most of the students preferred face-to-face learning, as evidenced by the data below.

MP4D3L2 responded, *“Being in a new environment like a university is hard on its own. It’s worse when you are exposed to things like online learning when you are used to having a teacher in front of you for about seven hours spoon-feeding you with information. Online learning was so tricky for me. That is purely because I come from a very rural area, and I’ve never been used to technology, especially when it had to come with remote learning.”*

According to FP1D3L2, *“We were introduced to online learning, which was the worst experience ever because I was not familiar with it. A network connection is poor in my village, which made it hard for me to attend classes online.”*

MP13D3L2 responded, *“Learning anatomy and physiology needs mostly face-to-face learning as lecturers sometimes need to illustrate on some points they are talking about and make visual examples that impacted me negatively.”*

FP6D3L2 responded, *“I was not able to do anatomy and physiology like I did when I was at school. Physical classes were very helpful. I was able to understand better when I saw the lecturer teaching.”*

FP23D3L2 responded, *“We did not have enough time to learn this module face-to-face due to coronavirus, so at the time, I saw this module as the easiest thing, as I saw things we did in Grade 12 life sciences. Things changed during the Lockdown, and as we ended up doing other chapters, I had difficulties in understanding.”*

The COVID-19 pandemic has had a profound impact on higher education in South Africa, forcing a rapid transition from traditional face-to-face instruction to online learning (Mpungose, 2020). However, this transition has not been without its challenges, particularly for disadvantaged students (Newlin, 2021). As a result of the pandemic, deep-rooted inequalities exist in South Africa's education system, with historically disadvantaged students bearing the brunt of the burden. (Mpungose, 2021).

6.4.8 Online lectures/ teaching/ assessments were hard.

MP15D3L2 highlighted, *“Network issues and data issues made me miss some of my classes and it did not feel fine since I was missing a lot during that time, and I ended up failing some tests because I also missed some revision classes.”*

According to FP50D3L2, *“ This subject is not easy to study online, where you do self-directed learning mostly. Online was challenging.”*

In addition, MP9D3L2 responded, *“Our country got into a pandemic, the Coronavirus in March 2020this meant that the mode of learning had to change and be online. Adjusting to online learning posed to be a problem as we had to tests online and got bombarded with information without having an opportunity to interact with my peers and have better insight.”*

Student FP81D3L1 responded, *“There's an English saying that says “two eyes are better than one”, I sometimes forget that. The last challenge I faced in studying Anatomy and Physiology was the Corona Virus Pandemic (COVID-19). This also changed a lot because we all had to start using Online Learning platforms, which really gave me a hard time because I did not have all the necessary equipment for it, e.g., a laptop. I only had a cell phone which was not suitable for all these online platforms. So, things became really tough for me, because I had to figure*

out how I was going to engage in these online learning platforms. On top of that, I had a big book that I had to read, and tons of assignments waiting for me to write. So COVID-19 only made matters worse. But out of all these challenges I have managed to learn how to communicate with other students and ask for help where I get stuck Because two eyes are always better than one. I am also working on a way to strategize on how to handle the workload (Consult Figure 38 below) and handle all the assignments I am given.”



Figure 38: Illustrations of students’ response

It is imperative that comprehensive strategies are developed to address the sociological barriers and ensure equitable access to education, especially in the context of distance education and online education.

Table 26: Continuous Assessment (C.A.), Group Work, Helpful Videos, and Help of a Tutor -Alternative Assessment

Participants	Phase	C.A	Group Work	Helpful Videos	The help of a Tutor
63	3	31	38	28	19

According to the above table (Consult Table 26), most students preferred anatomy and physiology to be taught as Continuous Assessment (C.A.); (n=31), as opposed to being offered as a semester-long class with exams covering the whole semester. Furthermore, most students preferred group work (n=38). In addition, students responded positively to the uploading of helpful videos (n=28) to their MS Teams Classrooms. As well, students responded favourably to having a tutor assigned to them (n=19).

6.4.9 Continuous Assessment

FP1D2L2 responded, *“There was a time when we were back at our school residence when life began to throw us lemons. All students were suffering because of the workload pressure since we were writing exams and assignments for both semesters at the same time. This led other levels to commence a strike, begging for our superiors to loosen up the workload. It was really bad because exams had to be postponed and we were running out of time. Although it has helped us a lot because Anatomy and Physiology were made a Continuous Assessment, and this is a blessing because it has minimised the academic pressure we were facing as students.”*

According to FP15D3L2 *“Having to study Anatomy and Physiology in Continuous Assessment helped me by improving my marks and to progress on another semester for anatomy. I believe that if it continues to be in the form of Continuous Assessment will help me a lot and I will be able to progress...”*

As noted, Continuous assessment has become an increasingly popular approach in Anatomy and Physiology education. It involves the ongoing evaluation of student learning throughout the course rather than relying solely on a final examination. This method has been praised for its ability to provide more comprehensive and timely feedback to both students and teachers, ultimately enhancing the learning process (Rai, 2019).

6.4.10 Group Work

FP6D3L2 commented, *“Anatomy and Physiology require a lot of work. I will organise study groups and study with my classmates because that makes things easier when we discuss.”*

In addition, P15D3L2 responded, *“Online classes created the feeling of loneliness since it was difficult to learn alone without my study buddy.”*



Figure 39: MP16D3L2 illustrated “group work with a picture”

“Three simple rules in life. 1. If you do not go after what you want, you’ll never have it. 2. If you do not ask, the answer will always be no. 3. If you do not step forward, you will always be in the same place.”

Figure 40: FP33D2L2 shared this quote in her journal.

6.4.11 The help of a Tutor

FP33D2L2 responded, *“I’ve also learned that anatomy and Physiology is not just a module but deals what daily basis things that we see and experience. last but not least is that anatomy and Physiology have tutors that help us to prepare for a taste or an exam.”*

MP11D3L2 responded, *“I learned a lot from our tutor, she would take us step by step through all the chapters, and if we still did not understand she would share how we used to study and memorise everything when she was doing this module. She introduced us to studying revising work using previous question papers because she understood that with many people tackling questions is a challenge not because they have limited knowledge but because they fail to understand the questions posed.”*

FP1D3L1 commented, *“Fortunately, I was introduced to our tutor, Ms Mbhele, who proved to be a great assistance and motivator to me. She allowed me the platform to ask her questions privately, which was less more embarrassing than asking questions considered to be very easy*

by others but were problematic for me. We had tutorial interactions on Teams and further interactions on WhatsApp, which were very helpful in terms of understanding how the human body works.”

6.4.12 Helpful videos

FP1D2L2 responded *“It was very hard to cope, the strategy I used to face my challenges was watching videos on YouTube. Dr. Campbell helped me a lot to understand Anatomy and Physiology.”*

FP50D3L2 responded, *“I got time to watch videos that are posted by my lecturer on Teams. They help a lot as this subject is more understandable with visuals.”*

FP4D3L2 responded, *“It was very hard for me to study everything without my lecturer in front of me. I had to come up with a strategy to use videos from YouTube which would be finding a professor who would explain each system we were learning.”*

6.4.13 Feelings of anxiety and fear due to the Lockdown.

As a result of the Lockdown, most students experienced feelings of fear and anxiety.

FP57D3L1 responded, *“Then comes pandemic periods for COVID-19 where our learning platforms changed to online learning, the university closed and we had to go home and continue learning online, as for me it was a bit challenging because I was already used to campus, seeing the lecturer in front of me and that really made me happy and to understand the module more, each day got interesting but due to the pandemic, I lacked energy, lost focus and interest, some classes I will miss due to poor network and connectivity and I will feel so bad because deep down I know that I lost much information but that did not keep me away from my studies, I made myself a reading session of the book and made notes and summaries so that I boost my intellectual wellness and of my mental health because of being free from worries, panic, and anxiety.”*



Figure 41: Student FP57D3L chose a picture of a student with anxiety.

MP53D3L1 responded, *“In the middle of a year my young father died in that time I need to prepare for the exams at the end of the semester. That is where I felt like there was a big rock in my back that Was pressing me downwards so that I could lose hope and give up (Figure.35). That was the toughest time I ever had in my life when I was unable to go to my young father's funeral because we had an exam on the day before the day of the funeral and the exam was long it took a very long time. In that paper I couldn't focus all I was thinking about was home and my father that has passed away.”*



Figure 42: He felt like a rock was pressing him down and he was about to lose hope and give up.

FP1D3L2 responded, *“Staying at home locked made me go crazy because I am a person who loves to socialize with friends, and I could not do a thing. Following the COVID-19 protocols*

was hard to do and I felt depressed because I was under a lot of pressure. I was supposed to wear a face mask every time when leaving the house, and when I came back my mother was waiting for me at the door to spray my whole body with disinfectant and I had to take out my whole clothes. I was so scared to die because I have been seeing people die left and right and I also thought that maybe a family member would die since it was easily spreading to infect another person. I was psychologically unstable because I even dreamt of my funeral and my pastor gave me counselling.

FP21D3L2 responded, *“Most difficulties started when the COVID-19 pandemic took place we had to leave school premises for Lockdown, which went almost 8 months. Being home during COVID-19 pandemic wasn’t easy at all and I was around my siblings they sang, and played around me during that time I had classes to attend. Every space was occupied I was forced to stay with them because I had nowhere to go. Sometimes I would end up entertained and focusing on whatever event they were doing. COVID-19 really hit to a point where I felt confined not being able to do anything.... I was so stressed being in one area doing the same thing every day, the situation created anxiety and depression.”*

FP1D3L1 responded, *“During Lockdown, things just spiralled out of control as my biggest challenge with Anatomy and Physiology began around the beginning of June 2020. This is when very close family members and friends were getting infected with Corona Virus and to me, this brought along a lot of anxiety. About a month after the beginning of these events around me, on the 18th of July, my grandfather felt sick, and we thought it was just the common cold as it was in the midst of the cold winter. We then used influenza medication like we normally would yearly but unfortunately, a few days after falling sick he passed on. After this, his body got tested for Corona virus and the test results came back positive. This was a huge shock to the family as he had not gone anywhere for at least 2 weeks before his passing. His death meant everyone in the family had to get tested and unfortunately for me my results came back positive, and I was put on a quarantine for 2 weeks. The 2 weeks of quarantine were a chance for me to catch up on my studies, but this was not possible as I was really disrupted by the grief of losing my grandfather; and not being able to mourn together with my family caused me a lot of loneliness and depression. The news and social did not make it any easier on me as every day I would*

either read or hear about the deaths due to the pandemic. This only escalated my fears, and I was always anxious and stressed as I could have died or infected family members who cared for me.”

FP8D3L1 responded, *“Studying at home was hard because you don’t get enough time to study or attend classes peacefully. You are always caught up between schoolwork and house chores and it was not easy balancing all that and there was no one to help especially with schoolwork I had to do it all on my own. And when we came back after Lockdown, I realised that I’m behind in many things.”*

Table 27: Traditional Assessment (T.A.) vs Alternative Assessments (A.A)

Participants ID	Written Test (T.A) (%)	Online 1 (A.A) (%)	Online 2 (A.A) (%)	Game Assignment (A.A) (%)	Journal (A.A.) (%)	Final Mark (%)
FP59D3L1	28	62	63	75	66	58
FP57D3L1	27	0	40	75	73	50
MP53D3L1	28	53	60	40	58	46
FP1D3L1	36	85	55	70	72	61,
MP19D3L1	12	68	0	75	66	45,
FP81D3L1	20	62	65	70	64	54,
MP26D3L1	45	85	62	70	62	62,
FP3D3L1	15	83	55	70	0	38
FP63D3L1	37	75	53	70	40	52
MP33D3L1	41	52	63	75	72	62
MP68D3L1	58	72	62	75	76	69
FP64D3L1	16	73	50	70	0	36
MP83D3L1	27	0	40	75	73	50
FP36D3L1	30	0	55	70	74	52
FP22D3L1	0	0	33	75	50	36
Average	28	51	50	70	56	51

As can be seen in Table 26, the marks of the participants differ between traditional and alternative assessments. As a result of the traditional Written Assessment, the students achieved an average of 28%.

During the first individual online quiz, students scored an average of 51%, while they scored an average of 50% during the second individual online quiz. Among the students who participated in the Alternative assessment, which was a group assessment, an average of 70% was achieved. Students averaged 56% on the individual journal assessment.

Table 28: Traditional (T.A) Assessments and Alternative Assessments (A.A)(Level 2)

Student Names	Written Test 1 (T.A) (%)	Online Test 1 (A.A) (%)	Online Test 2 (A.A) (%)	Assign.1 /NT (A.A) (%)	Assign.2 JOURNAL. (A.A) (%)	FINAL MARK (%)
FP1D3L2	55	83	50	84	74	71
FP2D3L2	66	80	57	63	76	69
FP3D3L2	57	85	43	76	64	66
FP4D3L2	41	78	43	83	70	65
FP4D3L2	63	88	58	93	72	76
FP6D3L2	82	85	58	50	70	69
FP7D3L2	34	50	37	63	66	52
FP8D3L2	69	83	55	75	70	71
MP9D3L2	44	83	57	70	62	62
MP10D3L2	87	70	42	75	72	73
FP8D3L2	43	78	28	66	68	59
MP9D3L2	51	92	50	70	76	68,
MP10D3L2	59	87	45	79	76	71
MP14D3L2	58	77	50	75	68	67
FP15D3L2	32	80	53	58	70	57
MP16D3L2	63	82	37	78	64	67
FP17D3L2	59	82	55	76	80	72
FP18D3L2	67	67	28	76	76	68
FP19D3L2	81	80	35	84	82	77
FP20D3L2	56	67	0	68	58	56
FP21D3L2	64	83	62	65	70	68
FP22D3L2	62	85	43	78	78	72
FP23D3L2	67	82	57	86	72	74
FP24D3L2	64	83	57	63	76	69
MP25D3L2	41	83	57	90	70	68
P26D3L2	64	77	50	65	70	66
FP27D3L2	30	83	42	73	72	60

Student Names	Written Test 1 (T.A) (%)	Online Test 1 (A.A) (%)	Online Test 2 (A.A) (%)	Assign.1 /NT (A.A) (%)	Assign.2 JOURNAL. (A.A) (%)	FINAL MARK (%)
FP28D3L2	73	77	42	75	76	72
MP29D3L2	86	85	0	71	74	71
MP30D3L2	56	87	52	71	70	68
FP31D3L2	66	85	40	60	72	66
FP32D3L2	58	80	32	79	78	69
FP33D3L2	45	63	43	78	84	66
FP34D3L2	65	83	55	84	74	74
MP35D3L2	66	85	35	81	76	72
FP36D3L2	54	65	25	76	80	65
FP37D3L2	37	63	45	86	34	53
FP38D3L2	38	78	0	68	76	57
FP39D3L2	61	83	48	68	76	69
NSIBAND E, N	62	78	37	71	68	66
FP40D3L2	38	75	0	64	70	54
FP41D3L2	55	77	55	78	78	70
FP42D3L2	64	80	58	70	68	68
FP43D3L2	44	67	50	69	60	58
FP45D3L2	45	83	43	69	72	63
MP46D3L2	48	63	57	60	76	61
MP47D3L2	20	60	25	70	74	53
FP48D3L2	47	80	45	70	84	67
FP49D3L2	62	67	52	79	70	68
FP50D3L2	51	80	58	75	76	68
FP51D3L2	57	83	50	65	78	67
FP52D3L2	28	50	33	78	70	55
FP53D3L2	59	83	60	63	80	69
FP54D3L2	51	70	53	54	64	58
FP55D3L2	61	80	52	50	76	64
FP56D3L2	50	75	40	68	70	62
Average	55	77	43	72	72	66

As seen in Table 28, the participants' marks differ between traditional and alternative assessments. As a result of the traditional Written Assessment, the students achieved an average of 55%. During the first individual online quiz, students scored an average of 77%, while they scored an average of 43% during the second individual online quiz. Among the students who participated in the alternative assessment, which was a group assessment, an average of 72% was achieved. Students averaged 71% on the individual journal assessment.

6.5 Conversations with the 'Bachelor of Health Sciences in Nursing Fourth Year students' in November 2020

As part of my professional practice, one of the roles that I fill is that of a "research supervisor". During the fourth year of the Bachelor of Health Sciences in Nursing program, students are required to complete a research project. My role is to supervise the research projects that students conduct in order to complete their studies and graduate. It is important to note that the conversation described here occurred during one of the peak periods of the COVID-19 Lockdown when I met with the five students conducting their fourth-year research under my supervision. In 2018/2019, I taught them Anatomy and Physiology 1 and 2 to prepare them for the next level.

The students talked at length about feeling stressed about not being able to have in-person contact with me as their supervisor. They had struggled and were still struggling with online data and connectivity issues. I intended to inquire about the impact my teaching of Anatomy and Physiology had on them in their fourth year compared to my teaching in their first and second years.

They responded, "At first, we did not know what to expect. We were scared because Ms. Coopasami was our supervisor."

Ms. C: Please share your experience/s with me." ?

Student M: "You say it like it is, Mam."

Student K: *"I was scared. I remember when I was doing this, and it was the first or second year, and we were on leave. It was in June, and you gave us the assignment to draw tissues, and then you also gave us a due date. When we came back from leave, we had to submit it, and I did not finish it. I remember sending you an email that I could not submit it on time. You*

responded, mam, and your response was, do not bother. I was so worried. I apologised, and you asked me to come to your office. I thought I was going to repeat Anatomy and Physiology. However, when I came to your office, you took my assignment, and I could not believe it. I was like, hey, mam is kind. Ma'am, this is a compliment from me for you. Mam, you were kind, but you are also strict".

In responding, my student observed my kindness; however, I did not provide a safe environment. I also realised that the student was displaying kindness, not me. I had presented myself as a "living contradiction" (Whitehead, 1989, p.49). I realised that I had contradicted the values I believed I lived by in my practice. I claimed I valued kindness, but I had displayed abruptness in my strict behaviour.

As the conversation proceeded, Student K was kind enough to share her concerns about what mattered to me that would help me improve my practice. She concluded by saying, "Mam, it is okay to be strict, but sometimes it is also important to know that there are reasons why students do not submit their work. I should ask them before giving them a 0."

I was surprised to learn that the group felt this way. What the students felt and said challenged my caring values. Whitehead (2013, 1989, p.49) has described this as a "living contradiction." Whitehead (1989) explains that a "living contradiction" occurs when the values that are claimed and the values evident in behaviour contradict each other. The students became comfortable sharing their feelings with me as our conversation progressed.

This conversation was most valuable. On reflection, I realise that my "do not bother" response to the student led her to believe that I was going to fail her, when in actual fact, I said "do not bother" because I realised in that split second that there were issues, she was dealing with that were beyond her control. I realised my strictness was unnecessary and interfered with cordial relations between myself and my students. I needed to overcome this living contradiction.

6.6 Summary of the student responses as depicted above.

The students revealed their intellectual, social, and affective responses to the range of innovations I presented to them predominantly in two spaces. During focus group interactions and in their journal records, the students responded effectively and socially to my actions and innovations. I was deeply touched and moved by my students' sharing the tragic loss of their loved ones during the COVID-19 pandemic. The evidence of my students' intellectual and

cognitive responses to my actions and interactions can be found in the students' academic performance in tests and assignments and in their journal records (Consult Chapter 6). This is how I determined which aspects of learning were secure and which required more attention from the excerpts from my students' journals

In their journal entries, a few students expressed their preference for working alone online. A significant number of students recorded their delight when they mastered working online, even though they had struggled initially. Most students recorded a number of preferences, *viz.* for in-person teaching and learning, for access to resources such as computers, connectivity, data, libraries, and laboratories. Numerous students expressed the need for in-person access to lecturers, teachers, tutors, and other support systems. Significantly, there were also students who recorded that they missed working with fellow students, with whom they usually studied and completed group assignments. There were also students who recorded that they enjoyed and benefited from working in groups. The students who had little, if any, access to digital resources became, understandably, desperate and depressed. This situation highlighted the tragedy of those who fell into the 'have-nots' groups and highlighted the very real impossibility of their accessing higher education successfully.

I was particularly pleased with the students' responses to those assignments, which required creativity and innovation. The most striking examples were the students' responses to the 'Design-a-Game' Project. Not only did I find the aesthetics of the designs pleasing, but I was also impressed with the knowledge of Anatomy and Physiology displayed in the questions they created in these games. This attention to detail indicated that the students understood the rationale informing the Design-a-Game assignment, *viz.* that this assignment provided them with an opportunity to inform their own learning. I noted mainly that they explored the opportunity of learning the content of Anatomy and Physiology extensively and in close detail.

This chapter provided rich data of the students' contribution towards their learning.

CHAPTER SEVEN

MY LIVING EDUCATIONAL THEORY

“Those who complete the course will do so only because they do not,
as fatigue sets in,
convince themselves that the road ahead is still too long,
The inclines too steep,
the loneliness impossible to bear and the prize itself of doubtful value.”

Thabo Mbeki

‘But if you believe yourself worthy of the thing
you fought so hard to get,
then you become an instrument of God,
you help the Soul of the World,
and you understand why you are here.’

Paulo Coelho

7.1 Introduction

In this chapter, I revisit my research question “How do I improve my practice as an Anatomy and Physiology lecturer to enhance students’ performance in an ‘at-risk’ subject and becoming Whole-Being-Learners and Whole-Being-Professionals ?” In this chapter and in response to my research question, I explored my research journey up to this point, considered the results of the study, gathered my leading insights, and addressed my realisations about my professional practice.

Throughout these pages, I have shared my experiences of the past seven years of learning about my practice and my living educational theory, based on the unique constellation of the values I cherish. I use my questions in the Action Research Framework as discussed in Chapter 1, Table

1 to generate my living educational theory/ies and its/their application and revision in my practice.

I have addressed my concerns in Chapters 1 and 2 of my thesis about my students' difficulties in understanding and learning Anatomy and Physiology because this knowledge and understanding are critical to the care of their future patients.

I have explored the teaching, learning, and assessment knowledge and practice evidenced in centuries of pedagogical research and practice. I have also explored (a) new initiative/s which are emerging continuously. In this regard, I have continued to explore the recent advances in the neurobiological understanding of what constitutes a human brain, and its learning capacities and abilities (Colvin, 2016). I have improved my understanding of the roles of cognitive thinking, affective understanding, and intuitive insights in the processes of human learning, which constitute Whole-Being Learning. I have also explored the Whole-Being Alternative Assessment (Jousse, 2004; Timm, 2013).

I have continued to focus on my students and encourage their self-directed learning which has and will continue to contribute significantly to them becoming Whole-Being-Learners and Whole-Being Practitioners. I believe that Whole-Being-Learning-Teaching-and-Alternative-Assessments will reveal knowledge to learners and their audiences (Madsen and Wilson, 2012; Sharp, 2012; Saunders and Wong, 2020). I believe I am able to create an environment that promotes creativity by using authentic or alternative assessments that allow my learners to be student-centered in the shared Anatomy and Physiology classroom (Grabinger and Dunlap, 1995).

I have intentionally created an environment in the Anatomy and Physiology classroom where my learners can become self-empowered, learning-centred humanistic individuals (Lucas, 1996). In my professional practice, I have intended to enable and improve my students' learning by introducing and using Whole-Being-Learning and an inclusive range of appropriate assessment types. These assessment types included the use of both Traditional Tests and Examinations and Whole-Being Alternative Assessment. All instances of assessment types are recorded in the Schedule of Mark Bearing Assessments (Consult Chapter 4, Figure 29, Chapter 5 and Appendix C).

I have also provided online Focus Group Interactions during the Lockdown in an attempt to ameliorate the loss of in-person interactions in the classroom. I used the online Focus Group Interactions to teach and provide support and encouragement if and when the need arose.

The evidence of these actions and interventions to create an enabling learning and assessment environment for my students is recorded with relevant academic references in this thesis in Chapters 5 and 6. I have focused on the students' capacities and strengths to build their confidence and a sense of security, while simultaneously focusing on improving their lesser capacities. I have done this without this practice impacting negatively on the quality of their knowledge and their application of the knowledge. I have explored and evaluated approaches and practices in education which were new to me, and very possibly new to my students as well. The evidence of innovation focused on providing Whole-Being-Learning and Whole-Being-Learning Traditional and Alternative Assessments.

I have used these new-to-me approaches and practices during the COVID-19 pandemic and Lockdown, which was in itself a very challenging context. The students appear to have risen to the challenge courageously and encouragingly. In their journals, many students explained and displayed their feelings of helplessness, desperation, and depression about their situation in photographs, and poems (Consult chapter 6). These contributions went beyond even the most creative interventions I introduced.

7.2 My living educational theory

The integration of various educational actions and interventions has significantly impacted my teaching practice as a nurse educator. By incorporating constructivist approaches, such as groupwork, Active-Learning, and Learning by Doing, I have observed a noticeable improvement in students' engagement, collaboration, and risk-taking, as seen in Chapter 6.

Researchers have found that these pedagogical innovations not only improve students' understanding of the subject matter but also foster a collegial environment and encourage experimentation (Akinsooto, 2020). In addition, I agree with Akinsooto (2020) that I have witnessed a shift in the student-teacher dynamic in my practice by promoting self-directed learning, formative feedback, and participatory methods; students become active co-creators of knowledge rather than passive recipients.

I concur with Lundahl (2008); the introduction of new technologies and different Whole-Being assessments to support interactive teaching has further enriched the learning experience; this is evidenced by the noticeable improvement in my students' performance while working in groups and participating in Whole-Being-Teaching and Learning Assessments (Consult Chapter 5). The integration of these innovative Whole-Being-Learning practices has transformed not only my practice but also the classroom environment. Whole-Being-Learning has made a positive impact on my own professional growth as I constantly seek to refine and adapt my teaching strategies to meet the diverse needs of my students.

As part of my living theory to create Whole-Being-Learners, Whole-Being-Teachers, and Alternative Assessments, I introduced Continuous assessments in my practice. This was regarded as a valuable method to facilitate student learning and improve academic performance (Chakravarty, 2005). It is essential to highlight that modern society often neglects the holistic development of students in higher education, focusing primarily on academic success. However, by including the head, heart, and gut-brain (Consult Chapter 3 Section 3.2.2, 3.2.3, 3.2.4) in designing my Whole-Being-Learning-Teaching-and-Alternative-Assessments, I improved my practice and created Whole-Being-Learners and practitioners. In addition, by embracing DUT's Envision 2030 framework (Consult Chapter 3 Section 1.4.2.1), I created an opportunity to integrate the values of the framework to create a Whole-Being-Practice and ultimately role-modelling the values for my students to become Whole-Being-Learners. I believe that a holistic "Whole-Being" approach can help teachers prepare students to deal with the complex challenges of our time by equipping them with the knowledge, skills, and mindsets they need. As part of this approach, physical, emotional, social, and spiritual dimensions would be incorporated into the educational experience to help students better understand themselves and the world around them (Timm, 2013; Lazarov, 2022). Teachers in higher education (I) will have the opportunity to lead the transformation of higher education through the implementation of DUT's Envision 2030 framework, preparing the next generation of students for sustainable and equitable Whole-Being living.

I was guided by Bloom's Taxonomy and Tan's (2012) conceptual framework in creating effective instruction in my Whole-Being-Learning Teaching and Assessment model. (Consult Chapter 3 Section 3.6 Tables 3, 4 and Figure 26). I implemented the Ubuntu philosophy into my practice. I implemented learning activities in groups that emphasised collaboration and mutual support. I believe another approach is to integrate community service projects into the

Whole-Being-Teaching-Learning-and-Alternative-Assessments specifically in my practice, allowing students to engage directly with and serve diverse populations. Additionally, fostering open dialogues and reflective practices in the classroom can help students appreciate different cultural perspectives. This will enable them to develop empathy and humility in their professional practice (Tolsma, 2016).

In Chapter 2, I refer to Ginott's poem (Consult Section 2.6). Ginott's poem poignantly reminds us of the profound impact that teachers can have on their students through role modelling. "Critical moments in learning" emphasises the fact that teachers often impart valuable lessons without realising it. A teacher's role as a reflective practitioner who sets high standards and fosters cooperative learning strategies is particularly relevant when considering "critical learning moments". Teachers should also consider the importance of providing feedback to students to reinforce their learning and development. Furthermore, teachers should create an environment that encourages students to take risks and challenge themselves to become Whole-Being Learners in learning by doing. In addition to this, I believe I was able to embrace the dynamics in my practice brought about by the COVID-19 pandemic as I interacted with the concept of creating Whole-Being Learning and introducing Whole interaction with this awareness. By doing so, they can refine their practices and deepen their engagement with students, while also recognising that authentic connections can lead to transformative learning experiences.

Adopting Dewey's Philosophy of a classroom is a social entity where learners learn problem-solving together, I believe I contributed to creating a practice that promoted my students to solve problems, and therefore, they will become agents of Whole-Being learning in their own professional practice. I believe that by adopting Dewey's philosophy in my practice, I empowered my students to think critically and make decisions regarding their Whole-Being Learning (Consult Chapter 6, Section 6.5). I believe that through my focus group interactions, I allowed my students to observe, reflect, and learn from each other (Consult Chapter 5, Section 6.4.3). In addition, Dewey's philosophy is that in these classrooms, students solve problems through hands-on learning (Consult Chapter 3, Section 3.4). He believed this approach would help them develop problem-solving, creativity, and collaboration skills. He also thought that this approach would help them become independent learners. I nurtured the students' creativity by creating my Whole-Being Assignments. This statement of hands-on learning is shared in close proximity to Satish Kumar (Consult Chapter 3, Figure 24). His video explores the

profound connection between the head, heart, and hand, emphasising the importance of cultivating this holistic approach to living. As Kumar illustrates with the apple seed that becomes a tree-bearing fruit, we can see how the smallest of beginnings can be transformed, illustrating the importance of nurturing our own wholeness. Using the apple seed as a metaphor, Kumar communicates a powerful message that transcends the physical realm. Likewise, just as the apple seed is innately capable of growing into a magnificent tree filled with sweet and nourishing fruit, so too do humans possess an inherent wholeness that can blossom into a life of fulfilment, purpose, and profound impact when nurtured and developed. In Kumar's view, wholeness isn't found just in the mind or intellect but in the harmonious integration of the head, the heart, and the hand - the three faculties that, when working together, unlock human potential.

Developing our understanding of the world around us takes place in the head, which represents cognition, analysis, and rational thought. We are guided toward deeper connections with ourselves and others through the heart, which is a wellspring of emotions, empathy, and intuition. By translating our ideas and passions into tangible actions and outcomes, the hand acts as the physical manifestation of our agency and creativity. In Kumar's view, it is only through the seamless integration of these three elements that we can experience true wholeness, where mind, heart, and hand all act in concert to shape a meaningful, purposeful, and fulfilling life. Similarly, the human individual can flourish into a life of profound impact and contribution when their wholeness is recognised and nurtured, just as the apple seed blossoms into a tree bearing abundant fruit. Likewise, by incorporating Timm's (2013) concept of the head, heart and gut, into my practice allowed me the space to nurture my students to become Whole-Beings and future Whole-Being nursing practitioners who will become agents for Whole-Being Learning. I end this Chapter my sharing the following:

I am free to be me because of her I know that there are people who care. To me, she is not only the lecturer but someone who cares and has the ability to restore one's confidence. I am happy that I had a chance to be one of her students, because of her I want to be better than who I used to be.

They (my students) will be able to empower individuals (their patients) to recognise and cultivate their fullest potential, enabling them to live a life of meaning and purpose. This has the potential to revolutionise health care and create a better world for us all.

CHAPTER EIGHT

CONCLUSION AND RECOMMENDATIONS

The best way to describe my doctoral journey is in the words of Nelson Mandela:

I have discovered the secret that after climbing a great hill,
one only finds that there are many more hills to climb.

I have taken a moment here to rest,
to steal a view of the glorious vista that surrounds me,
to look back on the distance I have come.

But I can rest only for a moment, for with freedom comes responsibilities,
and I dare not linger,
for my long walk is not yet ended. (Mandela, 1994)

8.1 Introduction

This chapter provides a summary of how I responded to my study objectives. I provide answers to the question posed by Kinzie (2012) in Chapter 1 of this study, "Who are the culprits of depressed success rates?".... (Mayet, 2016). In addition, I provide a validation to the claims of my knowledge made by answering the questions posed in Chapter 1 to ensure rigour and validity of my research (Whitehead, 1989, 2010c, 2019).

Firstly, by critically self-reflecting on my current perceptions and expectations, I explored my practice by asking myself the following question: What can I do to improve my practice to improve the academic performance of my students? As a lecturer and nursing educator, I recognised that improving my practice should begin my critical reflections on my practice. At the outset of my research, my practice was considered at-risk since my students were not meeting the faculty benchmark of an 85% pass rate. I expected that my critical self-reflections would contribute to an improvement in my teaching and assessment skills, which would help my students' academic performance in Anatomy and Physiology. Embracing Whole-Being-Learning and Whole-Being Learning Assessments was essential to improving my practice and

the well-being of my students. It was vital for me as a lecturer to embrace creativity and learn by doing for myself (Faust and Paulson, 1998).

Secondly, when I evaluated the perceptions held by my students of what Anatomy and Physiology in higher education entailed, it was clear to me that many regarded the subject as a continuation of what they had learned in their senior grades at school. They were sorely disappointed and dismayed when they discovered that this was not the case. My students' expectations, therefore, were severely unrealistic, as was displayed in their Anatomy and Physiology academic underperformance, resulting in the subject Anatomy and Physiology being in danger of being identified as an 'at-risk' subject.

I was deeply concerned about the situation, which is why I undertook this research journey. I set out to establish how I could improve my professional practice in the hope and belief that this would positively impact the academic performance of my nursing students by reviewing their performance during Traditional and Alternative Assessments. It is my observation that acquired knowledge is an essential tool for my students to be effective performers and to respond suitably in Alternative Assessments (Wiggins, 1990).

In traditional tests, the only question is whether the student recognises, recalls, or can "plug in" what was learned separately. Based solely on written tests, this may be as problematic as judging driving or teaching ability based on written or oral responses to one-word answers, multiple-choice questions, and TRUE/FALSE responses (Wiggins, 1990). By developing Alternative Assessments, I sought to determine whether my students were capable of performing, producing, or answering relevant, complicated problem-based situations creatively and convincingly.

Through three data Phases, I implemented, evaluated, and modified my attitude toward my teaching practice. To inspire my teaching and delivery of Anatomy and Physiology content, I incorporated W-B-L and W-B-L-a-A-A in each data Phase.

My study provided valuable insights into my practice, teaching, and students' learning. During the COVID-19 Pandemic and Lockdown, traditional learning and traditional assessment were extremely difficult and, in some instances, impossible. These difficulties notwithstanding, I have witnessed my learners grow in leaps and bounds and display admirable resilience during the pandemic.

I have found embracing W-B-L in my practice to be an exciting and fulfilling experience for me and my students. I have observed my learners becoming active learners and enthusiastically and creatively embracing group work and problem-solving in assignments.

Due to the COVID-19 Pandemic and the Lockdown that followed, I believe the findings of my study identify the 'haves' and the 'have nots' among my learners in different ways and contexts. In the digital context, those who have easy access to the technology are 'haves', and their opposite counterparts are the 'have nots'. Conversely, in the resilience context, those students who face challenges with a 'can do' attitude are the 'haves', and their opposite counterparts are the 'have nots'. Furthermore, in the context of prior experience, those with prior experience are the 'haves', and their opposite counterparts are the 'have nots'. The list is endless. I could see that every student was a 'have' in one context and a 'have not' in another context. The consequence of this was that in every small group (a maximum of 5), there would be a mixture of 'haves' and 'have nots' in different categories. Such groups provide opportunities for 'have nots' in one category to learn from the 'haves' in the same category, and the converse also holds. Such groups excel and grow to do group work, and group work in and of itself provides excellent opportunities to learn much more than facts and prepares each participant for the working and employment sectors.

While critically reflecting on my doctoral journey, I am reminded that my learners are a reflection of my own upbringing. My caretakers raised me role-modelling an extensive range of values, including love, kindness, patience, discipline, caring, nurturing, accountability, responsibility, honesty, compassion, inclusiveness, Ubuntu, and empathy. These are values that encompass a Whole-Being-Learner.

Mayet (2016) identifies the relevant issues which might make students a threat to the academic success of a university by agreeing with (Kinzie, 2012) who asks:

“Who are the culprits of depressed success rates? Is it underprepared or unmotivated students? Or is it underperforming institutions and ineffective pedagogies? Or are we ignoring emotional and physiological phenomena among a diverse student population?”

The answers to these questions may shed light on underlying factors that may be overlooked in the quest to identify the 'culprits' of student failure when dealing with South African students. My argument is that underprepared students, a diverse student population, and underperforming institutions are all contributing to the lack of academic success. Kinzie's question regarding

emotional and psychological phenomena has been addressed by Laskey and Hetzel (2011), who suggested that academic readiness is not only a function of skills and behaviour but also a function of motivation, soft skills, and personality traits. Forging a path to embrace Whole-Being- Learning and Whole-Being-Leadership can be achieved through learning by doing, becoming Whole-Being-Champions, and advocating for thinking outside the traditional applications of tests and assignments.

Learning has the potential to modify and improve these attributes and behavioural habits as a mediator of positive learning outcomes. As stated by Brinkworth *et al.* (2009), a successful transition involves more than just academic competence. Students must also adjust to the demands of a learning environment that demands greater autonomy and individual responsibility than students are accustomed to at the onset of their studies. It follows that students who are unable to self-regulate or who do not adjust easily to the rigours of higher education are also at risk of experiencing overwhelming difficulties. Commitment to the course, expectations of teaching, support for learning, academic confidence, time management, and social engagement all impact student success or failure (Willcoxson, Cotter and Joy, 2011).

Thirdly, through three data Phases and Stages, I implemented, evaluated, and modified my attitude toward my teaching practice. To inspire my teaching and delivery of anatomy and physiology content, I incorporated W-B-L and W-B-L-A in each data Phase. I have learned a great deal about my teaching and assessment practices and about the learning practices, responses in assignments, and assessments of my students. I have observed that those of my learners who have become active learners do so because they naturally embrace W-B-L and W-B-L-a-A-A. They enjoy problem-solving and working in groups. Through their assignments, my students have demonstrated their gifts and talents and embraced W-B-L and Active Learning. It appears to me that they are following the adage, “Walk Alone to Go Fast. Walk Together to Go Far.” I have found embracing W-B-L in my practice to be an exciting and fulfilling experience. During the course of a pandemic that changed the way traditional learning was supposed to take place, I witnessed my learners grow in leaps and bounds. I have witnessed the growth of my learners in the resilience that they demonstrated during the pandemic.

My learners remind me of my own upbringing where my family and other caretakers’ role-modelled numerous values, including love, kindness, patience, discipline, nurturing, accountability, responsibility, honesty, compassion, inclusiveness, Ubuntu, and empathy.

8.2 Measures to ensure rigour and validity

Based on (Whitehead, 2010a), I tested for validity according to the living educational standards of judgement by asking the following questions:

a) Is the enquiry carried out in a systematic way?

This enquiry has been carried out in a systematic way. I systematically designed and carried out three data phases in this study.

In Phase 1, during the first semester of 2020, I conducted focus group interactions with first-year nursing students.

In Phase 2, in the second semester of 2020, I conducted a second cycle of focus group interactions with first-year nursing students.

In Phase 3, in the first semester of 2021, I collected data from first- and second-year nursing students by conducting focus group interactions and requesting that they write journals about their experience of the Lockdown and its impact on their studies.

b) Are the values used to distinguish the claim to knowledge as educational knowledge clearly shown and justified?

The values of love, kindness, patience, discipline, caring, nurturing, accountability, responsibility, honesty, compassion, inclusiveness, Ubuntu, and empathy distinguish knowledge as educational in the following ways: I examined an extensive spectrum of literature about educational positions, opinions, insights, and beliefs, which I have relied upon to inform my understanding, pedagogies, and practice.

c) Does the claim contain evidence of a critical accommodation of propositional contributions from the traditional disciplines of education?

In Chapter 3, I record the academic sources which have influenced and informed my study. My study is based on the premise that academic success and performance go beyond cognitive engagement with the subject material and achieving higher grades.

It is my belief that a students' academic achievement and performance should take into consideration all aspects of his or her affective, intuitive, and spiritual aspects of what they are

studying, which in this case is Anatomy and Physiology. In Whole-Being Learning and Assessment, learning and development are based on the use of the whole person, namely the individual. The gut, the heart, the head, the physical body, and the spirit are considered as one indivisible psycho-physiological complex (Jousse, 2004, Timm, 2013).

I use Living Theory Research as my conceptual framework. "Why Living Theory?" I sought to research my practice, by improving my educational influences through the many phases of my study I conducted. I believe that I enhanced my students' education and contributed to the evolution of educational knowledge, as recorded in Chapters 6 and 7.

I, as a nursing educator, integrated insights into my practice by critically engaging with knowledge from my students and caretakers (Consult Chapter 2). Teachers can share their validated knowledge with their colleagues in addition to holding themselves accountable by adding their knowledge to an educational knowledge base (Whitehead *et al.*, 2020). "The act of learning is an essential component of being" (Jarvis, Parker and Thorndike, 2006; Jarvis, 2018).

d) *Are the assertions made in the claim clearly justified?*

Yes, in my view, Whole-Being Learning can enable this kind of understanding - what Dewey termed "learning-by-doing" (Sikandar, 2015; Theuri, Waitherero and Nyabul, 2020).

In a very wise statement, it is said that 'assessment bridges the gap between teaching and learning' (Earl and Cousins, 1995; Nasab, 2015). With this in mind, I concentrated on the design of those assignments and assessments, as the design of the bridges would provide insight into the nature, depth, and application of the knowledge. As a result of this discovery, I realised that the design of the bridges, i.e. the assignments and assessments, should provide students with the opportunity to explore and experience the learning from multiple perspectives and through multiple lenses in order to engage the whole person.

e) *Is there evidence of an enquiring and critical approach to an educational problem?*

Considering human beings as autonomous beings, humanists hold that learning should be self-directed, which means that students should have a reasonable amount of control over what they learn and how they learn it. In self-directed learning, learners take responsibility for their own learning but remain guided by their instructors (Lucas, 1996; Saunders and Wong, 2020)

I used Habermas (1976),

a) to support the comprehensibility and truth of the propositional context, the understanding of the normative background of my writings, and the authenticity of my accounts.

b) to demonstrate clearly the rigour and validity of my educational research and how I influence the learning/ research of others and communicate with the wider academic community.

8.3 My room/s for improvement

In reflecting on the areas for improvement in my professional practice, I find myself reflecting on the critical incident that forced my students to strike at the end of the semester and share with the newspapers their experiences and feelings of being overwhelmed instead of being able to share with me. My Anatomy and Physiology classroom has become one of my favourite teaching spaces, and I understand the importance of creating a space in which my students feel safe sharing their experiences. In order to improve my practice, I emphasise Vygotsky's social constructivism (Consult Chapter 3 Figure 23) as the dominant pedagogical belief and theory of knowledge. In accordance with this leading theory, humans are able to generate knowledge and meaning through the interaction between experiences and ideas. This, in turn, allows humans to construct their own knowledge as a result of the interaction between experiences and ideas.

According to Stigmar (2016), students who interact with each other, constructing knowledge in collaborative work, are thought to benefit from collaborative work by university teachers. During the learning process, collaboration involves active questions, explanations, monitoring, and regulation.

The Group Work I implemented in my anatomy and physiology practice engaged my students in learning and facilitated their ability to work effectively in a group. Furthermore, I recall the way in which my students felt overwhelmed during the COVID-19 pandemic when they were unable to communicate with their colleagues. It is through peer interaction that students are able to gain access to the zone of proximal development in which a less capable peer may be able to reach a new level of development by collaborating with a more capable peer (Asghar, 2010).

Considering these experiences, I realise that the use of a "study buddy" system similar to peer interaction will foster the creation of a community of Whole-Being-Learners in the Anatomy and Physiology classroom. As a result, these Whole-Being-Learner will embrace each other and

become more responsible and accountable for their learning. Hence, I will pair one less capable learner (the have nots) with a more capable learner (the haves).

In addition, it will be beneficial for both the learners and myself to foster FGIs after each system is taught in the Anatomy and Physiology classroom. A debriefing session with the students will be followed with the following questions:

1. What was their opinion of the lessons they had been taught?
2. Can you tell me what you found useful?
3. Could you please tell me what you did not find useful?
4. Is there anything I can do to improve before the next system is taught?

Also, after each W-B-L assignment and test, I will have a debriefing session where I will ask the following questions:

1. How did you feel about the assignment and test?
2. What did you enjoy most about doing your assignment and test?

8.4 What are my final reflections?

My seven-year journey through the rigorous and rewarding pursuit of a doctoral degree has been filled with multiple experiences, intellectual growth, and profound personal transformations. I believe this can be seen in Chapter 6, where I shared my students' stories of their lived experiences in the Anatomy and Physiology classroom. It has been seven-years, although data collection only happened during the 2020 COVID-19 pandemic. It has been difficult for me to believe that I have the necessary skills and intelligence to succeed at times. It was a fundamental misunderstanding of what a PhD entails that proved to be one of my biggest obstacles. This has been due to the fact that conducting a Living Educational Theory Research of one's own practice was not readily accepted by all. In the same way as many aspiring academics, I entered the journey with the idea that I simply needed to apply my skills and intelligence. Nonetheless, I quickly discovered that a PhD is more than mastering a specific topic, but rather developing a deep understanding of the research process itself, as well as the skills needed to overcome the inevitable obstacles (Schwartz, 2008; Deconinck, 2014).

As I began my doctoral journey, I was focused on at-risk learners and how I could improve my practice by enhancing their academic performance. The onset of a Global Pandemic, however,

made me realise that I must modify my practice to accommodate every learner who is at risk of failing. In my quest to improve my teaching practice in the midst of the Global Pandemic, I realised that Whole-Being Learning (Timm, 2013) and Whole-Being Assessments would be the focus of my efforts.

As a result of this doctoral experience, I have gained a great deal of knowledge. I have embraced Whole-Being Learning as a teaching philosophy. I have become a Whole-Being-Learner and Teacher as a result of this process.

To conclude my doctoral journey, I present a poem that has reaffirmed my identity as a Whole-Being-Learner-and-Teacher. This poem reminds me that I am resilient, that my values of love and care, trust and honesty, accountability and transparency are part of my genetic makeup, and that anybody, even my students, can attain their dreams irrespective of where they come from.

What good can come out of Chatsworth?

I remember a pastor we once had who asked the question:

“What good can come (or could come?) out of Nazareth?

A reflection on the story of Jesus Christ?”

I ask myself, “What good can come out of Chatsworth?”

Does the place define me (as a person?)

I wouldn't have asked myself this question

if it had not been for an ‘older person’ who questioned me.

“How did you go to university?”

I sat there frozen, turning to anger as if something was wrong with me.

Initially, when I reflected, this is how I felt:

Was I broken? Did I not qualify to experience this fantastic opportunity, or was it only for a select few?

Now I think I was affronted!

How dare she question me about my desires and my plans?

How dare she ask me?

It felt like a curve ball was thrown at me.

A bitter pill that was hard to swallow was stuck in my throat.

Now, when I reflect,

I wonder why she asked me that question

Does a place define me?

No, a place does not define me.

A place is not shackles on my hands and feet.

It is my dreams that define me and reward me

by making my dreams come true.

8.5 My original contribution to the body of knowledge

As part of a global effort to strengthen the nursing workforce, the World Health Organization released a set of recommendations in 2020 (World Health Organization, 2021). Increasing investment in nursing education and establishing global standards for nursing practice were two recommendations that could have a significant impact on nursing education and practice in Africa. A key aspect of the WHO's recommendations is the preparation of nurses at the baccalaureate level.

Throughout history, nursing as a profession has been heavily influenced by the philosophical and cultural traditions of different regions. Increasingly, nursing education and practice have benefited from the African philosophy of Ubuntu, which is grounded in commonality, compassion, and integrity. Nursing practice based on Ubuntu emphasises a holistic approach, taking into account the patient's physical, mental, and spiritual needs. Additionally, Ubuntu emphasises the importance of nurses' relationships with other healthcare providers as well as their role in advocating on their patient's behalf. Additionally, Ubuntu emphasises nurses' importance as agents of social change, advocating for everyone's health. In Ubuntu, nurses are encouraged to recognise their own power to make a positive difference in their communities.

I concur with Omodan (2022), who states that nursing education that integrates Ubuntu principles can enhance student academic achievement by fostering an environment that prioritises relationships, mutual support, and a shared sense of accountability. Through the embrace of African philosophy and Ubuntu caring ethics, healthcare nursing education can help

to improve patient outcomes and enhance the impact of nursing on communities by fostering a holistic, inclusive, and empowering approach to healthcare delivery. Therefore, creating Whole-Being Learners begins with me creating a transformational practice and engaging with Ubuntu's philosophy. The Whole-Being nurses I teach will embody the Ubuntu philosophy as they become Whole-Being nursing practitioners.

8.6 Recommendations for future research

Due to the COVID-19 pandemic, my self-study action research was implemented using the online mode of delivery. However, to explore this self-study action research study using the lens of living educational theory, it would be recommended that the design of the Whole-Being-Teaching-and-Alternative- Assessments be implemented in a face-to-face mode of delivery. This will allow the researchers to observe the group interactions between the group members.

In addition, it would be recommended that Whole-Brain Learning, documented in Chapter 3, be explored together with Whole-Being Learning to compare and contrast and build a framework that complements Whole-Being-Teaching-and-Learning. This study provided a model of Whole-Being Teaching and Alternative Assessments by designing rubrics. Although guided by Tan's (2012) conceptual framework to develop a pragmatic approach to the design of assessments, a more in-depth approach is recommended in exploring Bloom's Taxonomy in close proximity with Tan's (2012) conceptual framework to develop Whole-Brain Learning Teaching and Alternative Assessments.

Also, due to the COVID-19 pandemic, traditional focus group interactions between the researcher (I) and my students (participants) were not done. These focus group interactions occurred online. This was difficult because not all students were able to share their experiences, and I recommend that future research into my practice will allow me to improve my practice by adopting focus group interactions.

In Chapter 7, I recommended the integration of community service projects into Whole-Being-Teaching-Learning-and-Alternative-Assessments specifically in my practice. I believe this was not achieved due to the COVID-19 pandemic. This is a concept recommended for future research. I conclude this Chapter by confirming that my living theory is ongoing. In order to grow and improve, educators must reflect on their professional practice often (Yanow, 2009). My reflections on the process of improving my practice according to Jack Whitehead's Living Theory Research Methodology (1989) reveal the importance of reflective practice. My living

educational theory can be shaped and refined by regularly engaging in reflection-on-action, considering the evolving needs of my professional context and those I serve. In this process of reflection, I identified areas of strength and areas for improvement and developed strategies to address any gaps. My practice has also been made more flexible and adaptive, helping me to remain open to new ideas and opportunities. I hope to continue researching my practice.

This Whole-Being self-study action research and Living Educational Research has not only contributed to my professional development but changed me as a wife, daughter, sister, employer and mother.

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APPENDIX A: ETHICS APPROVAL



12 March 2020

Ms M Coopasami
40 Equality Avenue
Croftdene
Chatsworth

Dear Ms Coopasami

A critical self-reflection on the relationship of teaching practice to the enhancement of at-risk student academic performance

The Institutional Research Ethics Committee acknowledges receipt of your gatekeeper permission letter.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

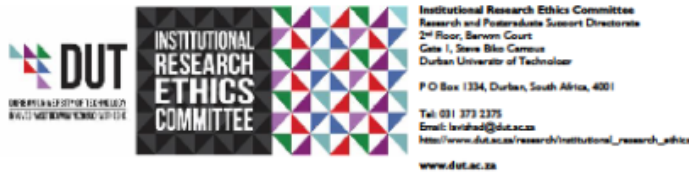
Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely

Professor J K Adam
Chairperson: IREC



APPENDIX B: RECERTIFICATION



14 May 2021

Ms M Coopasami
40 Equality Avenue
Croftdene
Chatsworth

Dear Ms Coopasami

A critical self-reflection on the relationship of teaching practice to the enhancement of at-risk student academic performance
Ethics Clearance number IREC 192/18

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 **11 June 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

Dr K Padayachy
Deputy Chairperson: IREC

APPENDIX C: SCHEDULE OF MARK BEARING ASSESSMENTS (MBA) DETAILS, ASSESSMENT METHODS, AND DELIVERY

Phase 1

Mark Bearing Activity Title and Number	Page Numbers	Phase Numbers and Dates	Stage numbers	Assessment Method Types		In-Person (I-P)/ Online (O-L)
				Traditional Tests and Exams	Alternative Assessments	
				Individual	Individual/ small groups/whole groups	
Group PowerPoint and Model Building (MBA 1)		1 17/07/2020	2		Small groups	O-L
Skeletal System Project (MBA 2)		1 14/08/2020	3	Individual		O-L
In Person Test (MBA 3)		1 5/10/2020	5	Individual		I-P
Supplementary Test (MBA 4)		1 27/11/2020	6	Individual		I-P

Schedule of Mark Bearing Activities (MBA) Details, Assessment Methods and Delivery

Phase 2

Mark Bearing Activity Title and Number	Page Numbers	Phase Numbers and Dates	Stage numbers	Assessment Method Types		In-Person (I-P)/ Online (O-L)
				Traditional Tests and Exams	Alternative Assessments	
				Individual	small groups/whole groups	
Cardiovascular Assignment (MBA5)		(2) 19/10/20	2	Individual		O-L
In-Person Test (MBA6)		(2) 19/10/20	3	Individual		I-P
Online Test (MBA7)		(2)11/1/21	4	Individual		I-P

Schedule of Mark Bearing Assessments (MBA) Details, Assessment Methods, and Delivery

Phase 3: Level 1 (First Years)

Mark Bearing Activity Title and Number	Page Numbers	Phase Numbers and Dates	Stage numbers	Assessment Method Types		In-Person (I-P)/ Online (O-L)
				Traditional Tests and Exams	Alternative Assessments	
				Individual	small groups/whole groups	
LEVEL 1 Journal Reflection (MBA8)		(3) 11/5/21	1	Individual		O-L
LEVEL 1 Online Quiz (MBA9)		(3) 17/5/21	2	Individual		O-L
LEVEL 1 Building Game Assignment (MBA10)		(3) 31/05/2021	3		Small groups	I-P
LEVEL 1 ONLINE QUIZ (MBA11)		(3) 14/6/21	4	Individual		O-L
LEVEL 1 In-Person Test (MBA12)		(3) 21/6/21	5	Individual		I-P
LEVEL 1		(3)	6	Individual		I-P

Supplementary Test <u>(MBA13)</u>		3/8/21				
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Schedule of Mark Bearing Assessments (MBA) Details, Assessment Methods and Delivery

Phase 3: Level 2 (Second Years)

Mark Bearing Activity Title and Number	Page Numbers	Phase Numbers and Dates	Stage numbers	Assessment Method Types		In-Person (I-P)/ Online (O-L)
				Traditional Tests and Exams	Alternative Assessments	
				Individual	Individual/ small groups/whole groups	
LEVEL 2 Online Quiz (MBA14)		(3) 11/5/21	1	Individual		O-L
LEVEL 2 Journal Reflection (MBA15)		(3) 11/5/21	2	Individual		O-L
LEVEL 2 Neurotransmitter Assignment (MBA16)		(3) 31/5/21	3	Individual		O-L
LEVEL 2 ON-LINE QUIZ (MBA17)		(3) 15/6/21	4	Individual		O-L
LEVEL 2 In-Person Test		(3) 22/6/21	5	Individual		O-L

(MBA18)						
LEVEL 2 Supplementary Test In-Person Test (MBA19)		(3) 2/8/21	6	Individual		O-L

APPENDIX D: SCHEDULE OF TEACHING, LEARNING, SUPPORT ACTIVITY (TLSA)

Teaching, Learning, Support Activity (TLSA) Title	Page. Numbers.	Phase Numbers & Dates	Stage Numbers	Whole Group/ Small Groups/ Individual	I-P/ O-L
Tissue Assignment Tutorial	Appendix G	(1) 14/4/20	1	Individual	O-L
Online Mini Quiz		(1) 17/8/20	4	Individual	O-L
Focus Group Interaction		(1) 11/20	7	Whole Group	O-L
Muscular System Tutorial		(2) 20/9/20	1	Individual	O-L
Focus Group Interaction		(2) 01/21	5	Whole Group	
Focus Group Interaction		(3) 6/21	7	Whole Group	I-P
Focus Group Interaction		(3) 6/21	7	Whole Group	I=P-L

APPENDIX E: SCHEDULE OF PARTICIPANTS

Who did I interact with as part of my data generation?

No.	Name/code	Date	Topic Question	Type of interaction	Nature of record	Duration in minutes
1	Jack Whitehead	April 2020	Critical reflection of my practice in the enhancement of academic performance	Skype video	Audio	
2	Level 4 Research Group	November 2020	What was my educational influence in the anatomy and physiology class as your lecturer in relation to me being your research supervisor?	MS Teams Video	Audio	39:48

Phase One

No.	Name/code F-Female M-Male P1-Participant 1-Number issued to participant D1 Phase 1- Cycle 1	Date	Topic Question	Type of interaction	Nature of record	Duration in minutes
Level 1 Semester 1 Participants (84 Participants) *Phase 1 (D1)						
		NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 1	FP1D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 2	FP2D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 3	FP3D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 4	MP4D1	NOVEMBER 2020	What were your expectations of the	Focus Group Interview via MS teams	Audio/video	20 minutes

			anatomy and physiology class?			
Participant 5	FP5D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 6	FP6D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 7	FP7D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 8	FP8D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 9	FP9D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 10	FP10D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 11	MP11D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 12	MP12D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 13	MP13D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 14	MP14D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 15	MP15D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 16	MP16D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 17	MP17D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 18	FP18D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 19	MP19D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 20	FP20D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 21	MP21D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 22	FP22D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 23	FP23D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 24	FP24D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 25	FP25D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 26	MP26D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 27	MP27D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 28	FP28D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 29	FP29D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 30	FP30D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 31	FP31D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 32	FP32D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 33	MP33D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 34	MP34D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 35	FP35D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 36	FP36D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 37	FP37D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 38	FP38D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 39	MP39D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 40	MP40D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 41	MP41D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 42	FP42D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 43	MP43D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 44	FP44D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 45	FP45D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 46	MP46D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 47	FP47D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 48	MP48D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 49	FP49D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 50	FP50D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 51	FP51D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 52	FP52D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 53	MP53D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 54	FP54D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 55	FP55D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 56	FP56D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 57	FP57D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 58	FP58D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 59	FP59D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 60	FP60D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 61	FP61D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 62	FP62D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 63	FP63D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 64	FP64D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 65	FP65D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 66	FP66D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 67	FP67D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 68	FP68D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 69	MP69D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 70	FP70D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 71	FP71D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 72	FP72D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 73	FP73D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 74	FP74D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

Participant 75	FP75D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 76	FP76D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 77	FP77D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 78	FP78 D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 79	FP79D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 80	FP80D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 81	FP81D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes

participant 82	FP82D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 83	MP83D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
Participant 84	FP84D1	NOVEMBER 2020	What were your expectations of the anatomy and physiology class?	Focus Group Interview via MS teams	Audio/video	20 minutes
No.	Name/code F-Female M-Male P1-Participant 1-Number issued to participant D2 Data cycle 2- Cycle 2	Date	Topic Question	Type of interaction	Nature of record	Duration in minutes
Phase 2 Level 1 Semester 2 2020/2021						
Participant 2	FP2D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to	Focus Group Interview via MS teams	Audio/video	15mins

			continuous assessments?			
Participant 3	FP3D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 4	MP4D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 5	FP5D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 6	FP6D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum	Focus Group Interview via MS teams	Audio/video	15mins

			form examination to continuous assessments?			
Participant 7	FP7D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 8	FP8D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 10	FP10D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 11	MP11D2		What was your expectation of Anatomy and Physiology ; with the	Focus Group Interview via MS teams	Audio/video	15mins

			change of curriculum form examination to continuous assessments?			
Participant 12	MP12D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 13	MP13D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 14	MP14D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 15	MP15D2		What was your expectation of Anatomy and	Focus Group Interview via MS teams	Audio/video	15mins

			Physiology ; with the change of curriculum form examination to continuous assessments?			
Participant 16	MP16D2		What was your expectation of Anatomy and Physiology; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 19	MP19D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 20	FP20D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins

Participant 21	MP21D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 22	FP22D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 23	FP23D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 24	FP24D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to	Focus Group Interview via MS teams	Audio/video	15mins

			continuous assessments?			
Participant 25	FP25D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 26	MP26D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 27	MP27D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 29	FP29D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum	Focus Group Interview via MS teams	Audio/video	15mins

			form examination to continuous assessments?			
Participant 30	FP30D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 31	FP31D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 32	FP32D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 34	MP34D2		What was your expectation of Anatomy and Physiology ; with the	Focus Group Interview via MS teams	Audio/video	15mins

			change of curriculum form examination to continuous assessments?			
Participant 35	FP35D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 36	FP36D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 37	FP37D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 38	FP38D2		What was your expectation of Anatomy and	Focus Group Interview via MS teams	Audio/video	15mins

			Physiology ; with the change of curriculum form examination to continuous assessments?			
Participant 39	MP39D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 40	MP40D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 43	MP43D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins

Participant 42	FP42D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 44	FP44D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 46	MP46D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 47	FP47D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to	Focus Group Interview via MS teams	Audio/video	15mins

			continuous assessments?			
Participant 48	MP48D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 49	FP49D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 50	FP50D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 51	FP51D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form	Focus Group Interview via MS teams	Audio/video	15mins

			examination to continuous assessments?			
Participant 52	FP52D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 53	MP53D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 54	FP54D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 55	FP55D2		What was your expectation of Anatomy and Physiology ; with the change of	Focus Group Interview via MS teams	Audio/video	15mins

			curriculum examination to continuous assessments?			
Participant 58	FP58D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 57	FP57D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 81	FP81D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 60	FP60D2		What was your expectation of Anatomy and Physiology ; with	Focus Group Interview via MS teams	Audio/video	15mins

			the change of curriculum form examination to continuous assessments?			
Participant 61	FP61D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 62	FP62D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 85	P85D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins

Participant 63	FP63D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 64	FP64D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 65	FP65D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 67	FP67D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to	Focus Group Interview via MS teams	Audio/video	15mins

			continuous assessments?			
Participant 70	FP70D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 71	FP71D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 83	MP83D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 72	FP72D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form	Focus Group Interview via MS teams	Audio/video	15mins

			examination to continuous assessments?			
Participant 73	FP73D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 74	FP74D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 75	FP75D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 77	FP77D2		What was your expectation of Anatomy and Physiology ; with the change of	Focus Group Interview via MS teams	Audio/video	15mins

			curriculum examination to continuous assessments?			
Participant 78	FP78D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 79	FP79D2		What was your expectation of Anatomy and Physiology; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 82	FP82D2		What was your expectation of Anatomy and Physiology ; with the change of curriculum form examination to continuous assessments?	Focus Group Interview via MS teams	Audio/video	15mins
Participant 84	FP84D2		What was your expectation of Anatomy and Physiology ; with the change of	Focus Group Interview via MS teams	Audio/video	15mins

			curriculum examination continuous assessments?	form to			
Phase 3 Level 1 Students May/June 2021							
No.	Name/code F-Female M-Male P1-Participant 1-Number issued to participant D3 Phase 3- L-level 1-First Years	Date	Topic Question	Type of interaction	Nature of record	Duration in minutes	
Participant 1	FP1D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written		
Participant 3	FP3D3L1	May 2021	What are my difficulties	Journal	Written		

			experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
Participant 19	MP19D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
Participant 22	FP22D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my	Journal	Written	

			growth as an individual since the beginning of my journey doing Anatomy and physiology.			
Participant 26	MP26D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
Participant 33	MP33D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing	Journal	Written	

			Anatomy and physiology.			
Participant 36	FP36D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
Participant 53	MP53D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
Participant 57	FP57D3L1	May 2021	What are my difficulties experienced as an	Journal	Written	

			Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
Participant 59	FP59D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
Participant 63	FP63D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an	Journal	Written	

			individual since the beginning of my journey doing Anatomy and physiology.			
Participant 64	FP64D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
Participant 68	FP68D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	

Participant 83	MP83D3L1	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	May 2021
Data Cycle 3 Level 1 (all participants)			What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Face to face focus group discussions	Audio	
Phase 3 Level 2 Students						
No.	Name/code F-Female M-Male P1-Participant	Date	Topic Question	Type of interaction	Nature of record	Duration in minutes

	1-Number issued to participant D3 Phase 3 L-level 2-Second Years					
	FP84D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP2D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing	Journal	Written	

			Anatomy and physiology.			
	FP5D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP6D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP7D3L2	May 2021	What are my difficulties experienced as an	Journal	Written	

			Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	FP8D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP9D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an	Journal	Written	

			individual since the beginning of my journey doing Anatomy and physiology.			
	FP10D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	MP12D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	

	MP13D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	MP14D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	MP15D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student.	Journal	Written	

			What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	MP16D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	MP17D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my	Journal	Written	

			journey doing Anatomy and physiology.			
	FP18D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	MP21D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP23D3L2	May 2021	What are my difficulties	Journal	Written	

			experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	P80D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	MP27D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my	Journal	Written	

			growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	FP28D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP29D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing	Journal	Written	

			Anatomy and physiology.			
	FP30D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP31D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP32D3L2	May 2021	What are my difficulties experienced as an	Journal	Written	

			Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	MP34D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP35D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an	Journal	Written	

			individual since the beginning of my journey doing Anatomy and physiology.			
	FP37D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP38D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	

	MP39D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	MP41D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP42D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student.	Journal	Written	

			What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	FP44D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP45D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my	Journal	Written	

			journey doing Anatomy and physiology.			
	FP47D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	MP48D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP49D3L2	May 2021	What are my difficulties	Journal	Written	

			experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	FP52D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP54D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my	Journal	Written	

			growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	FP55D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP58D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing	Journal	Written	

			Anatomy and physiology.			
	FP60D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP61D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP62D3L2	May 2021	What are my difficulties experienced as an	Journal	Written	

			Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	P85D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP65D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an	Journal	Written	

			individual since the beginning of my journey doing Anatomy and physiology.			
	FP66D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	MP69D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	

	FP71D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP72D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP73D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student.	Journal	Written	

			What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	FP75D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP76D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my	Journal	Written	

			journey doing Anatomy and physiology.			
	FP77D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP78 D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP79D3L2	May 2021	What are my difficulties	Journal	Written	

			experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.			
	FP82D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Journal	Written	
	FP84D3L2	May 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my	Journal	Written	

			growth as an individual since the beginning of my journey doing Anatomy and physiology.			
Phase 3 Level 2 (all participants)		JUNE 2021	What are my difficulties experienced as an Anatomy and physiology student. What is my critical reflection on my growth as an individual since the beginning of my journey doing Anatomy and physiology.	Face to face focus group discussion	Audio	

APPENDIX F: DEMOGRAPHIC QUESTIONNAIRE



Questionnaire

Demographic Data

1. Name of Student				
2. Student Number				
3. Age of Student				
4. Race (Please circle the correct box)	Black	Indian	Coloured	White
5. Is this your first year of studying? (Please tick the correct box)	Yes		No	
6a. Did you come from another university?*	Yes		No	
6b. Which university did you come from?				
6c. Why did you leave the university?				
7a. Did you come from another faculty?	Yes		No	
7b. What were you studying before you enrolled for nursing?				

APPENDIX G: PHASE 1 STAGE 1

Phase 1: Stage 1: Tissue Assignment

ANATOMY & PHYSIOLOGY I

There are several types of tissues throughout the body, each with a different structure and function. Often, depending on where they are found, they have different functions.

Tabulate the different types of tissues according to tissue type and structure, including a simple diagram, function, adaptation, and location. Your answer should be simple, yet clear. You do not need to include every possible location for each tissue. Instead, relate your tissue type to its structure, function, location, and adaptation.

PRESENTATION:

Each student will submit an individual tutorial. This will be done in a nature study book.

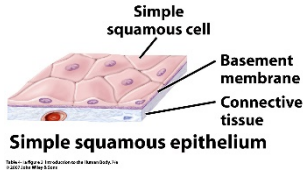
DUE DATE: 14/04/2020

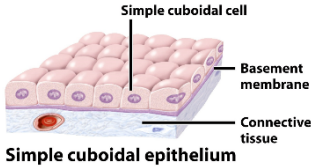
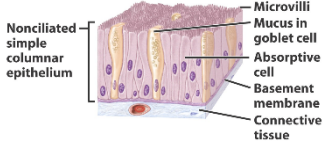
TISSUES ASSIGNMENT MODEL ANSWERS: Adapted from (Marieb and Keller, 2011)

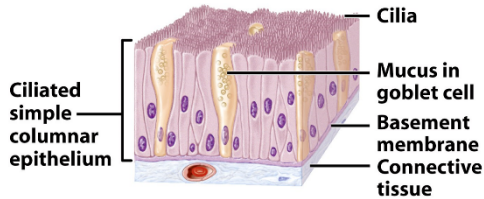
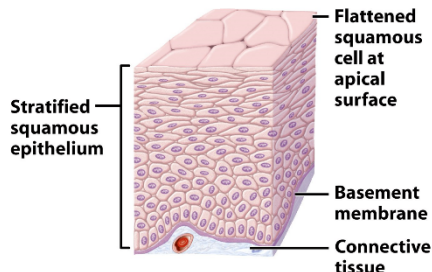
Types of Tissue

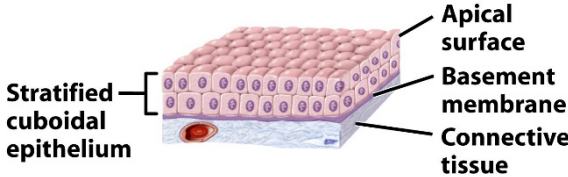
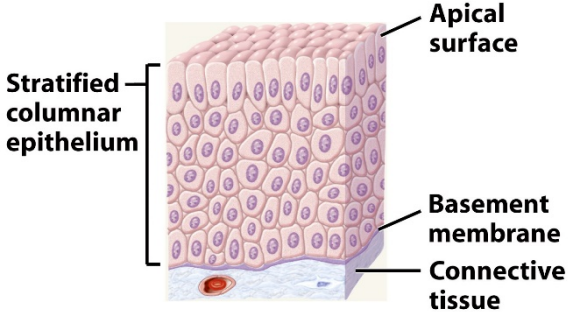
1. A tissue is a group of similar cells, usually with a common embryonic origin, that function together to carry out specialized activities.
2. Histology is the science that deals with the study of tissues.
3. The major tissue types are epithelial, connective, muscular, and nervous.

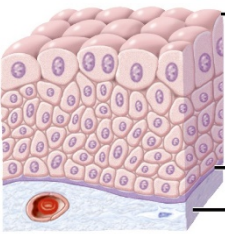
Epithelial tissue

TYPES OF TISSUE	DIAGRAM	LOCATION	FUNCTION
SIMPLE SQUAMOUS	 <p>The diagram illustrates simple squamous epithelium. It shows a single layer of flat, squamous cells resting on a basement membrane. Below the basement membrane is the connective tissue. Labels include 'Simple squamous cell', 'Basement membrane', and 'Connective tissue'. The title 'Simple squamous epithelium' is at the bottom. A small copyright notice for Marieb and Keller is also present.</p>	lines heart, lymphatic vessels and abdominal cavity, and serous secretions	filtration, absorption, diffusion, osmosis

Simple cuboidal	 <p>Simple cuboidal cell</p> <p>Basement membrane</p> <p>Connective tissue</p> <p>Simple cuboidal epithelium</p> <p><small>Figure 3.10 Figure 3.10: Epithelium in the Human Body, 7/e © 2011 John Wiley & Sons</small></p>	covers ovaries, lines kidney tubules and part of the eye lens, and forms part of the retina	secretion and absorption
Simple columnar	 <p>Nonciliated simple columnar epithelium</p> <p>Microvilli</p> <p>Mucus in goblet cell</p> <p>Absorptive cell</p> <p>Basement membrane</p> <p>Connective tissue</p> <p>Nonciliated simple columnar epithelium</p> <p><small>Figure 3.11 Figure 3.11: Epithelium in the Human Body, 7/e © 2011 John Wiley & Sons</small></p>	lines GI tract from stomach, excretory ducts of glands, and gall bladder	secretion and absorption

<p>Simple ciliated columnar</p>	 <p>Ciliated simple columnar epithelium</p> <p><small>Table 6-1d Figure 2 Introduction to the Human Body, 7/e © 2007 John Wiley & Sons</small></p>	<p>lines upper respiratory tract, uterine tubes, and uterus</p>	<p>moves mucus by ciliary action</p>
<p>Stratified squamous</p>	 <p>Stratified squamous epithelium</p> <p><small>Table 6-1f Figure 2 Introduction to the Human Body, 7/e © 2007 John Wiley & Sons</small></p>	<p>lines the mouth, tongue, esophagus, vagina, and outer layer of the skin</p>	<p>protection</p>

<p>Stratified cuboidal</p>	 <p>Stratified cuboidal epithelium</p> <p>Table 4-1g Figure 2 Introduction to the Human Body, 7/e © 2007 John Wiley & Sons</p>	<p>comprises ducts of sweat glands and male urethra</p>	<p>protection and limited secretion and absorption</p>
<p>Stratified columnar</p>	 <p>Stratified columnar epithelium</p> <p>Table 4-1h Figure 2 Introduction to the Human Body, 7/e © 2007 John Wiley & Sons</p>	<p>lines male urethra, part of the conjunctiva of the eye</p>	<p>protection and secretion</p>

Transitional	<div><p>Transitional epithelium</p><p>Apical surface</p><p>Basement membrane</p><p>Connective tissue</p><p>Relaxed transitional epithelium</p><p><small>Table 4-11 Figure 2 Introduction to the Human Body, 7/e © 2007 John Wiley & Sons</small></p></div>	lines urinary bladder and parts of ureter and urethra	prevents distention

pseudostratified
columnar

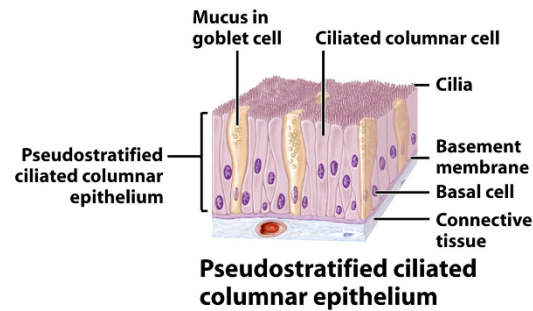


Table 4.1a Figure 2 Introduction to the Human Body 7/e
© 2007 John Wiley & Sons

lines large excretory ducts, epididymis,
male urethra, and eustachian tubes, upper
sperm respiratory tract and male
reproductive system

secretion and
movement of mucus

Connective Tissue

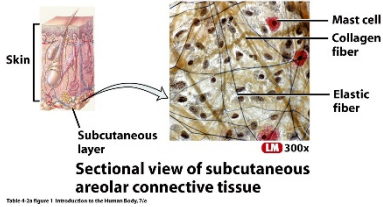
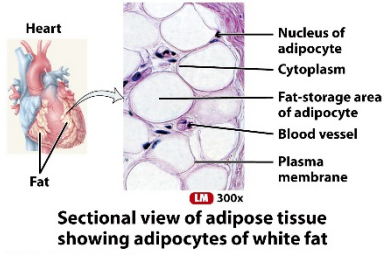
1. Connective tissue is one of the most abundant tissues in the body and is highly vascular. It also contains a varied number of cells with a large quantity of extracellular matrix.
2. The general functions of connective tissue are protection, support, binding, and storage.

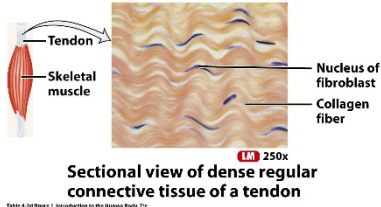
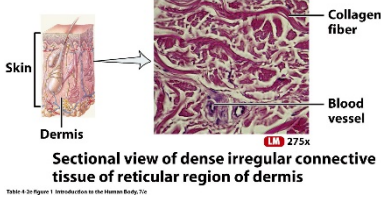
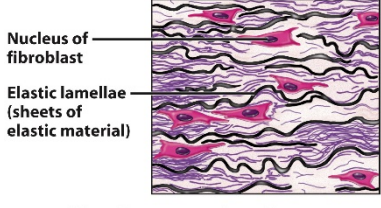
G. General Features of Connective Tissue

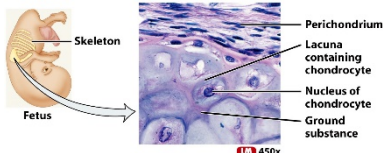
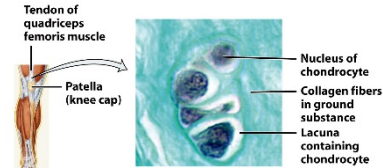
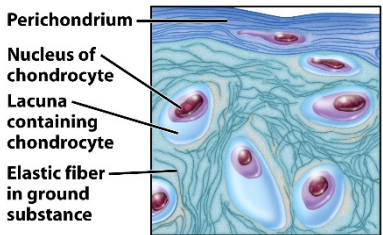
1. The following are general features of connective tissue:

Classification of Connective Tissues

1. connective tissue includes loose and dense connective tissue, cartilage, bone, blood, and lymph.
2. A summary of mature connective tissues:

TYPE		DESCRIPTION	LOCATION	FUNCTION
Areolar	 <p>Sectional view of subcutaneous areolar connective tissue</p> <p><small>Table 4.1b Figure 1 Introduction to the Human Body, 7/e</small></p>	fibers of collagen, elastic and reticular; fibroblasts, macrophages, plasma cells, mast cells, and adipocytes in a matrix	around organs, dermis of skin and tissue with fibroblasts, subcutaneous layer	Strength, elasticity, and support
Adipose	 <p>Sectional view of adipose tissue showing adipocytes of white fat</p> <p><small>Table 4.1b Figure 1 Introduction to the Human Body, 7/e</small></p>	adipocytes used for fat storage	subcutaneous tissue around heart and kidneys, marrow of long bones, joints	Heat loss reduction, support, protection, and energy reserve
Dense regular and irregular		collagen fibers with fibroblasts	tendons, ligaments protection, heart, bone, liver, testes and lymph nodes	Support and attachment, provides strength

	 <p>Sectional view of dense regular connective tissue of a tendon</p> <p><small>Table 4-20 Figure 1 Introduction to the Human Body, 7/e</small></p>  <p>Sectional view of dense irregular connective tissue of reticular region of dermis</p> <p><small>Table 4-20 Figure 1 Introduction to the Human Body, 7/e</small></p>			
Elastic	 <p>Elastic connective tissue</p> <p><small>Table 4-20 Figure 2 Introduction to the Human Body, 7/e © 2007 John Wiley & Sons</small></p>	elastic fibers with few fibroblasts	lungs, arteries, trachea, bronchi, and true vocal cords	Stretching
Reticular		reticular fibers with cells wrapped around	liver, spleen, lymph nodes	Forms stroma of organs

<p>Hyaline cartilage</p>	 <p>Sectional view of hyaline cartilage of a developing fetal bone</p> <p><small>Table 4-20 Figure 1 Introduction to the Human Body, 7/e © 2007 John Wiley & Sons</small></p>	<p>Bluish-white shiny ground substance with chondrocytes</p>	<p>end of long bones, parts of the larynx, bronchi and embryonic skeleton</p>	<p>Movements at joints, support and flexibility</p>
<p>Fibrocartilage</p>	 <p>Sectional view of fibrocartilage of tendon</p> <p><small>Table 4-20 Figure 2 Introduction to the Human Body, 7/e © 2007 John Wiley & Sons</small></p>	<p>chondrocytes in bundles of collagenous fibers</p>	<p>joints between hip bones, intervertebral discs and knees</p>	<p>support and fusion</p>
<p>Elastic cartilage</p>	 <p>Elastic cartilage</p> <p><small>Table 4-20 Figure 3 Introduction to the Human Body, 7/e © 2007 John Wiley & Sons</small></p>	<p>chondrocytes in a network of elastic fibers</p>	<p>epiglottis, external ear and auditory tubes</p>	<p>support and shape</p>

- Connective tissue may contain a variety of cell types such as fibroblasts, macrophages, plasma cells, mast cells, and adipocytes.
- Bone tissue is a specialized connective tissue comprised of bone-forming cells (osteocytes) and can exist either as compact or spongy bone.

5. The osteon or Haversian system is the basic unit of compact bone consisting of lamellae (matrix system), lacunae (small spaces between the lamellae with osteocytes), canaliculi (minute canals projecting from lacunae), and the Central (Haversian) canal (containing the principal blood vessel).
6. Blood Tissue is a specialized liquid connective tissue of plasma and formed elements. The formed elements are Red Blood Cells (RBCs), White Blood Cells (WBCs), and Platelets.
7. LYMPH is a fluid that flows in lymphatic vessels.

Muscular Tissue

1. Muscular tissue is a highly specialized tissue generates force, motion, the maintenance of posture, and the production of heat.
2. Skeletal muscle is usually attached to bones of the skeleton.
3. Cardiac muscle forms the bulk of the wall of the heart.
4. Smooth muscle is located in the walls of hollow internal structures, such as blood vessels, stomach, and urinary bladder.

Nervous Tissue

1. Nervous tissue contains two principal cell types: neurons and neuroglia.
2. Neurons are sensitive to stimuli, conduct impulses other neurons, muscle fibers, and glands.
3. Neuroglia is the cellular support for nervous tissue, which do not generate or conduct nerve impulses.

APPENDIX H: PHASE 1 STAGE 4

Below is the link to mini online Quiz.

[Test 1 Anatomy and Physiology \(ANPA 103\) 17 August 2020 \(office.com\)](#)

APPENDIX I: PHASE 1 STAGE 5 AND 6



Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPA 103

DATE: 5/10/2020
DURATION: MINUTES
TOTAL: 100

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

PLEASE ANSWER ALL QUESTIONS

Answer question 1 on the computer card provided.

-
- 1.1 The following selection does **not** represent the organelle level of organisation.
- A. Endoplasmic reticulum
 - B. Mitochondrion
 - C. Nucleus
 - D. DNA
- 1.2 An example of positive feedback mechanism includes
- A. Platelet plug formation
 - B. Milk production during breast feeding
 - C. Cervix dilation during labour
 - D. All of the above
- 1.3 During negative feedback a change occurs in the opposite direction to bring about homeostasis.
- A. true
 - B. false
- 1.4 The nucleolus is the site of _____ synthesis
- A. Ribosome
 - B. DNA
 - C. Protein
 - D. Golgi apparatus

- 1.5 The levels of organization in sequence are
- A. Cellular - tissue – organ – system – organism
 - B. Tissue – organ – system – cell – organism
 - C. Organism - tissue – organ – system – cell
 - D. System – tissue – cell – organ – organism
- 1.6 Physiology is the study of the _____ of an organism
- A. Function
 - B. Structure
 - C. Structure and function
 - D. Chemistry
- 1.7 The integumentary system contains the largest organ in the body, namely the
- A. Heart
 - B. Lungs
 - C. Skin
 - D. Kidney
- 1.8 The control systems of the body include the
- A. Skeletal and muscular systems
 - B. Nervous and endocrine systems
 - C. Circulatory and lymphatic systems
 - D. Respiratory and digestive systems
- 1.9 The transport systems of the body include the
- A. Skeletal and muscular systems
 - B. Nervous and endocrine systems
 - C. Circulatory and lymphatic systems
 - D. Respiratory and digestive systems
- 1.10 The following is **not** a survival need.
- A. Maintaining boundaries
 - B. Water
 - C. Oxygen
 - D. Atmospheric pressure
- 1.11 Catabolic reactions involve the
- A. Formation of new tissues
 - B. Release of energy
 - C. None of the above
 - D. Both of the above
- 1.12 Formation of an enzyme would be referred to as an/a
- A. Anabolic reactions
 - B. Catabolic reactions

- 1.13 Chromosomes are found in the
A. nucleus
B. cytoplasm
C. centriole
D. mitochondrion
- 1.14 Enzymes are
A. Catalysts
B. Substrates
C. Products
D. All of the above
- 1.15 DNA bases include
A. Adenine, thymine, cytosine, guanine
B. Uracil, thymine, cytosine, guanine
C. Adenine and thymine only
D. Guanine and cytosine only
- 1.16 The DNA molecule is arranged like a ladder. The rungs represent the
A. bases attached by hydrogen bonds
B. sugar and phosphate
C. bases attached directly to each other
D. sugar, phosphate and base
- 1.17 The strands of the DNA molecule run in opposite direction and is therefore termed
A. Nucleotides
B. Antiparallel
C. Double helix
D. Replication
- 1.18 Duplication of the mitochondrion, lysosome and Golgi body occurs during the ‘gap’ phases of interphase.
A. True
B. False
- 1.19 mRNA plays a role in
A. Transcription
B. Replication
C. Translation
D. All of the above
- 1.20 An anticodon is represented by a
A. Triplet of bases on mRNA
B. Triplet of bases on tRNA
C. Both of the above
D. None of the above

- 1.21 Which process of cell division occurs as a child grows from a baby into a toddler?
A. mitosis
B. meiosis
- 1.22 Karyokinesis is also called
A. cytoplasmic division
B. nuclear division
- 1.23 Desmosomes
A. form a leak-proof sheet
B. fuse together like a zipper
C. are anchoring junctions
D. none of the above
- 1.24 Glycolipids constitute % of all membrane lipids
A. 95
B. 75
C. 20
D. 5
- 1.25 Where is RNA manufactured?
A. Cytoplasm
B. Nucleus
C. rER
D. Golgi body
- 1.26 The following epidermal layer is exclusive to the palms of the hand
A. stratum spinosum
B. stratum lucidum
C. stratum granulosum
D. stratum corneum
- 1.27 Keratin is found in the
A. stratus spinosum
B. stratum lucidum
C. stratum granulosum
D. stratum corneum
- 1.28 The papillary layer
A. nourishes the epidermal cells
B. contains dense irregular connective tissue
C. contains elastic and collagen fibres
D. none of the above

- 1.29 Apocrine sweat glands are most numerous on the
A. forehead
B. soles of the feet
C. palms of the hand
D. genital area
- 1.30 The pancreas is an example of a _____ gland
A. merocrine
B. holocrine
C. apocrine
D. eccrine
- 1.31 The following is true of merocrine glands,
A. release their secretions without breaking the cell membrane
B. whole cells become detached, die and become part of the secretion
C. a portion of the cell is pinched off with the secretion in the cell
D. none of the above
- 1.32 Appositional cartilage growth occurs from
A. existing chondrocytes in the matrix
B. activity of fibroblasts in the perichondrium
C. stem cells in bone marrow
D. none of the above
- 1.33 The nutrient foramen
A. is associated with nourishment of bone
B. is found in the mid-region of the bone
C. stimulates osteoprogenitor cells in the perichondrium
D. all of the above
- 1.34 Osteoporosis may be caused by
A. vitamin C deficiency
B. decrease in ovarian steroids
C. endocrine malfunctions
D. all of the above
- 1.35 Rickets in children are associated with
A. low blood levels of phosphorous
B. high blood levels of phosphorous
C. low blood levels of glucose
D. high blood levels of glucose

- 1.36 Joints, which do not allow any movement, are referred to as
- A. diarthrotic
 - B. synarthrotic
 - C. amphiarthrotic
 - D. all of the above
- 1.37 Perimysium encloses
- A. myofibrils
 - B. fascicles
 - C. myofilaments
 - D. entire muscle
- 1.38 During isotonic exercise
- A. the muscle does not shorten
 - B. muscle tension does not significantly change
 - C. the muscle shortens
 - D. muscle tension changes significantly
- 1.39 An agonist is also called a
- A. prime mover
 - B. synergist
 - C. antagonist
 - D. none of the above
- 1.40 Adduction refers to
- A. moving a part of the body away from the midline
 - B. moving a part of the body towards the midline
 - C. decreasing the angle between two bones at a joint
 - D. decreasing the angle between two bones at a joint
- 1.41 Flexion refers to
- A. moving a part of the body away from the midline
 - B. moving a part of the body towards the midline
 - C. decreasing the angle between two bones at a joint
 - D. decreasing the angle between two bones at a joint
- 1.42 Plantarflexion is associated with
- A. movement around a longitudinal axis
 - B. hand positions
 - C. foot positions
 - D. moving a part of the body away from the midline

- 1.43 The phalanges are an example of
A. long bones
B. short bones
C. irregular bones
D. flat bones
- 1.44 Sharpey's fibres
A. attach the periosteum to the bone
B. is the articular cartilage covering each epiphysis
C. is a strong fibrous membrane covering long bone
D. is the hollow area inside the diaphysis
- 1.45 The radius lies when compared to the ulna
A. medially
B. laterally
- 1.46 Constant bone mass is achieved through
A. a balance between resorption and deposition of bone
B. primarily, osteoclast activity
C. calcification of the matrix
D. high levels of vitamin D
- 1.47 The following is true of the epiphyseal line
A. it is an active area of bone growth in length
B. it is found in developing bone of children
C. it forms where the epiphyseal plate occurred
D. it has osteogenic potential in young bone
- 1.48 Hardness of bone matrix is as a result of
A. inorganic salts
B. ground substance
C. collagen
D. all of the above
- 1.49 In bone growth and development,
A. vitamin D is required for intestinal calcium absorption
B. vitamin A is required for bone resorption
C. vitamin C is required for collagen synthesis
D. all of the above

- 1.50 Growth hormones affect skeletal tissue in one of the following ways:
A. regulation of collagen and chondroitin deposition
B. stimulates protein synthesis
C. closure of the epiphyseal plates
D. all of the above
- 1.51 A strong base of support for the torso is provided by
A. coxal bone
B. sacrum
C. coccyx
D. all of the above
- 1.52 The pectoral girdle is made up of the
A. scapula and clavicle
B. humerus and scapula
C. humerus, ulna and radius
D. radius and ulna
- 1.53 The largest tarsal bone is the
A. calcaneus
B. talus
C. navicular
D. cuboid
- 1.54 Most of the bones in the body are formed through endochondral ossification
A. True
B. False
- 1.55 The hip joint is a joint
A. pivot
B. saddle
C. ball and socket
D. gliding

Question 2

[25]

- 2.1 Discuss the consequence of lysosomal damage. (3)
- 2.2 Using a flow chart, explain negative feedback control of a very low blood glucose level. (5)
- 2.3.1 Name the 4 stages of mitosis in sequence. (4)
- 2.3.2 Using diagrams, annotate to explain the main feature/s of the first TWO stages of mitosis. (6)
- 2.3.3 Briefly explain the role of interphase during cell division. (2)
- 2.3.4 Differentiate between mitosis and meiosis in terms of where each process occurs. (2)
- 2.3.5 Briefly discuss the consequence of uncontrolled and increased cell division. (3)

Question 3

[20]

- 3.1 The primary function of the skin is one of protection. Discuss this statement. (6)
- 3.2 Three-year-old Sahil has a bad cut on his knee, with reference to the epidermis, explain how his wound heals. (2)
- 3.3 It is a hot Durban summers day. You find that your body is covered with a film of sweat. Name the type of gland associated with your discomfort. (1)
- 3.4 With the aid of a ***flow chart***, explain the sequence of events that occur immediately after a wound occurs until the injured area is walled off by interstitial clots. (6)
- 3.5 Discuss the role of the skeletal system and the endocrine control of calcium homeostasis. (5)

Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPA 103

DATE: 5/10/2020
DURATION: MINUTES

TOTAL:

120

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

MODEL ANSWERS

QUESTION ONE – MULTIPLE CHOICE QUESTIONS

Q1

- 1.1 D
- 1.2 D
- 1.3 A
- 1.4 A
- 1.5 A
- 1.6 A
- 1.7 C
- 1.8 B
- 1.9 C
- 1.10 A
- 1.11 B
- 1.12 A
- 1.13 A
- 1.14 A
- 1.15 A
- 1.16 A
- 1.17 B
- 1.18 A
- 1.19 A
- 1.20 B
- 1.21 A
- 1.22 B
- 1.23 C
- 1.24 D
- 1.25 B

1.26	B
1.27	D
1.28	A
1.29	D
1.30	A
1.31	A
1.32	B
1.33	D
1.34	D
1.35	A
1.36	B
1.37	B
1.38	B
1.39	A
1.40	B
1.41	C
1.42	C
1.43	B
1.44	A
1.45	B
1.46	A
1.47	C
1.48	A
1.49	D
1.50	A
1.51	D
1.52	A
1.53	A...
1.54	A
1.55	C

Question 2

[25]

- 2.1 The lysosome will then release its digestive enzymes into the cytoplasm. These enzymes will digest the cytoplasm, the organelles and the cell membrane thus damaging the cell. [3]
- 2 Low blood glucose level [5]
- Stimulate Islets of Langerhans in the pancreas
- Glucagon is released into blood
- Glucagon then stimulates the release of glucose stores by causing the breakdown of glycogen from its stores in the liver and muscle.
- 2.3.1 prophase, metaphase, anaphase, telophase [4]
- 2.3.2 see attached Figure

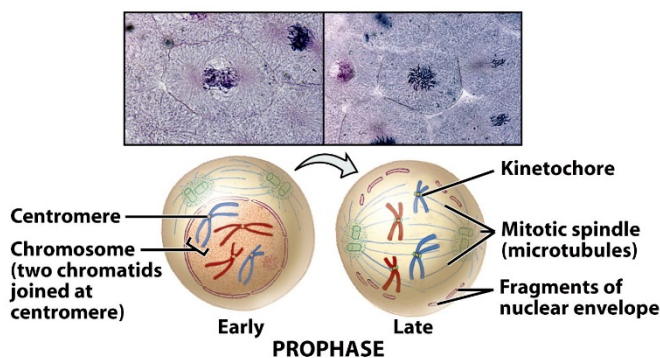


Figure 3-21 part 2 Introduction to the Human Body, 7/e

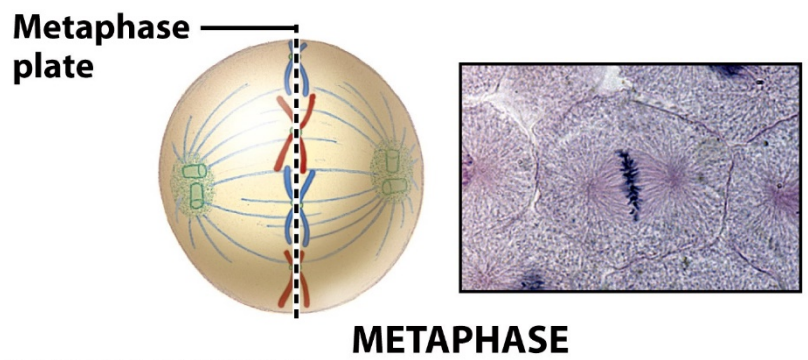


Figure 3-21 part 3 Introduction to the Human Body, 7/e

METAPHASE

[6]

- 2.3.3 during interphase the cell duplicates all the material that it contains, including the genetic material, in preparation for mitosis or cell division. [2]
- 2.3.4 mitosis – all somatic cells, meiosis – during gamete formation [2]
- 2.3.5 Uncontrolled growth will obviously result in an increase in cellular number. An enlarged mass of tissue forms and may be referred to as a tumour. The tumour may be malignant or benign. [3]

Question 3

[15]

- 3.1
- * Stratified therefore protection against mechanical injury and acts as the first line of defence
 - * Keratin – prevents dehydration by waterproofing the skin
 - * Reception of stimuli through presence of receptors for heat, cold, touch and pain. Therefore, able to detect potential danger.
 - * Presence of sebaceous glands - secrete sebum which antibacterial
 - * Has melanin which protects against harmful UV rays.
 - * Protection against overheating through capillaries and sweat glands[6]

3.2 epidermis – has stratum germinativum which is the reproductive layer which undergoes mitosis to produce new cells that replace damaged cells. [2]

3.3 eccrine sweat gland [1]

3.4 after a cut histamine released from injured area cells

Blood vessels dilate and become more permeable so that more fluid leaves blood and enters injured area causing swelling

Fluid exerts pressure on surrounding nerves and tissues and causes pain

Fluid here dilutes harmful substances and delivers large amounts of oxygen and nutrients to injured site making skin red and warm

A clot then forms in the interstitial fluid walling off the injured area to decrease spread of bacteria [6]

Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPA 103 SUPPLEMENTARY TEST
MINUTES

DATE: 27/11/202
DURATION: 120

TOTAL: 100

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

PLEASE ANSWER ALL QUESTIONS

Answer question 1 on the computer card provided

**QUESTION 1-35 ARE TRUE OR FALSE: IF THE STATEMENT IS TRUE, ENTER A
OR IF IT IS FALSE ENTER B [35]**

With regards to epithelial tissue

1. Epithelial tissue are those tissues, which protects and supports.
2. Epithelial tissue has goblets, which secrete mucous for moisture and to trap foreign particles.
3. Simple squamous epithelium is found in the thyroid gland and kidney tubules.
4. One of the functions of stratified squamous non-keratinizing epithelium is to waterproof the skin.
5. Simple columnar epithelium is found in the upper respiratory tract.

With regards to connective tissue

6. All connective tissue has matrix in which one find fibers and cells.
7. Connective tissue that has rows of collagen fibers, extremely strong and forms tendon and ligaments is known as areolar tissue.
8. Hyaline cartilage is found in the ear.
9. Cartilage consists of cells called chondrocytes located in spaces called lacunae.
10. Blood has a fluid matrix and only has a fibrous element under certain conditions.

With regards to muscular tissue

11. Skeletal muscle includes all involuntary muscle.
12. Cardiac muscles have short tubular fibers arranged end to end with a single central nucleus.
13. Smooth muscles include involuntary muscles of organs.
14. Cardiac muscles have intercalated discs joining ends of fibers and cross bridges linking adjacent fibers.
15. Smooth muscle has cross striations with many nuclei.

With regards to nervous tissue

16. Axons are usually myelinated.
17. Dendrites carry impulse away from the cell body.
18. Axons carry impulse to the cell body.
19. Myelin sheaths are good insulators so electrical impulses has to jump over the area covered by myelin.
20. The neuron is made of a cell body, dendrites and axon.

With regards to the integumentary system

21. The skin has two main layers which is the dermis and hypodermis.
22. The epidermis consists of non-stratified squamous epithelium that protects the skin.
23. The epidermis can either be thick as in the palms of the hands or thin as in the inner arm.
24. Melanocytes are melanin-producing cells that are found in the dermis.
25. The hypodermis has adipose tissue, which is involved in metabolism.

With regards to the skeletal system

26. The skeletal system is divided into the axial and appendicular skeleton.
27. The skeletal system function to protect the internal organs from injury.
28. Short bones have complex shapes.
29. Compact bone tissue consists of trabeculae surrounding many red bone marrows.
30. A fracture is a break in the bone.

With regards to the ossification

31. Ossification is a process of bone development.
32. Intramembranous ossification occurs within a cartilage model derived from mesenchyme.
33. The primary ossification center of a long bone is in the diaphysis.
34. Endochondral ossification occurs within the mesenchyme.

35. Due to the activity of the epiphyseal plate, the diaphysis of a bone increases in length.

Question 2

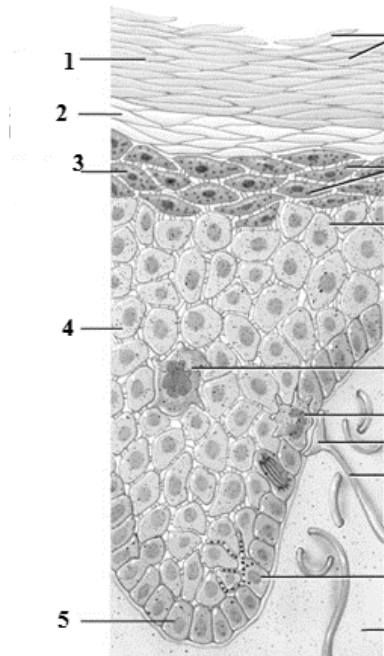
[16]

2. Make a schematic drawing of a small portion of the phospholipid bilayer. Label it fully and annotate the drawing to describe the structure and role of each component. (16)

Question 3

[18]

- 3.1 Describe the functions of the integumentary system. (10)
- 3.2 Study the diagram below and answer the questions that follow.



- 3.2.1 Deepest portion of the epidermis; a single layer of cells; the site of production of most epidermal cells. (1)
- 3.2.2 Most superficial stratum of the epidermis; dead cells with hard protein envelope and filled with keratin which provides structural strength. (1)
- 3.2.3 Epidermal layer superficial to the stratum basale, consisting of eight to ten layers of many-sided cells. (1)
- 3.2.4 Clear, thin zone above the stratum granulosum, absent in most skin. (1)
- 3.2.5 Derives its name from protein granules contained in the cells and is superficial to stratum spinosum. (1)

- 3.3 After playing near a fire, Princess accidentally got burnt. She displays the following signs and symptoms, severe pain immediately, blisters and swelling.

Classify this burn and provide a reason. (3)

Question 4

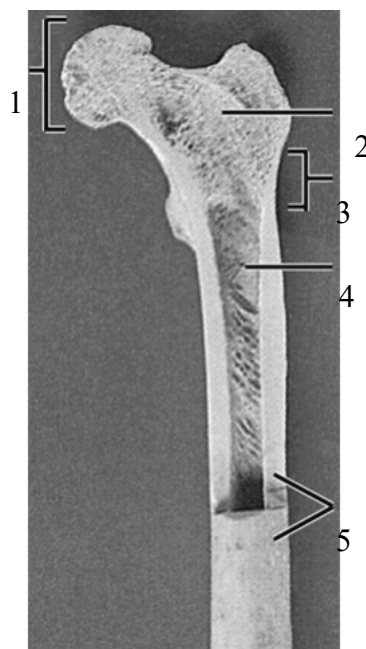
[31]

Please tabulate your answers for question 4.

- 4.1 Name the two types of bone ossifications and describe the differences.

Please tabulate your answers. (4)

- 4.2 Study the diagram below and answer the questions that follow.



- 4.2.1 Label the above diagram. (5)

- 4.2.2 Briefly list the bones that make up the two parts of the skeleton

Please tabulate your answers. (10)

- 4.3 List the different types of synovial joints. (6)

- 4.4 Briefly explain the different types of joints. **Please tabulate your answers** (6)

Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPA 103

DATE: 5/10/2020
DURATION: MINUTES

TOTAL: 120

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

MODEL ANSWERS

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1. Epithelial tissue are those tissues which protects and supports. F
2. Epithelial tissue has goblets which secrete mucous for moisture and to trap foreign particles. T
3. Simple squamous epithelium is found in the thyroid gland and kidney tubules. F
4. One of the functions of stratified squamous non-keratinising epithelium is to waterproof the skin. F
5. Simple columnar epithelium is found in the upper respiratory tract. T

With regards to connective tissue

6. All connective tissue has matrix in which one find fibers and cells. T
7. Connective tissue that has rows of collagen fibers, extremely strong and forms tendon and ligaments is known as areolar tissue. F
8. Hyaline cartilage is found in the ear. F
9. Cartilage consists of cells called chondrocytes located in spaces called lacunae. F
10. Blood has a fluid matrix and only has a fibrous element under certain conditions. T

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11. Skeletal muscle includes all involuntary muscle. F

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- 13. Smooth muscles include involuntary muscles of organs. T
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- 23. The epidermis can either be thick as in the palms of the hands or thin as in the inner arm. T
- 24. Melanocytes are melanin producing cells that are found in the dermis. F
- 25. The hypodermis has adipose tissue which is involved in metabolism. T

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- 30. A fracture is a break in the bone. T

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- 32. Intramembranous ossification occurs within a cartilage model derived from mesenchyme. F
- 33. The primary ossification center of a long bone is in the diaphysis. T
- 34. Endochondral ossification occurs within the mesenchyme. F
- 35. Due the activity of the epiphyseal plate, the diaphysis of a bone increases in length. T

Question 2

[16]

2.1 cell membrane, plasma membrane, phospholipid bilayer

[1]

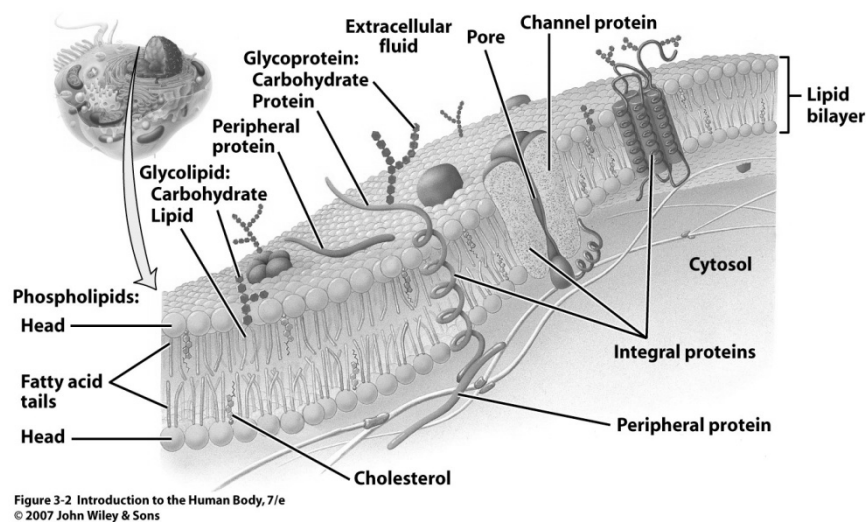
2.2

[3]

- Separates the cytoplasm of the cell from its environment
- Protects the cell & controls what enters and leaves.
- Cell membranes are selectively permeable only allowing certain materials to enter or leave.

2.3

[8]



2.4 GLYCOLIPIDS- cell-to-cell communication, regulate cell growth

[2]

2.5 GLYCOPROTEINS- act as cell identity markers, for example during tissue formation
[2]

2.6 A- Head Hydrophilic Heads

B- Fatty acid tails-Hydrophobic

[2]

Question 3

[18]

3.1

- A. Thermoregulation, the homeostatic control of body temperature, is due to the skin liberating sweat at its surface and by adjusting the flow of blood in the dermis.
- B. Because the skin has an extensive network of blood vessels, it functions as a *blood reservoir*.
- C. The skin provides *protection* through physical, chemical and biological barriers.
- D. *Cutaneous sensations*, including touch, pressure, vibration, tickle, heat, cold, and pain arise in the skin.
- E. The skin plays minor roles in *excretion*, the elimination of wastes from the body, and *absorption*, the passage of material from the external environment into body cells.
- F. *Synthesis of Vitamin D* requires activation of a precursor molecule in the skin by UV light, with enzymes in the liver and kidneys modifying the activated molecule to produce calcitriol, the most active form of vitamin D.
- G. Transdermal drug administration is a method of drug passage across the epidermis and into the blood vessels of the dermis (Clinical Application).

3.2.1 5-Stratum Basale

3.2.2 1- Stratum corneum

3.2.3 4- Stratum spinosum

3.2.4 2- Stratum lucidum

3.2.5 3- Stratum granulosum

3.3. Second degree burn, immediate pain, red /blisters.

Question 4**[31]**

4.1

[4]

Endochondral ossification	Intramembranous ossification
Formation of bone from hyaline cartilage	Formation of bone directly from or within fibrous connective tissue membrane

4.2.1

1. Epiphysis
2. Spongy Bone
3. Metaphysis
4. Medullary Cavity/Diaphysis
5. Compact Bone

[5]

4.2.2.

[10]

Axial skeleton	Appendicular skeleton
Vertebral column Skull Thoracic cage	Upper Limb Scapular, Clavicle, Radius, Carpals, Humerus Ulnar, Metacarpals, Phalanges Lower Limb Hip bone, Femur, Patella, Tibia, Fibular, Tarsals, metatarsals, Phalanges

4.3 Hinge, Ball and Socket, Planar/Saddle, Pivot, Gliding, Condylod, Ellipsoid

[6]

4.4

• Synarthrosis-immoveable	• Amphiarthrosis-slight movement	• Diarthroses- free movement= synovial
pelvis, sutures, teeth	Epiphysis, tibia-fibula, vertebrae and pelvic symphysis	defined by movement

APPENDIX J: DUT ACADEMIC CALENDAR (2020)



AMENDMENTS TO THE 2020 ACADEMIC CALENDAR

COMMENCEMENT OF REMOTE MULTIMODAL FLEXIBLE TEACHING AND LEARNING ON 01 JUNE

ACADEMIC TERMS			
TERM	FROM		TO
1	03 February		18 September
2	28 September		24 December
REGISTRATION			
	FROM	TO	NO. OF DAYS
First Semester	06 January	01 February	23
Annual	06 January	01 February	23
TEACHING AND LEARNING			
	FROM	TO	NO. OF DAYS
Annual	03 February	16 November	175
GRADUATION CEREMONIES			
Virtual Autumn Graduation	10 June		
Virtual Spring Graduation	Unknown		
COMMENCEMENT OF EXAMINATIONS			
	FROM	TO	NO. OF DAYS
Annual	17 November	07 December	15
PRACTICAL ASSESSMENTS AND SUPPLEMENTARY EXAMS			
	FROM	TO	NO. OF DAYS
Annual	04 January	15 January	10

Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPB 103

DATE: 19/10/2020
DURATION: 120 MINUTES
TOTAL: 100

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

PLEASE ANSWER ALL QUESTIONS

Answer question 1 on the computer card provided

Question 1

[25]

1. An entire skeletal muscle is covered by a coarse sheath called:
 - a. endomysium
 - b. perimysium
 - c. epimysium
 - d. aponeurosis
2. An aponeurosis is:
 - a. broad and flat
 - b. tube-shaped
 - c. featherlike
 - d. none of the above
3. Antagonists are muscles that:
 - a. oppose prime movers
 - b. facilitate prime movers
 - c. stabilize muscles
 - d. directly perform movements
4. The origin of a muscle is the point of attachment that moves when the muscles contracts
 - a. True
 - b. False
5. Skeletal muscles usually act in groups rather than individually
 - a. True
 - b. False

6. Prime movers and agonist are synonymous
 - a. True
 - b. False
7. Which of the following is not a general function of muscle tissue?
 - a. movement
 - b. protection
 - c. heat production
 - d. posture
8. The correct order of arrangement of skeletal muscle cells, from largest to smallest, is:
 - a. fiber, myofibril, myofilament
 - b. myofibril, myofilament, fiber
 - c. myofilament, myofibril, fiber
 - d. fiber, myofilament, myofibril
9. Sarcoplasmic reticulum is:
 - a. a system of transverse tubules that extend at a right angle to the long axis of the cell
 - b. a segment of the myofibril between two successive Z lines
 - c. a unique name for the plasma membrane of a muscle fibre
 - d. none of the above
10. Which of the following are myofilament proteins?
 - a. troponin
 - b. tropomyosin
 - c. a and b
 - d. none of the above
11. The contractile unit of a myofibril is the:
 - a. sarcomere
 - b. triad
 - c. sarcolemma
 - d. cross-bridges
12. The chief function of the T tubule is to:
 - a. provide nutrients to the muscle fiber
 - b. allow the fiber to contract
 - c. allow the electrical signal to move deep n into the cell
 - d. allow the generation of new muscle fibers

13. Myosin heads are called:
- a. cross-bridges
 - b. motor endplates
 - c. synapses
 - d. motor neurons
14. The region of a muscle fiber where motor neuron connects to the muscle fiber is called the:
- a. synaptic vesicle
 - b. motor end plate
 - c. H band
 - d. None of the above
15. The composition of blood is:
- a. 55% plasma, 45% formed element
 - b. 45% plasma, 55% formed element
 - c. 50% plasma, 50% formed element
 - d. none of the above
16. Reduced red blood cell numbers cause:
- a. polycythemia
 - b. buffy coat
 - c. anemia
 - d. both a and c
17. A hematocrit of 45% means that in every 100ml of whole blood:
- a. there are 45ml of red blood cells and 55ml of plasma
 - b. the 45ml of plasma and 55ml of red blood cells
 - c. 45% of formed elements are red blood cells
 - d. plasma is 45% of the circulating whole blood
18. Which of the following formed elements carry oxygen?
- a. leukocytes
 - b. erythrocytes
 - c. thrombocytes
 - d. monocytes
19. All formed elements arise from which stem cell?
- a. proerythroblast
 - b. megakaryoblast
 - c. lymphoblast
 - d. hemocytoblast

20. Heme is broken down into iron and amino acids for use in the synthesis of new RBC's
- True
 - False
21. The lifespan of circulating RBCs is about 10-12 days
- True
 - False
22. A person with antibody A in his or her plasma would have which blood type?
- type A
 - type B
 - type AB
 - type O
23. People with type O blood are considered to be universal donors because their blood contains:
- neither A nor B antigens on their RBCs
 - both A and B antigens in their blood plasma
 - the Rh antigen on their RBCs
 - none of the above
24. Which of the following statements does not describe a characteristic of leukocytes?
- they are disc-shaped cells that do not contain a nucleus
 - they have the ability to fight infection
 - they provide defense against certain parasites.
 - they provide immune defense.
25. Which of the following substances is not found in serum?
- clotting factors
 - water
 - hormones
 - all of the above are found in serum

Question 2**(41)**

- 2.1 Explain the functions of the muscle tissue in the body. (6)
- 2.2 Define the following terms:
- 2.2.1 Motor unit
 - 2.2.2 Neuromuscular junction
 - 2.2.3 Isometric contractions (3)
- 2.3 Name the different types of connective tissue sheaths that enclose muscle tissue. (3)
- 2.4 Using a flow diagram, describe the sequence of events of the sliding filament theory. (10)
You may illustrate your diagram.
- 2.5 Complete the table below. Write down the **numbers** and corresponding answers. (9)

MUSCLE	STRUCTURE	LOCATION	ACTION
9	1	Heart	2
3	Spindle shaped	4	5
6	Has striations	7	8

- 2.6 Identify the major muscle groups of the head and neck and briefly list their function. (10)

Question 3**[34]**

- | | | |
|-----|--|------|
| 3.1 | Define the word platelet and describe its function. | (5) |
| 3.2 | Describe the process of platelet plug formation. | (6) |
| 3.3 | Discuss the structure and function of red blood cells. | (3) |
| 3.4 | Explain what happens to red blood cells once they become damaged and worn out. | (10) |
| 3.5 | Give a flow diagram illustrating the classification of blood cells. | (10) |

Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPB 103

DATE: 19/10/2020
DURATION: 120 MINUTES
TOTAL: 100

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

PLEASE ANSWER ALL QUESTIONS
Answer question 1 on the computer card provided

MODEL ANSWERS

Question 1

1. C
2. A
3. A
4. B
5. A
6. A
7. B
8. A
9. D
10. C
11. A
12. C
13. A
14. B
15. A
16. C
17. A
18. B
19. D
20. B
21. B
22. B
23. A

24. A

25. A

Question 2

2.1 FUNCTION OF MUSCLE TISSUE

- Muscle tissue has five key functions. These include producing body movements, movement of substances within the body, stabilizing body positions, regulating organ volume, and producing heat.
- Producing body movements in function is related to walking or running. It is also finely tuned as in grasping a pen.
- Movement of substances within the body includes cardiac and smooth muscle. The cardiac muscle, through contraction, propels and moves the blood through the vessels of the body. Smooth muscle, through contraction, is involved in the movement of substances in the digestive, urinary and reproductive tracts.
- Stabilizing body position allows for proper posture during sitting and standing.
- Regulating organ volume involves the sustained contractions of ringlike bands of smooth muscles called sphincters which prevent outflow of contents of a hollow organ.
- Heat production arises from heat (energy) generated during contraction of muscle tissue
-

2.2 Define the following terms:

2.2.1 Motor unit: A motor unit consists of the motor neuron and the grouping of muscle fibers innervated by the neuron

2.2.2 Neuromuscular junction: A motor neuron controlling a muscle attach to it at a junction similar to a synapse.

2.2.3 Isometric contractions : no shortening of muscle and increased tension (3)

2.3 SKELETAL MUSCLE TISSUE - CONNECTIVE TISSUE COMPONENTS

Skeletal muscle tissue contains connective tissue components. The FASCIAE are sheets of fibrous connective tissue beneath the skin or around muscle and organs of the body.

EPIMYSIUM covers the entire muscle, PERIMYSIUM covers the FASCICULES, and ENDOMYSIUM covers the individual muscle fibers.

2.4 Contraction and Relaxation of Skeletal Muscle

The mechanics of muscle contraction follow the Sliding-Filament Mechanism.

A motor neuron is responsible for transmitting the nerve impulse (action potential) to a skeletal muscle where it serves as the stimulus for contraction.

The point at which the motor neuron and the muscle sarcolemma meet is referred to as the neuromuscular junction (NMJ).

A chemical neurotransmitter released at neuromuscular junctions in skeletal muscle is acetylcholine (Ach).

A single motor neuron and all of the muscle fibers it stimulates form a motor unit.

A single motor unit may affect as few as 10 or as many as 2000 muscle fibers

The number of motor units that fire in a muscle at any one time is the basis for the variability in contraction.

PHYSIOLOGY OF CONTRACTION

- When a nerve impulse, or action potential, reaches the axon terminal, the synaptic vesicles in the axon terminal release ACh.
- The release of ACh ultimately initiates a muscle action potential in the muscle fiber sarcolemma.
- The muscle action potential travels into the transverse tubules and causes the sarcoplasmic reticulum to release stored calcium ions into the sarcoplasm.
- The released calcium combines with troponin which pulls on the tropomyosin filaments and changes their orientation. This exposes the myosin-binding sites on the thin filament.
- Splitting ATP with ATPase into ADP+ phosphate releases energy which activates the myosin cross-bridges.
- The activated cross-bridges attach to the thin filament, and a change in the orientation of the cross-bridges occurs. This is called a power stroke.
- The power stroke results in the sliding of the thin filaments.
- Repeated detachment and reattachment of the cross-bridges results in the shortening (isotonic contraction) or increased tension without shortening (isometric contraction) of the muscle.
- The enzyme, acetylcholinesterase (AChE), in the neuromuscular junction, destroys acetylcholine and stops the generation of a muscle action potential.
- Calcium ions are then reabsorbed into the sarcoplasmic reticulum, exposing the troponin. This causes the cross-bridges to separate, and the muscle fiber resumes its resting state, or relaxation.

2.5

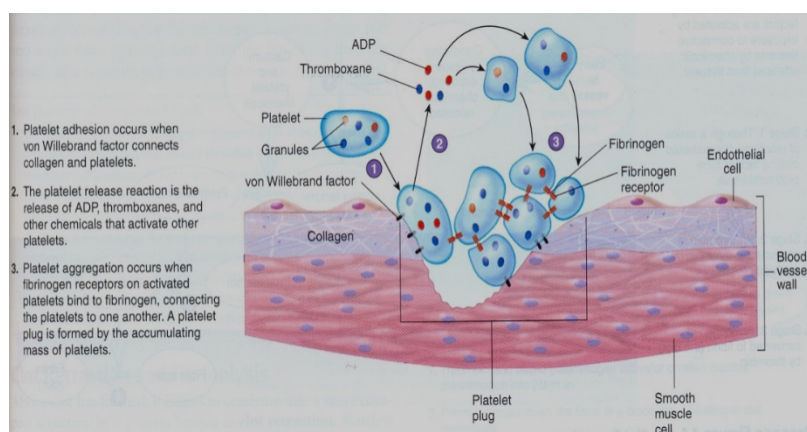
MUSCLE	STRUCTURE	LOCATION	ACTION
Cardiac 9	Striated 1	Heart	Involuntary 2
Smooth 3	Spindle shaped	Hollow organs 4	Involuntary 5
Skeletal 6	Has striations	Attached to bones 7	Voluntary 8

2.6

- Frontal muscles: contraction of these muscles leads to the raising of the eyebrows (2)
- Obicularis oris/ kissing muscles puckers the lips (2)
- zygomaticus/ smiling muscles elevates corners of the mouth and lips (2)
- masseter and temporal muscles: responsible for closing the mouth and for chewing movements (2)
- sternocleidomastoid and trapezius flex the head on the chest (2)

Question 3

- 3.1 platelets or thrombocytes are minute fragments of cell, each consisting of a small amount of cytoplasm surrounded by a cell membrane .
- 3.2 PLATELET PLUG FORMATION involves the clumping of platelets to impede the loss of blood.



[5]

1. A BLOOD CLOT is a network of insoluble protein (fibrin) in which the formed elements of the blood become trapped.
2. The chemicals involved in blood coagulation are known as clotting factors and are classified as plasma or platelet coagulation factors, depending upon where they originate.
3. The CLOTTING MECHANISM is a cascade system which can be broken into three stages: FORMATION OF PROTHROMBINASE, CONVERSION OF PROTHROMBIN TO THROMBIN, and the CONVERSION OF FIBRINOGEN TO FIBRIN.

3.3 disk shaped

Has a great surface area which is good for gaseous exchange during development RBC loose their nuclei & most of their organelle. Main component of RBC is the pigment hemoglobin [3]

3.4

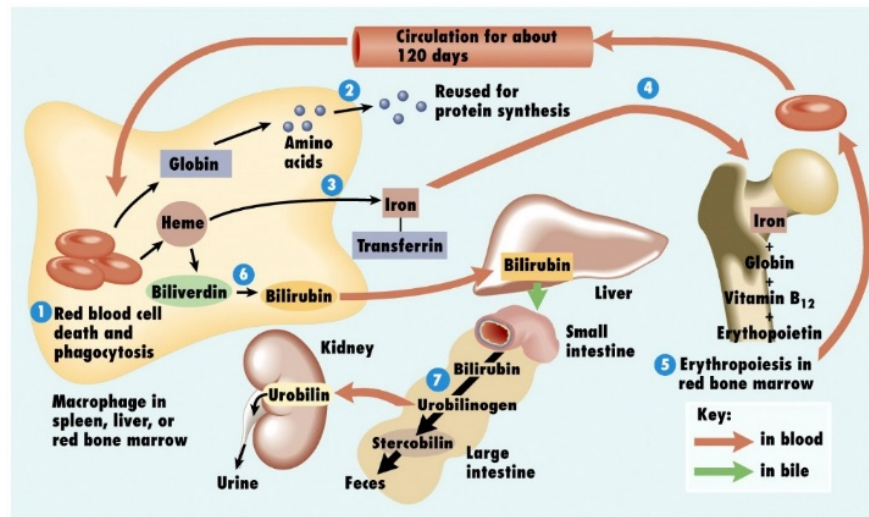


Figure 14-3 Introduction to the Human Body, 7/e
© 2007 John Wiley & Sons

3.5

Cell Type	Illustration	Description	Function
Red blood cell (erythrocyte)		Biconcave disk; no nucleus; contains hemoglobin, which colors the cell red; 6.5–8.5 μm in diameter	Transports oxygen and carbon dioxide
White blood cells (leukocytes)		Spherical cells each with a nucleus; white in color because they lack hemoglobin	Five types of white blood cells, each with specific functions
Granulocytes			
Neutrophil		Nucleus with two to four lobes connected by thin filaments; cytoplasmic granules stain a light pink or reddish purple; 10–12 μm in diameter	Phagocytizes microorganisms and other substances
Basophil		Nucleus with two indistinct lobes; cytoplasmic granules stain blue-purple; 10–12 μm in diameter	Releases histamine, which promotes inflammation, and heparin, which prevents clot formation
Eosinophil		Nucleus often bilobed; cytoplasmic granules stain orange-red or bright red; 11–14 μm in diameter	Releases chemicals that reduce inflammation; attacks certain worm parasites
Agranulocytes			
Lymphocyte		Round nucleus; cytoplasm forms a thin ring around the nucleus; 6–14 μm in diameter	Produces antibodies and other chemicals responsible for destroying microorganisms; contributes to allergic reactions, graft rejection, tumor control, and regulation of the immune system
Monocyte		Nucleus round, kidney, or horseshoe-shaped; contains more cytoplasm than does lymphocyte; 12–20 μm in diameter	Phagocytic cell in the blood; leaves the blood and becomes a macrophage, which phagocytizes bacteria, dead cells, cell fragments, and other debris within tissues
Platelet (thrombocyte)		Cell fragment surrounded by a plasma membrane and containing granules; 2–4 μm in diameter	Forms platelet plugs; releases chemicals necessary for blood clotting

Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPA 103

DATE: 21 JUNE 2021
DURATION: 2 HRS
TOTAL: 100

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

PLEASE ANSWER ALL QUESTIONS

Answer question 1 on the computer card provided.

Question 1: Multiple Choice

[25]

In the following question **ONE** option is correct. Choose the correct option and mark it on the computerized answer sheet.

- 1.1 The basic living unit of all organisms is the:
- a. organelles
 - b. cell
 - c. tissue
 - d. organ
 - e. organ system
- 1.2 Physiology:
- a. recognizes the unchanging nature of things
 - b. investigates the body's structure
 - c. is concerned with organisms and does not deal with different levels of organization such as cells and systems.
 - d. is the science dealing with the functions of living organisms and their parts.
- 1.3 Metabolism refers to:
- a. the chemical basis of life
 - b. the sum total of all the physical and chemical reactions occurring in the body.
 - c. an organization of similar cells specialized to perform a certain function.
 - d. a subdivision of physiology.
- 1.4 Which of the following organic compounds is not commonly found to play an active role in the cell membrane?
- a. carbohydrates
 - b. protein
 - c. cholesterol
 - d. nucleic acids

- 1.5 Which of these organelles is surrounded by a double membrane layer, in which there are many pores?
- a. nucleus
 - b. rough endoplasmic reticulum
 - c. golgi apparatus
 - d. lysosomes
 - e. Both a and b
- 1.6 Which of these organelles function as intracellular digestive systems and contain enzymes?
- a. lysosomes
 - b. rough endoplasmic reticulum
 - c. golgi apparatus
 - d. nucleus
 - e. secretory vesicle
- 1.7 The organelle that does not contain ribosomes and is involved in the synthesis of steroids in the gland cell is
- a. endoplasmic reticulum
 - b. rough endoplasmic reticulum
 - c. smooth endoplasmic reticulum
 - d. mitochondria
 - e. lysosomes
- 1.8 Given these characteristics: move against the concentration gradient; requires energy in the form of ATP; requires carrier molecules. Which of these processes is described?
- a. facilitated diffusion
 - b. diffusion
 - c. active transport
 - d. exocytosis
 - e. phagocytosis
- 1.9 Diffusion always takes place
- a. up a concentration gradient
 - b. from a high to low temperature
 - c. down a concentration gradient
 - d. Between regions of equal concentration.
- 1.10 Red blood cells bled into sea water will _____, since sea water is _____.
- a. crenate; hypotonic
 - b. hemolyse; hypotonic
 - c. crenate; hypertonic
 - d. hemolyse; hypertonic
- 1.11 mRNA is copied from
- a. DNA
 - b. RNA
 - c. ribosomes
 - d. polypeptide chains
 - e. rRNA

- 1.12 By the process of mitosis in a human cell, _____ daughter cells are produced, each of which has _____
- a. 2, 46
 - b. 2, 23
 - c. 4, 46
 - d. 4, 24
 - e. 8, 23
- 1.13 The process of meiosis
- a. includes I, II, III
 - b. results in the production of sperm cells or oocytes
 - c. produces 4 diploid cells
 - d. produces gametes that are identical to the parent cell.
 - e. produces new cells for growth or tissue repair.
- 1.14 Epithelial cells that can stretch from a cuboidal or columnar shape to a squamous shape are found in
- a. simple squamous epithelium
 - b. simple cuboidal epithelium
 - c. simple columnar epithelium
 - d. pseudostratified columnar epithelium
 - e. transitional epithelium
- 1.15 Tall, thin epithelial cells that have the appearance of two or more layers, but with all cells touching the basement membrane is
- a. simple squamous epithelium
 - b. simple cuboidal epithelium
 - c. simple columnar epithelium
 - d. pseudostratified columnar epithelium
 - e. transitional epithelium
- 1.16 Which of these is not part of connective tissue?
- a. ground substance
 - b. basement membrane
 - c. protein fibers
 - d. fluid
- 1.17 A process that uses vesicles to move liquid (not particle matter) into the cell is
- a. diffusion
 - b. pinocytosis
 - c. phagocytosis
 - d. exocytosis
- 1.18 Keratin is found in the
- E. stratus spinosum
 - F. stratum lucidum
 - G. stratum granulosum
 - H. stratum corneum

- 1.19 Apocrine sweat glands are most numerous on the
E. forehead
F. soles of the feet
G. palms of the hand
H. genital area
- 1.20 The following is true of merocrine glands,
a. release their secretions without breaking the cell membrane
b. whole cells become detached, die, and become part of the secretion
c. a portion of the cell is pinched off with the secretion in the cell
d. none of the above
- 1.21 Appositional cartilage growth occurs from
a. existing chondrocytes in the matrix
b. activity of fibroblasts in the perichondrium
c. stem cells in bone marrow
d. none of the above
- 1.22 The nutrient foramen
A. is associated with nourishment of bone
B. is found in the mid-region of the bone
C. stimulates osteoprogenitor cells in the perichondrium
D. all of the above
- 1.23 Osteoporosis may be caused by
a. vitamin C deficiency
E. decrease in ovarian steroids
F. endocrine malfunctions
G. all of the above
- 1.24 Rickets in children are associated with
E. low blood levels of phosphorous
F. high blood levels of phosphorous
G. low blood levels of glucose
H. high blood levels of glucose
- 1.25 Joints, which do not allow any movement, are referred to as
E. diarthrotic
F. synarthrotic
G. amphiarthrotic
H. all of the above

(25 x 1=25)

Question 2**[26]**

2.1 Write down the name of the organelle that best matches the following functions:

2.1.1 ATP production

2.1.2 Cellular digestion

2.1.3 Protein packaging

2.1.4 Site of protein synthesis

2.1.5 Lipid synthesis

2.1.6 Allows for transport of materials into the cell.

(6 x 1=6)

2.2 Fill in the table below. Write the down the **NUMBERS** and corresponding answers.

Tissue	Location	Function	Structural characteristic
Simple columnar	G.I.T	1	2
Transitional	3	4	Several layers of epithelial cell (cuboidal/squamous)
Aerolar	5	Protects, Binds, Supports	6
Adipose	7	8	Lipocytes
Cardiac	9	Aids in pumping blood.	10

(10 x 1= 10)

2.3. Use a table to illustrate the classification of blood cells.

(10)

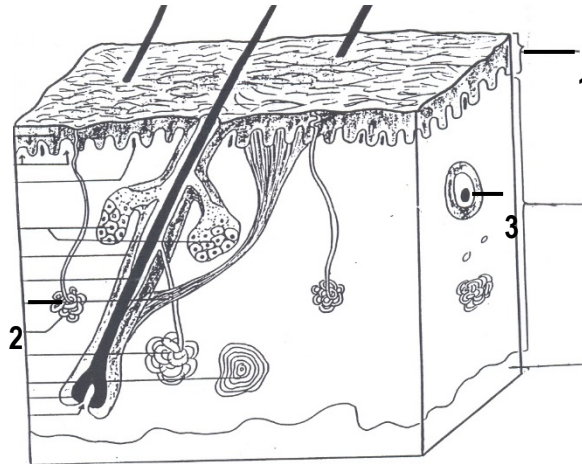
Question 3

[20]

3.1 The primary function of the skin is one of protection. Discuss this statement. (6)

3.2 Study **Diagram below** and answer the questions that follow.

3.2.1 Provide labels for the parts 1 to 3. (3)



3.3 Three-year-old Sizwe has a bad cut on his knee, with reference to part 1, explain how his wound heals. (2)

3.4 It is a hot Durban summers day. You find that you body is covered with a film of sweat.
Name the type of gland associated with your discomfort. (1)

3.5 With the aid of a **flow chart**, explain the sequence of events that occur immediately after a wound occurs until the injured area is walled off by interstitial clots. (6)

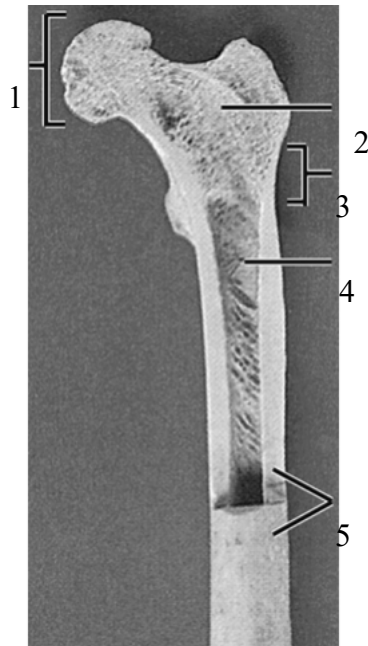
3.6 After playing near a fire, Beauty accidentally got burnt. She displays the following signs and symptoms – severe pain immediately, blisters and swelling. Classify this burn and provide a reason. (2)

Question 4

[30]

4.1 Study the diagram below. Write the number and corresponding answer.

(5)



4.2 Discuss the role of the skeletal system and the endocrine control of calcium homeostasis. (5)

4.3. Your grandmother is 75 years-old and over the last 10 years her posture has deteriorated. Her back is more bent, and she stoops when walking. With reference to the skeletal system, identify a disease that you have studied and explain her condition (3)

4.4 Differentiate between the cause of rheumatoid arthritis and osteo-arthritis. (4)

4.5 Name and describe the differences between the three major classes of joints. Tabulate your answer. (9)

4.6 Describe the different types of synovial joints and give examples of each. (8x1/2=4)

Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPA 103

DATE: 21 JUNE 2021
DURATION: 2 HRS

TOTAL: 100

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

Question 1

- 1.1 B
- 1.2 D
- 1.3 B
- 1.4 D
- 1.5 A
- 1.6 A
- 1.7 C
- 1.8 C
- 1.9 C
- 1.10 C
- 1.11 A
- 1.12 A
- 1.13 B
- 1.14 E
- 1.15 D
- 1.16 B
- 1.17 B
- 1.18 D
- 1.19 D
- 1.20 A
- 1.21 B
- 1.22 D

1.23 D

1.24 A

1.25 B

Question 2

2.1.1 mitochondrion

2.1.2 lysosome

2.1.3 golgi

2.1.4 ribosome








2.1.5 sER

2.1.6 cell membrane

2.2

Tissue	Location	Function	Structural characteristic
Simple columnar	Respiratory tract/ digestive tract	1 protective	2 Single layer/ tall, shaped cell
Transitional	3 bladder	4 Several layer to accommodate tissue to stretch	Several layers
Aerolar	5 widely distributed. It acts as a filling between body parts, and serves to attach the subcutaneous layer of the skin to underlying organs of the body	Protects, binds, supports	6 Collagen fibers, reticular, elastic fibers
Adipose	7 Beneath the skin	8 stores energy acts as a shock absorbing pad functions as a support structure protects delicate organs acts as insulation beneath the skin	Masses of lipocytes
Cardiac	9 Heart	Aids in pumping of blood	10 Single central nuclei

2.3

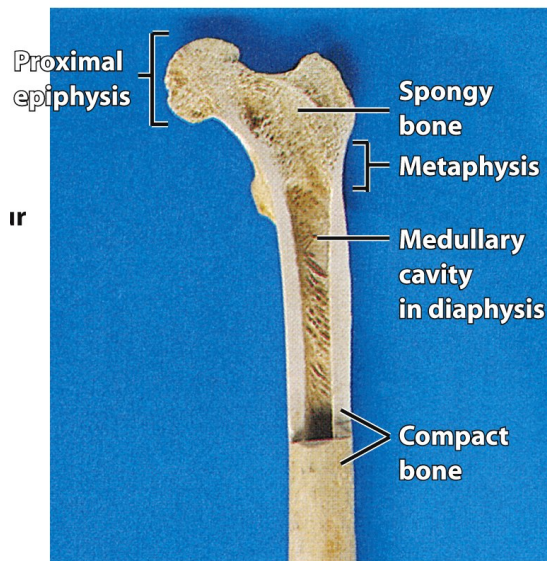
Cell Type	Illustration	Description	Function
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White blood cells (leukocytes)		Spherical cells each with a nucleus; white in color because they lack hemoglobin	Five types of white blood cells, each with specific functions
Granulocytes			
Neutrophil		Nucleus with two to four lobes connected by thin filaments; cytoplasmic granules stain a light pink or reddish purple; 10–12 μm in diameter	Phagocytizes microorganisms and other substances
Basophil		Nucleus with two indistinct lobes; cytoplasmic granules stain blue-purple; 10–12 μm in diameter	Releases histamine, which promotes inflammation, and heparin, which prevents clot formation
Eosinophil		Nucleus often bilobed; cytoplasmic granules stain orange-red or bright red; 11–14 μm in diameter	Releases chemicals that reduce inflammation; attacks certain worm parasites
Agranulocytes			
Lymphocyte		Round nucleus; cytoplasm forms a thin ring around the nucleus; 6–14 μm in diameter	Produces antibodies and other chemicals responsible for destroying microorganisms; contributes to allergic reactions, graft rejection, tumor control, and regulation of the immune system
Monocyte		Nucleus round, kidney, or horseshoe-shaped; contains more cytoplasm than does lymphocyte; 12–20 μm in diameter	Phagocytic cell in the blood; leaves the blood and becomes a macrophage, which phagocytizes bacteria, dead cells, cell fragments, and other debris within tissues
Platelet (thrombocyte)		Cell fragment surrounded by a plasma membrane and containing granules; 2–4 μm in diameter	Forms platelet plugs; releases chemicals necessary for blood clotting

Question 3

- 3.1 Stratified therefore protection against mechanical injury and acts as the first line of defence
Keratin – prevents dehydration by waterproofing the skin
Reception of stimuli through presence of receptors for heat, cold, touch and pain.
Therefore, able to detect potential danger.
Presence of sebaceous glands - secrete sebum which antibacterial
Has melanin which protects against harmful UV rays.
Protection against overheating through capillaries and sweat glands
- 3.2.1 1-epidermis 2-eccrine sweat gland 3-receptor
- 3.3 epidermis – has stratum germinativum which is the reproductive layer which undergoes mitosis to produce new cells that replace damaged cells.
- 3.4 eccrine sweat gland
- 3.5 After a cut histamine released from injured area cells
- Blood vessels dilate and become more permeable so that more fluid leaves blood and enters injured area causing swelling
- Fluid exerts pressure on surrounding nerves and tissues and causes pain
- Fluid here dilutes harmful substances and delivers large amounts of oxygen and nutrients to injured site making skin red and warm
- A clot then forms in the interstitial fluid walling off the injured area to decrease spread of bacteria
- 3.6 Second degree burn, immediate pain

Question 4

4.1



4.2

If blood calcium levels are too low Parathyroid hormone is secreted and is responsible for the absorption of calcium from existing bone so that more calcium is released into the blood until calcium levels are returned to normal. If blood calcium levels are abnormally high, parathyroid hormone ceases and calcitonin (a thyroid hormone) is released which functions to decrease Ca level in the blood until the levels return to normal. These hormones work antagonistically and on a negative feedback mechanism.

4.3 Osteoporosis: characterised by a reduction in bone mass. It is only detected by radiographic analysis after 30% of bone mass is lost. Therefore, it is not diagnosed for several years. It occurs with advancing age and affects females more than males. The vertebral column and pelvis are more affected. Some suggested causes include some endocrine malfunctions, vitamin C deficiency, & decrease in ovarian steroids. Treatment includes exercise, estrogen administration and calcium supplements

4.4 RA - body's immune system attacks joint tissue – auto-immune response.

Inflammation of joints occur i.e., synovial membrane, cartilage and bone erosion. There is a genetic predisposition. It is a systemic disease.

OA – over-used or misused joints, a degenerative disease occurring with advancing age. Cartilage breaks down and bones rub together causing inflammation.

4.5

FIBROUS	CARTILAGINOUS	SYNOVIAL
Fixed joint-no movement	Very slight movement	Freely moveable
Fibrous Connective Tissue	Fibro cartilage	Synovial membrane

4.6

Ball and socket joint: shoulder

Hinge joints: elbow

Gliding: carpal joints

Pivot joints: atlas & axis

Saddle: wrist joint

Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPA 103

DATE: 3 AUGUST 2021
DURATION: 2 HRS
TOTAL: 100

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS
SUPPLEMENTARY TEST

**QUESTIONS 1.1-1.30 ARE TRUE OR FALSE: IF THE STATEMENT IS TRUE, ENTER A
OR IF IT IS FALSE ENTER [30]**

In the cell

- 1.1 the cytoplasmic organelles are the cell's metabolic center
- 1.2 glycoproteins and glycolipids function as cell identity markers
- 1.3 the plasma membrane is non-selective
- 1.4 endocytosis secretes cellular contents into the extracellular fluid
- 1.5 the rough endoplasmic reticulum modifies and packages proteins into vesicles

With regard to tissues

- 1.6 tissues are the smallest living units in the human body
- 1.7 simple squamous tissue is responsible for protection
- 1.8 collagen fibers are strong and resist pulling forces
- 1.9 adipocytes engulf bacteria and cellular debris
- 1.10 dense regular connective tissue forms tendons, ligaments, and aponeuroses

In the skeletal system

- 1.11 yellow bone marrow stores fat
- 1.12 the sternum is a long bone
- 1.13 the periosteum lines the medullary cavity in the long bone
- 1.14 intramembranous ossification supports flat bone formation
- 1.15 red bone marrow is the site for epithelial production

In the integumentary system

- 1.16 the epidermis contains sensory cells that detect sensation, but the dermis does not
- 1.17 apocrine sweat glands secrete substances responsible for body odour in adults
- 1.18 collagen protects deeper tissues from microbes, abrasion, heat and chemicals
- 1.19 a pressure ulcer is caused by lack of blood flow to a portion of the skin

- 1.20 dermal blood vessels constrict in response to high environmental temperature and vice versa

In the skeletal muscle tissue

- 1.21 the epimysium encloses the bundles of muscle fibers
1.22 motor neurons conduct impulses to initiate muscle contraction
1.23 each fiber contains myofibrils made up of thick and thin filaments
1.24 acetylcholinesterase breaks down acetylcholine to increase the rate of contraction
1.25 ATP is the direct source of energy for contraction

During protein synthesis

- 1.26 transcription occurs in the cytoplasm
1.27 tRNA transports specific amino acids to the mRNA at the ribosome
1.28 genetic information encoded in the DNA is copied into a complementary sequence of codons in a strand of ribosomal RNA
1.29 tRNA has a triplet of nucleotides called an anticodons
1.30 attachment of the mRNA to the small subunit of a ribosome creates a functional ribosome

Question 2

[25]

- 2.1 *Homeostasis is continually disrupted by both external and internal stimuli, however these disruption are regulated by feedback systems that allows for continuous monitoring of the internal environment.*
- 2.1.1 Define homeostasis (2)
2.1.2 Differentiate between positive and negative feedback mechanisms (4)
2.1.3 Using your understanding of positive feedback mechanism, briefly describe the events that occur during childbirth (5)
- 2.2 List and briefly describe the function of the four major types of tissue found in the body. (8)
- 2.3 Describe the following epithelial tissues based on structure and function:
- 2.3.1 Adipose tissue (2)
2.3.2 Simple columnar epithelium (2)
2.3.3 Pseudostratified ciliated columnar epithelium (2)

Question 3**[37]**

- 3.1 List 2 differences between epidermis, dermis, and hypodermis. (6)
- 3.2 List the components of the integumentary system. (5)
- 3.3 Discuss the ways in which the integumentary system protects us. (8)
- 3.4 List the events that would occur when there is tissue damage. (9)
- 3.5 Briefly discuss 3 clinical examples that may affect the integumentary system. (9)

Question 4**[8]**

- 4.1 *Mr. Ngidi fell whilst playing soccer and broke his femur. The broken bone pierces the skin and is exposed at the surface.*
 - 4.1.1 Identify this fracture. (1)
 - 4.1.2 Name the three stages that the healing of this fracture will follow. (3)
 - 4.1.3 Explain the events during the first stage. (4)

*Department of Nursing***SUBJECT:** ANATOMY AND PHYSIOLOGY
ANPA 103**DATE:** 3 AUGUST 2021**DURATION:** 2 HRS**TOTAL:** 100**QUALIFICATION:** BHSC: NURSING**EXAMINER:** MS M COOPASAMI**MODERATOR:** MR MM WALTERS**SUPPLEMENTARY TEST MODEL ANSWERS****QUESTIONS 1.1-1.30 ARE TRUE OR FALSE: IF THE STATEMENT IS TRUE, ENTER A OR IF IT IS FALSE ENTER B****In the cell**

- | | | |
|-----|--|---|
| 1.1 | the cytoplasmic organelles are the cell's metabolic center | F |
| 1.2 | glycoproteins and glycolipids function as cell identity markers | T |
| 1.3 | the plasma membrane is non-selective | F |
| 1.4 | endocytosis secretes cellular contents into the extracellular fluid | F |
| 1.5 | the rough endoplasmic reticulum modifies and packages proteins into vesicles | F |

With regard to tissues

- | | | |
|------|---|---|
| 1.6 | tissues are the smallest living units in the human body | F |
| 1.7 | simple squamous tissue is responsible for protection | F |
| 1.8 | collagen fibers are strong and resist pulling forces | T |
| 1.9 | adipocytes engulf bacteria and cellular debris | F |
| 1.10 | dense regular connective tissue forms tendons, ligaments, and aponeuroses | T |

In the skeletal system

- | | | |
|------|--|---|
| 1.11 | yellow bone marrow stores fat | T |
| 1.12 | the sternum is a long bone | F |
| 1.13 | the periosteum lines the medullary cavity in the long bone | F |
| 1.14 | intramembranous ossification supports flat bone formation | T |
| 1.15 | red bone marrow is the site for epithelial production | F |

In the integumentary system

- | | | |
|------|---|---|
| 1.16 | the epidermis contains sensory cells that detect sensation but the dermis does not | F |
| 1.17 | apocrine sweat glands secrete substances responsible for body odor in adults | T |
| 1.18 | collagen protects deeper tissues from microbes, abrasion, heat and chemicals | F |
| 1.19 | a pressure ulcer is caused by lack of blood flow to a portion of the skin | T |
| 1.20 | dermal blood vessels constrict in response to high environmental temperature and vice versa | F |

In the skeletal muscle tissue

- | | | |
|------|---|---|
| 1.21 | the epimysium encloses the bundles of muscle fibers | F |
|------|---|---|

- 1.22 motor neurons conduct impulses to initiate muscle contraction T
- 1.23 each fiber contains myofibrils made up of thick and thin filaments T
- 1.24 acetylcholinesterase breaks down acetylcholine to increase the rate of contraction F
- 1.25 ATP is the direct source of energy for contraction

During protein synthesis

- 1.26 transcription occurs in the cytoplasm F
- 1.27 tRNA transports specific amino acids to the mRNA at the ribosome T
- 1.28 genetic information encoded in the DNA is copied into a complementary sequence of codons in a strand of ribosomal RNA F
- 1.29 tRNA has a triplet of nucleotides called an anticodons T
- 1.30 attachment of the mRNA to the small subunit of a ribosome creates a functional ribosome F

Question 2

- 2.1.1 Homeostasis is defined as the body's ability to maintain a relatively stable internal environment even though the external conditions are continuously changing
- 2.1.2 Negative Feedback Mechanisms: Reverses a change in the controlled variable, bringing it back to normal, Blood Glc Levels, Blood Pressure & Body Temperature
Positive Feedback Mechanisms: Strengthens or enhances the original stimulus that occurs, Childbirth.
- 2.1.3 Positive Feedback: Stretch receptors (uterine walls) send signals to brain
Brain releases oxytocin into bloodstream → Forceful contraction of uterine muscle
↑ stretch → ↑ hormone → ↑ contraction → Ends with birth of baby → ↓ in stretch
- 2.2
 - Epithelial tissue covers body surfaces and lines body cavities
 - Connective tissue protects and supports the body and its organs, binds organs together, stores energy reserves, and provides immunity
 - Muscular tissue is responsible for movement
 - Nervous tissue initiates and transmits nerve impulses

2.3

No.	TISSUE	STRUCTURE	FUNCTION
2.3.1	Adipose tissue	Thin rim of cytoplasm, displaced nucleus	Insulation & protection
2.3.2	Simple columnar	1 layer of column shaped cells resting on a basement membrane, basally located nucleus	Absorption
2.3.3	Pseudostratified ciliated columnar	1 layer of column shaped cells resting on a basement membrane variable location of nucleus, goblet cells	Secretes mucus, protection

Question 3

3.1

Epidermis	Dermis	Hypodermis
Outer layer	Middle layer	Inner most layer
Stratified squamous keratinizing epithelia	Dermal papilla	Adipose tissue

3.2 Integumentary system consists of skin as well as accessory structures nails, hair, sebaceous glands, sweat glands.

3.3 Skin is layered therefore acts as a physical barrier preventing microorganisms from entering.

It also protects underlying layers from everyday chemicals that we come into contact with.

Keratin protects against water loss and melanin protects against UV rays.

Sebum is antibacterial as well as moisturizing and acid mantle as well as salt in sweat Protect against potential pathogens.

Adipose in deeper layers acts as a cushion.

- 3.4 Tissue Damage-----Release of histamines-----histamine causes local blood vessels to dilate and become more permeable.

More blood flows
To area

Fluid passes from capillaries
to the interstitial tissue.

Warmth & Redness

Swelling

Pain (Pressure on nerves).

3.5

STRETCH MARKS

Stretch marks are a normal part of puberty for most girls and guys.

When a person grows or gains weight really quickly (like during puberty), that person may get fine **lines** on the body called stretch marks.

ACNE

The excess sebum combines with dead, sticky skin cells to form a hard plug that blocks the follicle.

DEGREE OF BURNS

Burns are often categorised as **first-**, **second-**, or **third-**degree burns, depending on how badly the skin is damaged.

Each of the causes can result in any of these three types of burn. But both the type of burn and its cause will determine how the burn is treated.

All burns should be treated quickly to reduce the temperature of the burned area and reduce damage to the skin and underlying tissue (if the burn is severe).

Question 4

4.1.1 compound

4.1.2 procallus, fibrocartilaginous callus, osseous callus

4.1.3 *Procallus*: conversion of the blood clot to a soft tissue callus at the fracture site. It begins immediately after a fracture and is completed within 48 hours.

A loose meshwork of fibrin is laid down.

The RBC destroyed in that region stimulates an inflammatory reaction which is characterised by swelling (edema), increased blood flow and increase in number of WBC at that site. When the macrophages and fibroblasts arrive, they phagocytose the RBC debris and begin the repair process by laying down connective tissue, respectively. In this way the procallus is established at the fracture site and will serve to bind the fracture together

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPA 202

DATE: 22 JUNE 2021
DURATION: 2 HRS
TOTAL: 100

QUALIFICATION: BHSC: NURSING
EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

PLEASE ANSWER ALL QUESTIONS

Answer question 1 on the computer card provided

Question 1: Multiple Choice Questions

[20]

1. The nervous system is divided into the _____ and the _____; the former consists of _____; the latter _____.
 - a. ANS; PNS; the nerves around the body; the ventricles
 - b. CNS; PNS; the nerves around the body; the ventricles
 - c. ANS; CNS; the nerves around the body; the brain and spinal cord
 - d. CNS; PNS; the brain and spinal cord; the nerves around the body
2. The brain's supporting cells are called:
 - a. Neurons
 - b. Mitochondria
 - c. Glial cells
 - d. Nuclei
3. Which of the following is not a part of a neuron?
 - a. Synaptic cleft
 - b. Nucleus
 - c. Dendrite
 - d. Lobe
4. _____ send signals away from neurons whereas _____ receive signals from other neurons.
 - a. Axons; dendrites
 - b. Axons; synapses
 - c. Dendrites; axons
 - d. Synapses; dendrites

5. The point at which the terminal button and another neuron communicate is called _____.; communication here is made possible by the release of _____.
- Synapse; hormones
 - Presynaptic membrane; neurotransmitters
 - Synapse; neurotransmitters
 - Axon hillock; hormones
6. Each neuron has approximately how many synapses?
- Between 10,000-1,000,000
 - Between 10-100
 - Between 1-10
 - Between 100-10,000
7. _____, which covers most of the axon, is important because it _____.
- Synovial fluid; facilitates electrical conduction of nerve cells
 - Cerebrospinal fluid; increases conduction of nerve impulses
 - Myelin; facilitates the release of neurotransmitter
 - Membrane potential; increases conduction of nerve impulses
8. The spaces between the covered parts of an axon are called:
- Nodes of Ranvier
 - Vesicles
 - Ventricles
 - Synaptic clefts
9. Which of the following is an example of a glial cell?
- Schwann cells
 - Oligodendroglia
 - Astrocytes
 - All of the above
10. Neurons communicate with each other by sending electrical impulses called:
- Action potentials
 - Membrane potentials
 - Neuromodulators
 - Neurotransmitters
11. When the charge across the membrane of a neuron is about _____, the charge is called the _____. This is because there are _____.
- 60-70mV; resting potential; more negative ions inside the cell
 - 60-70mV; resting potential; more positive ions inside the cell
 - 60-70 mV; action potential; more negative ions inside the cell
 - 70-100 mV; action potential; more positive ions inside the cell
12. When the neuron expels potassium:
- The inside of the cell loses positive ions and produces a positive charge inside
 - The inside of the cell loses negative ions and produces a positive charge inside
 - The inside of the cell loses negative ions and produces a negative charge inside

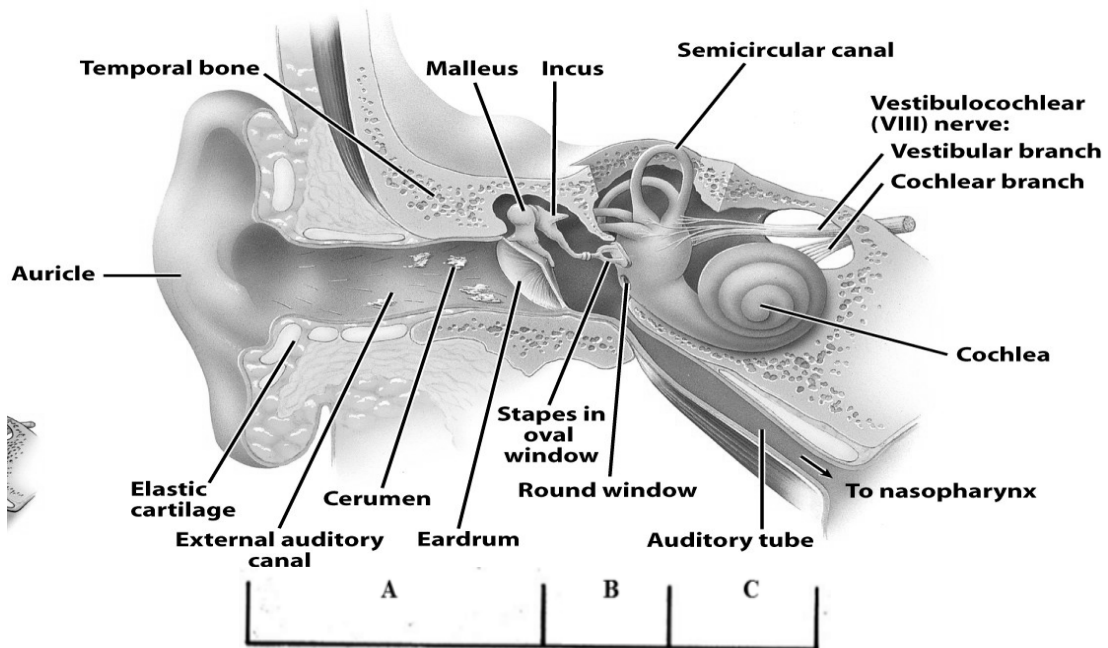
- d. The inside of the cell loses positive ions and produces a negative charge inside
13. When the cell becomes permeable to sodium, the charge changes to _____.; this is called _____.
a. 70mV; hyperpolarisation
b. 70mV; repolarisation
c. 55mV; depolarisation
d. 55mV; hyperpolarisation
14. If sodium continues to enter a cell _____. This is called _____.
a. The intracellular charge reverses from negative to positive; hyperpolarisation
b. The intracellular charge reverses from positive to negative; repolarisation
c. The intracellular charge reverses from positive to negative; depolarisation
d. The intracellular charge reverses from positive to negative; hyperpolarisation
15. The process described in questions 13 and 14 is called:
a. The resting potential
b. Neurotransmission
c. The membrane potential
d. The action potential
16. If the stimulation of a cell is strong, the strength of the action potential produced would be:
a. No different to that produced by weak stimulation
b. Twice that produced by weak stimulation
c. Weaker than that produced by weak stimulation
d. Stronger than that produced by weak stimulation
17. When depolarisation occurs _____.; this allows the release of _____ into the _____.
a. Calcium channels open; neurotransmitters; synaptic gap
b. Calcium channels open; dopamine; cell body
c. Potassium channels open; neurotransmitters; synaptic gap
d. Sodium channels open; neurotransmitters; synaptic gap
18. The collective name for dopamine, serotonin and noradrenaline is:
a. Neurotransmitters
b. Anxiolytics
c. Amines
d. Hallucinogens

19. What happens to excess neurotransmitter produced by presynaptic neurons?
- a. All of it is taken up by postsynaptic neurons
 - b. It is taken back into the presynaptic neuron
 - c. It is removed and taken around the rest of the body
 - d. It is eliminated by substances contained within the cell body
20. Neurotransmitters can inhibit or excite neurons. _____, for example, is inhibitory whereas _____ is excitatory.
- a. Glutamate; GABA
 - b. Serotonin; dopamine
 - c. GABA; glutamate
 - d. None of the above is correct

Question 2

[30]

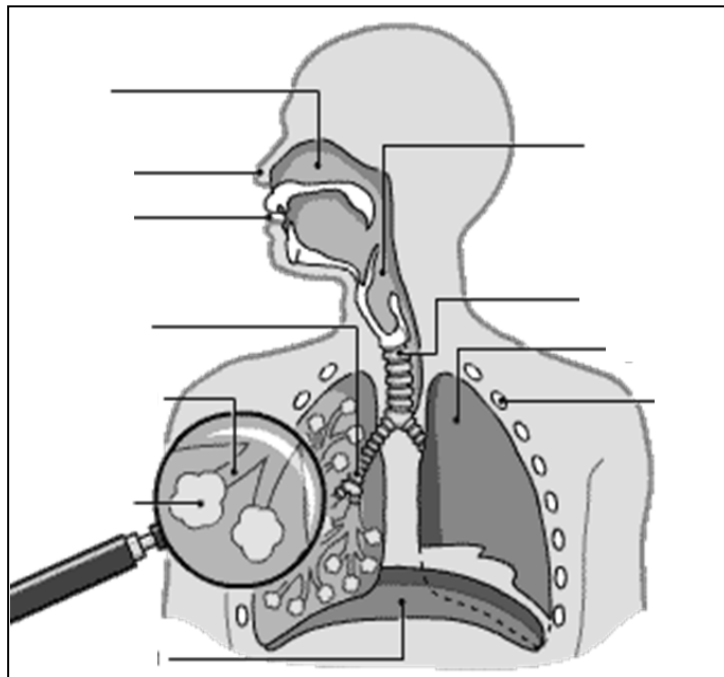
- 2.1 With the aid of a simple diagram briefly describe the structure and function of a typical neuron
Your answer should also indicate the direction in which a nerve impulse travels (12)
- 2.2 Briefly explain the actions of an excitatory and an inhibitory neurotransmitter. (4)
- 2.3 Explain what is meant by 'sensation'. (2)
- 2.4. Classify the different sensory receptors according to their structure. (6)
- 2.5 Identify regions A-C on the diagram below and state their functions. (6)



Question 3

[30]

3.1 Study the diagram below and answer the questions that follow.



- 3.1.1 Provide labels for the above diagram. Write down only the letters and corresponding answers. (10)
- 3.2 Briefly explain and differentiate between external and internal respiration. (5)
- 3.3 Mr. Pillay is admitted to the hospital for having an overdose of sleeping pills. This caused complete suppression of his medulla oblongata. Explain what effect this may have on Mr. Pillay's respiratory center. (5)
- 3.4 Explain the mechanism of breathing including inspiration and expiration. (10)

Question 4**[20]**

4.1 Differentiate between the nervous and the endocrine systems. (6)

4.2 List **three** general functions of hormones.

4.3 Differentiate between a water-soluble and a lipid soluble hormones. (2)

4.4 Name two hormones that are secreted by the posterior pituitary gland and state their functions. (4)

4.5 Match the hormone with its site of secretion.

(WRITE ONLY THE NUMBER AND CORRESPONDING ANSWER)

(5)

4.5.1. Melatonin	A. Pituitary gland
4.5.2. Mineralocorticoids	B. Inner zone of adrenal cortex
4.5.3. Prolactin	C. Testes
4.5.4. Testosterone	D. Pineal gland
4.5.5. Androgens	E. Outer zone of adrenal cortex

Department of Nursing

SUBJECT: ANATOMY AND PHYSIOLOGY
ANPA 202

DATE: 22 JUNE 2021

DURATION: 2 HRS

TOTAL: 100

QUALIFICATION: BHSC: NURSING

EXAMINER: MS M COOPASAMI

MODERATOR: MR MM WALTERS

Question 1

[20]

1. C
2. C
3. D
4. A
5. C
6. D
7. C
8. A
9. D
10. A
11. A
12. D
13. C
14. A
15. D
16. A
17. A
18. C
19. B
20. C

Question 2

[30]

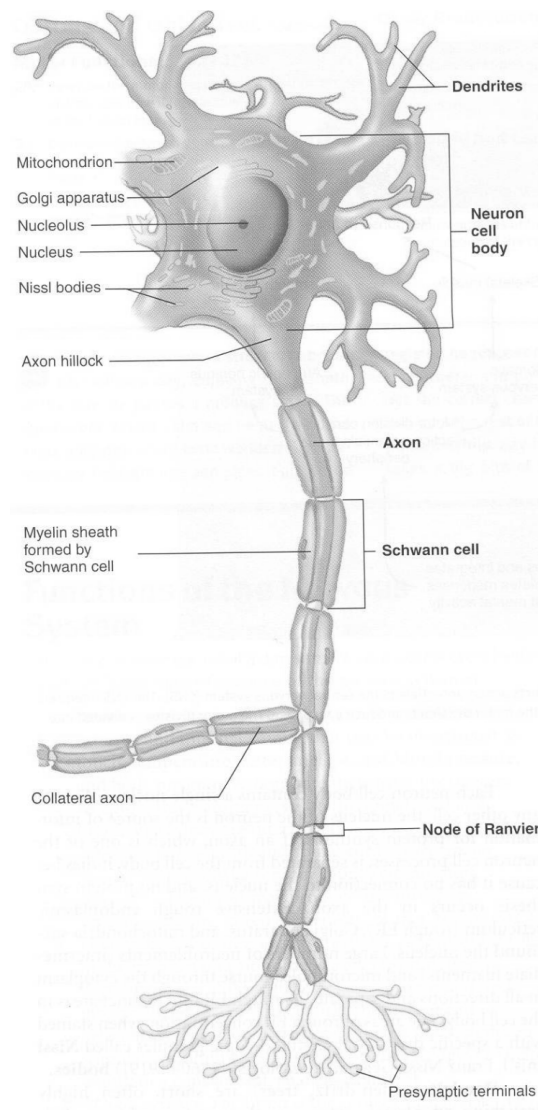
2.1 Cell body: single nucleus - source of information for protein synthesis, nutritional area & contains golgi apparatus, mitochondria & Nissl bodies

Dendrites: thin, short, branched processes- extend from cytoplasm of cell body

Provides a receptive area that transmits electrical impulses to cell body

Axons: longer process → cell body, conducts impulses away from cell body

Origin near cell body is enlarged → axon hillock + side branches- axon collaterals



2.2. Briefly explain the actions of an excitatory and an inhibitory neurotransmitter. (4)

An **excitatory** neurotransmitter depolarizes the postsynaptic neuron's membrane, brings the membrane potential closer to threshold, and increases the chance that one or more action potentials will arise.

An **inhibitory** neurotransmitter hyperpolarizes the membrane of the postsynaptic neuron, thereby inhibiting action potential generation.

2.3 Explain what is meant by 'sensation'. (2)

Sensation is the conscious or subconscious awareness of changes in the external or internal environment.

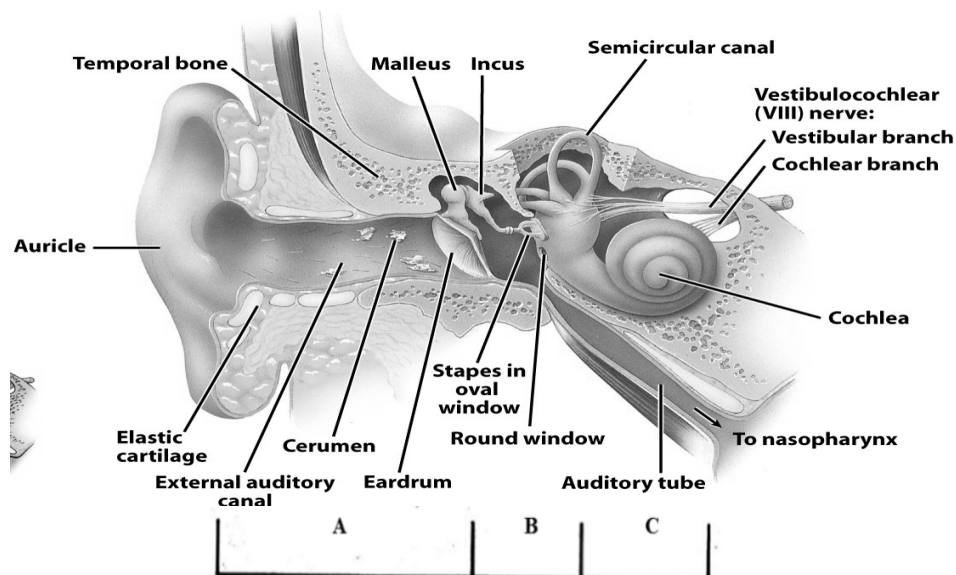
2.4. Classify the different sensory receptors according to their structure. (6)

Free nerve endings: Structurally the simplest, have bare dendrites which lack any structural specialization at their ends. Includes receptors for pain, temperature, tickle, itch and some touch sensations

Encapsulated nerve endings: Dendrites are enclosed in a connective tissue capsule. Includes receptors for other somatic and visceral sensations e.g. touch, pressure and vibrations

Separate cells: Sensory receptors consists of specialized separate cells that synapse with sensory neurons e.g. hair cells in the inner ear

2.5. Identify regions A-C on the diagram below and state their functions. (6)



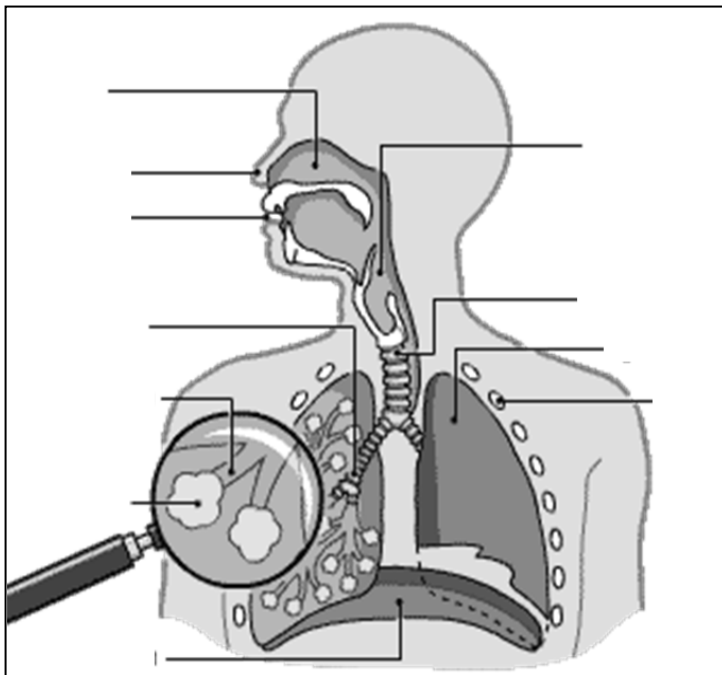
A= The external ear – collects sound waves and channels them inward.

B= The middle ear – conveys sound vibrations to the oval window.

C= The internal ear – houses the receptors for hearing and equilibrium.

Question 3

3.1



1. Nasopharynx
2. Nose
3. Mouth
4. bronchi/bronchiole
5. Alveoli
6. Diaphragm
7. Larynx
8. Trachea
9. Lungs
10. Ribs

3.2

In external and internal respiration, oxygen and carbon dioxide each move from areas of higher partial pressures to areas of lower partial pressures.

External respiration is the exchange of oxygen and carbon dioxide between the alveoli and the pulmonary blood capillaries. It results in the conversion of deoxygenated blood coming from the heart to oxygenated blood returning to the heart.

A thin respiratory membrane, a large alveolar surface area, and a rich blood supply aid external respiration. Its efficiency is dependent on altitude, total surface area for oxygen-carbon dioxide exchange, minute volume, and diffusion distance.

Internal respiration is the exchange of oxygen and carbon dioxide between the systemic blood capillaries and tissue cells. It results in the conversion of oxygenated blood into deoxygenated blood.

3.3

The area of the brain from which nerve impulses are sent to the respiratory muscles is located bilaterally in the respiratory center of the brain stem. The respiratory center consists of a medullary rhythmicity center (inspiratory and expiratory areas) and two neuron groups in the pons. **The medullary rhythmicity area controls the basic rhythm of respiration.**

The inspiratory area has an intrinsic excitability that sets the basic rhythm of respiration.

Neurons of the expiratory area remain inactive during most quiet respiration but are probably excited during high levels of ventilation to cause contraction of the muscles used to force exhalation.

The areas located in the pons coordinate the transition between inhalation and exhalation.

The one area of the pons sends impulses that shortens inhalation and to increase breathing rate.

The other area of the pons sends impulses to the inspiratory area that activates it and prolongs inhalation, resulting in a long, deep inhalation.

These functions will be impaired.

3.4

Inhalation occurs when alveolar pressure (pressure within the alveoli) falls below atmospheric pressure. Contraction of the diaphragm and rib muscles (external intercostals) increases the size of the thorax, so that the lungs expand.

Expansion of the lungs decreases alveolar pressure so that air moves along the pressure gradient from the atmosphere into the lungs.

Exhalation occurs when alveolar pressure is higher than atmospheric pressure. Relaxation of the diaphragm and rib muscles results in elastic recoil of the chest wall and lung, which increases intrathoracic pressure. Lung volume decreases and alveolar pressure increases, so air moves from the lungs to the atmosphere.

QUESTION 4

4.1 Differentiate between the nervous and the endocrine systems. (6)

TABLE 13.1		
Comparison of Control by the Nervous and Endocrine Systems		
CHARACTERISTIC	NERVOUS SYSTEM	ENDOCRINE SYSTEM
Mediator molecules	Neurotransmitters released locally in response to nerve impulses	Hormones delivered to tissues throughout body by blood
Site of mediator action	Close to site of release, at synapse; binds to receptors in postsynaptic membrane	Far from site of release (usually); binds to receptors on or in target cells
Types of target cells	Muscle (smooth, cardiac, and skeletal) cells, gland cells, other neurons	Cells throughout body
Time to onset of action	Typically within milliseconds (thousandths of a second)	Seconds to hours or days
Duration of action	Generally briefer (milliseconds)	Generally longer (seconds to days)

4.2 List **three** general functions of hormones. (3)

Help regulate – Chemical composition and volume of internal environment; Metabolism and energy balance;
Contraction of smooth and cardiac muscle fibers; Glandular secretions; Immune activities.
Control growth and development.
Regulate operation of reproductive systems.
Help establish circadian rhythms.

4.3 Differentiate between a water-soluble and a lipid soluble hormone. (2)

Lipid-soluble hormones affect cell function by altering gene expression.
Water-soluble hormones alter cell function by activating plasma membrane receptors, which elicit production of a second messenger that activates various proteins inside the cell.

4.4 Name **two** hormones that are secreted by the posterior pituitary gland and state their functions. (4)

Oxytocin secretion is stimulated by uterine stretching and by suckling during nursing.
ADH secretion is controlled by the osmotic pressure of the blood and blood volume.

4.5 Match the hormone with its site of secretion. (WRITE ONLY THE NUMBER AND CORRESPONDING ANSWER) (5)

4.5.1. Melatonin	A. Pituitary gland
4.5.2. Mineralocorticoids	B. Inner zone of adrenal cortex
4.5.3. Prolactin	C. Testes
4.5.4. Testosterone	D. Pineal gland
4.5.5. Androgens	E. Outer zone of adrenal cortex

4.5.1. D

4.5.2. E

4.5.3. A

4.5.4. C

4.5.5. B

APPENDIX O: INFORMED CONSENT

Appendix



LETTER OF INFORMATION

Title of the Research Study: A critical self-reflection on the relationship of teaching practice to the enhancement of at-risk student academic performance

Principal Investigator/s/researcher: Marilynne Coopasami, Masters in Public Health.

Co-Investigator/s/supervisor/s: Professor Ashley Adrian Hilton Ross (Supervisor), D.Tech and Rev. Dr. Delysia Norelle Tim (Co-supervisor), D.Tech

Brief Introduction and Purpose of the Study: The purpose of this study is to discover during the period of 2019/2020, how I as an anatomy and physiology lecturer, may help at risk students improve academically by critically self-reflecting on my practice through iterative cycles. This study will be conducted at the Durban University of Technology amongst first year undergraduate nursing students.

Outline of the Procedures: You will also be asked to first fill in the demographic questionnaire, which will take 10 minutes. You will be asked to participate in focus group interviews, which will take 1 hour to complete.

Risks or Discomforts to the Participant: No risk or any form of testing is involved. You will not experience any risk or discomfort in this study.

Benefits: The researcher may benefit by the submission of articles to peer reviewed Nursing Education journal/ Journal of Higher Education/

Reason/s why the Participant May Be Withdrawn from the Study: There will be no payment given to you if you participated. You are not forced to participate in this research if you are not comfortable. There will be no consequences if you choose not to participate.

Remuneration: You will not receive remuneration for your participation in this study.

Costs of the Study: You will not be liable for any cost towards this research study.

Confidentiality: Electronic data will be stored on the in a password protected computer which only I (researcher) will have access to. Paper based data will be stored in a locked cupboard in the researcher's office. Records will be kept in a password-controlled environment at all times and in a confidential manner such that

APPENDIX P: LIST OF SYSTEMS TAUGHT IN ANATOMY AND PHYSIOLOGY LEVEL 1 (FIRST YEARS) FIRST SEMESTER

MODULE 1: INTRODUCTION

Learning Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

Understand and interpret directional terms

be able to identify cavities, and regions of the body

be able to give location of the organs

Interpret the different levels of organisation

Understand functions of systems

understand homeostasis

understand and interpret the requirements of life and characteristics of living organisms

Indicative Content

Definitions of directional terms.

Identification, location and relationships of structures located within cavities.

Definition of Homeostasis, and structural hierarchy of the Human body.

Assessment Criteria

Interpretation and understanding of the basic functioning of the human body.

Practical on Torso: Introduction

Identification of planes of organization, directional terms, cavities and organs of the torso.

Location and relationships of organs.

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B .

2010 Wiley International Edition 11

MODULE 2: THE CELL

Learning Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

Describes the structure and function of cellular organelles

understand structure and functions of the nucleus

Interpret how substances are transported across cell membranes

understand mitosis

Understand causes and cellular basis of cancer

Understand and outlines chemical composition of the cell and fluid environment

Indicative Content

Structure and function of all cellular organelles.

The relationships between components of the endomembrane system (Golgi apparatus, endoplasmic reticulum & lysosomes)

The process of DNA replication and protein synthesis

Transport mechanisms across cell membranes

The cell cycle and mitosis

Assessment Criteria

Interpretation and description of the components and function of the Cell.

Practical on the Cell

Identification of cell organelles

Tabulation of structure and function of all cellular organelles

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B .

2010 Wiley International Edition 12

MODULE 3: TISSUES

EPITHELIAL TISSUE

Learning Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

be able to identify, draw, describe and locate the simple and stratified epithelia

Describe the functions of simple and stratified epithelia

Indicative Content

Simple squamous epithelia, simple cuboidal epithelia and simple columnar epithelia

Pseudostratified ciliated columnar epithelium

Stratified squamous epithelium : keratinised and non-keratinised epithelia, transitional epithelia

Assessment Criteria

Interpretation and describing the different types of epithelial tissue with regards to structure location and function.

Practical on Epithelial Tissue

Identification of different epithelial tissues.

Tabulation of structure, location and function

Diagrams

Structure and functions of the skin

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B .

2010 Wiley International Edition 13

CONNECTIVE TISSUE

Learner Outcomes

Learning Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

be able to identify, draw, describe and locate connective tissue proper

describe the functions of the different types of connective tissue proper

Indicative Content

Areolar connective tissue

Dense regular connective tissue, dense irregular connective tissue and elastic connective tissue

Reticular connective tissue

Adipose.

Assessment Criteria

describing the different connective tissue with regards to structure location and function.

Practical On Connective Tissue Proper

Identification of connective tissues.

Tabulation of structure, location and function

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B .

2010 Wiley International Edition 14

BONE AND CARTILAGE

Learner Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

Be able to identify, draw, describe, locate and give functions of the different connective tissues

Understand basic classification of bone

Understand the process of bone formation

Intramembranous ossification

Endochondral ossification

Indicative Content

hyaline, elastic and fibrous cartilage

Compact bone

Assessment Criteria

Describe the difference between bone and cartilage in terms of structure location and function.

Practical on Bone and Cartilage

Identification of the different types of cartilage and bone tissue.

Tabulation of structure, location and function

Identification of bones of the skeleton.

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B .

2010 Wiley International Edition

MUSCLE TISSUE

Explain how muscle is classified and list the three main types of muscle tissue: their control and location

(Detail of muscle structure to be done under the muscle system)

Practical on Muscle Tissue

Identification of different types of muscle tissue.

Tabulation of structure, location and function

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B .

2010 Wiley International Edition

NERVOUS TISSUE

Describe the structure and basic function of the neuron

MODULE 4 : INTEGUMENTARY SYSTEM

Learner Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

Define integumentary system

Describe the basic structure and function of the epidermis, (knowledge of strata unnecessary), mentioning process of keratinization and continual renewal.

Indicative Content

Describe the basic structure and function of the hypodermis.

Name and briefly describe the 2 layers of the dermis.

Identify in a diagram or model the basic elements of a L.S. through hair (shaft, follicle, papilla, etc).

State the basic functions of hair.

Briefly describe the structure and functioning of sebaceous glands.

Briefly describe the structure, distribution and functions of apocrine and merocrine sweat glands.

Outline the functions of the integumentary system, elaborating briefly on protection, temperature regulation, vitamin D production, sensation and excretion and stating how these functions relate to the various structures.

Innervation and blood supply of the integumentary system.

Briefly explain basis of pigmentation and pigmentation differences.

Discuss the effects of UV radiation on the skin, and the role played by melanocytes.

Explain the role of the integumentary system in helping to maintain homeostasis of normal body temperature.

Briefly explain how the skin responds to injury and repairs itself.

Assessment Criteria

Interpretation and description with regards to the functioning and structure of the integumentary system.

Practical

Skin Models

Tutorials

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B .

2010 Wiley International Edition 16

MODULE 5: SKELETAL SYSTEM

Learner Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

List the functions of skeletal system.

Describe the general structure of the bone and list the functions of its parts.

Describe the basic structure of synovial joints.

Indicative Criteria

Name the two major divisions of the skeleton and state which bones belong to which.

Identify all bones on the skeleton or in a diagram (loose or articulated).

Name the major bones and sutures on the skull.

State the regions of the vertebral column and the number of vertebrae in each.

☐ Explain (basically) the classification of joints into fibrous, cartilaginous and synovial.

Classify all the major joints in the body, state parts of bones articulating and movements

possible.

Assessment Criteria

Interpretation and description with regards to the functioning and structure of the skeletal system.

Practical on Skeletal System

Study the different bones of the skeletal system: upper limb and lower limb.

spinal Cord will be studied

LEVEL 1 (FIRST YEAR) SECOND SEMESTER

MODULE 1: MUSCULAR SYSTEM

Learning Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems

Explain how muscle is classified and list the three main types of muscle tissue, their control and locations.

Indicative Content

Describe the arrangement of muscle fibres to form a muscle such as the biceps.

Describe the basic muscle fibre/cell (myofilaments, myofibrils, nuclei, sarcoplasmic reticulum, sarcolemma).

Describe the sarcomere and its banding pattern, explaining which myofilament elements account for the various bands and lines.

Describe the basic function of the T-tubules and sarcoplasmic reticulum.

Briefly describe the structure of cardiac muscle and link this to its specialised function.

Briefly describe the structure of smooth muscle.

Briefly explain the events occurring at a neuromuscular junction from the time of the arrival of the action potential at the pre-synaptic terminal until the initiation of the sliding filament of process.

(Actual sliding filament process not covered).

Discuss body movements as activities or groups of muscle.

Assessment Criteria

Interpretation and understanding of the functioning and structure of the muscular system.

Practical on Muscular Tissue

Muscle: skeletal muscle, smooth muscle and cardiac muscle

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B . 2010 Wiley
International Edition

MODULE 2: BLOOD

Learner Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems

Identify and describe the functions of the different blood cells.

Understand haemostasis (blood clotting)

Understand blood groups

Assessment Criteria

Interpretation and understanding of the functioning of haemopoiesis.

Practical on Blood

Identification of blood cells

Diagrams of blood cells are neat, labeled and accurate, and are clearly differentiated from each other.

Identification of blood groups

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B . 2010 Wiley International Edition

MODULE 3: CARDIOVASCULAR SYSTEM

Learner Outcomes

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems

Understand the concept of the heart being two separate pumps.

Describe/draw the basic structure of the heart indicating chambers, valves, major vessels entering and leaving, direction of blood flow as well as state of oxygenation of the blood

Indicative Content

Describe the major features of the atria including relative wall thickness, fossa ovalis, coronary sinus, auricles and muscoli pectinati and major vessel orifices

Describe the major features of the ventricles including the relative thickness of the wall, trabeculae carneae, papillary muscles and chordae tendineae

Name and briefly explain the functioning of the atrioventricular valves including the role of papillary muscles and chordae tendineae

Briefly describe the functioning of aortic/pulmonary valves

Describe very basically the development, layers and major functions of the pericardial sac

Describe the 3 main layers of the heart wall

Describe the arterial supply and venous drainage of the heart muscle.

Describe the conducting system of the heart and understand how the wave of contraction flows.

Name and briefly describe the six main classes of vessels.

Identify/label the major vessels leaving the heart and their branches/tributaries

Identify and label in a model or diagram the major systemic vessels of the upper limb, lower limb, thorax and abdomen

Name the major factors causing venous return to the heart and explain them briefly

Outline the major events of the cardiac cycle.

Explain what is meant by SYSTOLIC and DIASTOLIC pressure

Define mean blood pressure and know the formula $MBP = CO \times PVR$

Define cardiac output and give a formula for calculating it

Define stroke volume

Name and briefly explain the two main factors affecting stroke volume

Define heart rate

Name and briefly explain the 6 main factors affecting heart rate

Define peripheral vascular resistance and briefly explain how viscosity, length of vessels and vasoconstriction/dilation will affect peripheral vascular resistance

Understand and explain the bearing of the above six objectives on MBP

Name the centre in the medulla which controls blood pressure

Name and state the locations of two types of receptors that affect medullary BP control

Name 4 chemicals that can affect BP and explain how each affects BP.

Describe fetal heart circulation and the changes occurring at birth.

Assessment Criteria.

Interpretation and understanding of the functioning and structure of the CVS.

Practical on Cardiovascular

blood pressure measurements

Anatomical models

Microscope slides: Artery

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B . 2010 Wiley
International Edition

MODULE 4: LYMPHATIC SYSTEM

Learning Outcomes:

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

Understand the structure and function of the lymphatic system like the spleen, thymus and lymph nodes

Describe the different types of lymph nodes and their locations and functions.

Indicative Content

Anatomy and Physiology of the Lymphatic system is detailed.

Lymph nodes and their location, flow of lymph, spleen and thyroid gland are drawn and labeled accurately, and are differentiated from each other.

Assessment Criteria

Interpretation and description with regards to functioning and structure of the lymphatic System.

Recommended Reading

Totora 8th edition

LEVEL 2 (SECOND YEARS) FIRST SEMESTER

MODULE 1: THE CENTRAL AND PERIPHERAL NERVOUS SYSTEM

Learning Outcomes:

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

Understand and interpret the functioning of the nervous system, structure and functions of the CNS and peripheral nervous system

Describe how CSF is produced and the function and circulation of CSF

Indicative Content

Classification and Functions of the nervous system

Protective coverings of CNS. Ventricles and CSF.

Scientific Terminologies : CNS, Brain and Forebrain; midbrain and hindbrain

Structure and Function of Spinal cord

Spinal Reflexes / Reflex Arcs

Peripheral nervous system – Autonomic Nervous System

Special Senses

Assessment Criteria

Interpretation and description with regards to functioning and structure of the CNS.

Practical on Nervous System

Spinal cord, model of brain

Slide of ventricles

Recommended Reading

Totora 8th edition

MODULE 2: THE ENDOCRINE SYSTEM

Learning Outcomes:

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

Understand how the endocrine system functions ,describe the mechanism of hormonal action and the principle of negative feedback

Understand the differences between the location of hormones, endocrine glands, target organs, functions and stimulus which elicits secretion

Indicative Content

Functions of the endocrine system and general characteristics of hormones.

Protein and steroid hormones, mechanism of hormone action

Hypothalamus and pituitary gland

Pituitary :Posterior Pituitary: Anti-Diuretic Hormone & Oxytocin

Anterior Pituitary Gland & its hormones

Thyroid gland & Parathyroid Gland (Parathyroid & Thyroid Hormones)

Pancreas & islets of Langerhans (Insulin & Glucagon)

Adrenal Gland: Cortex & medulla (Cortisol & Aldosterone)

Pineal gland

Assessment Criteria

Interpretation and description with regards to functioning and structure of the endocrine system.

Practical on Endocrine System

Slides of the pituitary gland to be viewed

Anatomical Models

Recommended Reading

Totora 8th edition

MODULE 3: RESPIRATORY SYSTEM

Learning Outcomes:

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

Describe the structure and function of the respiratory system

Describe the process of inhalation and exhalation

understand gas transport

understand how respiration is controlled

Indicative Content

Structure and Function of respiratory system

Mechanism of breathing is stated

Physiology of external and internal respiration is explained.

Gaseous transport is discussed.

Control of respiration is explained, and its role defined.

Assessment Criteria

Interpretation and description with regards to functioning and structure of the respiratory system.

Practical on Respiratory System

Anatomical Models

Microscope slides

Recommended Reading

Totra 8th edition

LEVEL 2 (SECOND YEARS) SECOND SEMESTER

MODULE 1: DIGESTIVE SYSTEM

Learning Outcomes:

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

- ☐ Name/identify the various organs of the digestive system in a diagram or model.

(Those belonging to the tract as well as accessory structures)

Indicative Content

- ☐ List and briefly describe the functions of the four main histological layers of the digestive tract.
- ☐ List the three major pairs of salivary glands, their positions and duct openings.
- ☐ Name an enzyme secreted by the salivary glands and state its function.
- ☐ Describe the basic gross anatomy of the esophagus.
- ☐ Briefly describe the stages of swallowing.
- ☐ Describe the process of peristalsis.
- ☐ Describe the histological layers of the stomach with a description of the gastric gland, the cell types of present.
- ☐ List the substances secreted by the stomach and their functions.
- ☐ Describe control of gastric secretion and emptying.
- ☐ Name the three regions of the small intestine.
- ☐ List the functions of the small intestine including a list of enzymes secreted and their functions.
- ☐ Describe/identify the gross anatomy of the liver - all lobes, ligaments and structures at porta hepatis.
- ☐ List the functions of the liver.

- ☐ Briefly describe the structure and function of the gall bladder and bile ducts.
- ☐ Describe the gross anatomical structure and position of the pancreas including its duct system and relationship to the bile duct system.
- ☐ Name the secretions of the pancreas stating the role of each.
- ☐ Draw/describe the basic gross anatomical regions and features of the large intestine.
- ☐ Briefly describe the histology of the large intestine in relation to its function.
- ☐ List the functions of the large intestine.
- ☐ Briefly describe the development, layers and function of the peritoneum.
- ☐ Name the 3 main vessels supplying the gut and the limits of their supply.
- ☐ Name the two vessels that form the portal vein and state their areas of drainage.
- ☐ Give the definition of an enzyme.
- ☐ Briefly describe the “lock and key” mechanism of enzyme function.
- ☐ State the 3 factors which must be optimal for enzyme function.
- ☐ List the roles of carbohydrates, fats and proteins in the body.
- ☐ Name the main vitamins, stating their major roles and sources.

Assessment Criteria

Interpretation and description with regards to functioning and structure of the digestive system.

Practical on Muscular Tissue

1. Digestive Models

2. Torsos

3. Tutorials

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B . 2010 Wiley
International Edition 10

MODULE 2: URINARY SYSTEM

Learning Outcomes:

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

- ☐ List/identify the components of the urinary system.

Indicative Content

- ☐ Draw/identify the gross anatomical features in a longitudinal section of the kidney.
- ☐ Draw/identify the blood supply (from aorta) and venous drainage (into I.V.C.) and the relationship between arteries and veins.
- ☐ Draw/identify the various regions of the renal tubule, relating its structure to what is seen at the gross anatomical level.
- ☐ Describe and name the blood vessels associated with the renal tubule and describe the course of blood flow through the kidney from renal artery to renal vein.
- ☐ Describe the renal corpuscle with specific reference to the three layers of the filtration barrier.
- ☐ Briefly describe the anatomy of the ureters, urinary bladder and urethra (male and female) including very basic histology and relating structure to function where possible.
- ☐ Name the three main functions of the kidneys, stating briefly what is involved in each.
- ☐ Briefly explain how the kidney is specialised for the task of filtration.
- ☐ Explain the need for reabsorption.
- ☐ Briefly explain how the kidney is specialised for the task of reabsorption.
- ☐ Describe active reabsorption (using glucose as an example) and explain the concept of tubular maximum.
- ☐ Describe passive reabsorption (using water as an example).

- ☐ Explain the role of ADH in water reabsorption (and therefore urine dilution and concentration).
- ☐ Explain the role of the JGA in controlling Na⁺ and blood pressure.
- ☐ Define pH
- ☐ Classify pH disturbances
- ☐ Use a chemical equation to explain how increased CO₂ production poses a threat to pH.
- ☐ Explain the role of the lungs in pH homeostasis.
- ☐ Explain the role of the kidneys in pH homeostasis.

Assessment Criteria

Interpretation and description with regards to functioning and structure of the urinary system.

Practical on Muscular Tissue

1. Urinary Models

2. Tutorials

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B . 2010 Wiley
International Edition 11

MODULE 3: REPRODUCTIVE SYSTEM

Learning Outcomes:

After completing this module, the learner should demonstrate the understanding of the structure and physiological functioning of the human body with specific reference to selected body systems.

- ☐ Identify in a diagram/model all the structures of the male reproductive tract.
- ☐ Identify in a diagram/model all the structures of the female reproductive tract.

Indicative Content

- ☐ Describe the structure of the testis and seminiferous epithelium.
- ☐ Name the two functions of the testis.
- ☐ Explain what is meant by spermatogenesis and briefly explain the processes (individual stages need not be known).
- ☐ Describe the basic structure of the mature sperm, relating this to its function.
- ☐ Know the locations, basic structures and functions of the various elements of the duct system.
- ☐ Know the locations, basic structures and functions of the various glands.
- ☐ Describe the basic structure of the penis.
- ☐ Briefly describe the structure of labia majora, minora, clitoris and greater vestibular glands.
- ☐ Describe the structure of the ovary and recognise primordial, growing and mature follicles.
- ☐ Briefly describe the process of ovulation.
- ☐ Name the regions of the fallopian tube.
- ☐ Describe the histological structure of the wall of the fallopian tube and relate its structure to its function.

- ☐ Draw/name/ identify the various regions of the uterus (including the cervix and internal and external orifices).
- ☐ Describe the 3 layers of the uterus.
- ☐ Describe the 3 layers of the vagina relating these to its function.
- ☐ Describe the structure of the breast.
- ☐ Name the 3 phases of the menstrual cycle stating the duration of each.
- ☐ Explain the hormonal control of the 3 phases of the menstrual cycle, as well as ovarian and uterine(endometrial) events occurring as a result of these controls.
- ☐ Briefly explain the events of fertilization.
- ☐ Define what is meant by conception.

Assessment Criteria

- ☐ Interpretation and description with regards to functioning and structure of the reproductive system

Practical

Male and Female Reproductive Models

Tutorials

Recommended Reading

Essentials of Anatomy and Physiology .8th edition, Tortora G. J and Derrickson B . 2010 Wiley International Edition