

**A VIEW ON ASSESSMENT: MBCHB 3 CLINICAL SKILLS MODULE AT THE
UNIVERSITY OF LIMPOPO**

BY

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DECLARATION

I hereby declare that the compilation of this protocol is the result of my own, independent investigation. I have endeavoured to use the research sources cited in the text in a responsible way and to give credit to the authors and compilers of the references for the information provided, as necessary. I have also acknowledged those persons who have assisted me in this endeavour. I further declare that this work is submitted for the first time at the University and Faculty for the purpose of obtaining a Master's Degree in Health Professions Education and that it has not previously been submitted to any university or faculty for the purpose of obtaining a degree. I also declare that all information provided by the study participants will be treated with the necessary confidentiality.



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Date

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DEDICATION

To my wife, Desiree, thank you for putting up with my absence as I was juggling between work and studies. Thank you for allowing me the space to work up to this far. I would also like to thank our son, Seth, who at times would be in the mood to play but would have to understand that daddy is doing his schoolwork.

To my father and my late mom, you are the foundations of this achievement. Mom, your endeavour to better yourself academically birthed this zeal in me. It is unfortunate that, mom, you are not around to witness this journey, however, in memory of you, we will enjoy it with dad.

*Write the vision and make it plain on tablets, that he may run who reads
it.*

*For the vision is yet for an appointed time;
but at the end it will speak, and it will not lie.*

Though it tarries, wait for it; because it will surely come, it will not tarry.

Habakkuk 2:2–3

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LIST OF ACRONYMS/ABBREVIATIONS

| | |
|----------|---|
| CanMEDS: | Canadian Medical Education Directives for Specialists |
| CHE: | Council on Higher Education |
| CSM: | Clinical Skills Module |
| EMQ: | Extended Matching items/Questions |
| HPCSA: | Health Professions Council of South Africa |
| HSREC: | Health Sciences Research Ethics Committee |
| MCQ: | Multiple Choice Questions |
| MEDUNSA: | Medical University of Southern Africa |
| NQF: | National Qualification Framework |
| NRF: | National Research Foundation |
| OSCE: | Objective Structured Clinical Exam |
| SAQA: | South African Qualification Authority |
| SMU: | Sefako Makgatho Health Sciences University |
| SoM: | School of Medicine |
| UFS: | University of the Free State |
| UL: | University of Limpopo |
| ULSoM: | University of Limpopo, School of Medicine |
| UNIN: | University of the North |

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A VIEW ON ASSESSMENT: MBChB 3 CLINICAL SKILLS MODULE AT THE UNIVERSITY OF LIMPOPO

CHAPTER 1 ORIENTATION TO THE STUDY

This section presents an overview and orientation of the study. These are presented according to the headings and subheadings based on the item/topic being discussed.

1.1 INTRODUCTION

This study assessed the view on assessment students are subjected to within the Bachelor of Medicine and Bachelor of Surgery (MBChB) programme at the University of Limpopo's School of Medicine (ULSoM), Clinical Skills Module (CSM). This module is offered from the first to the third year of study. The researcher used the CSM module in the third year of study as a pilot in this study.

The purpose of this study was to review and describe the current assessment practices with the MBChB 3 CSM at the ULSoM. Although the CSM is offered from the first to the third year of study, it is not a continuous module. All the CSM work completed each year are stand-alone and do not influence entry into the following year. This study was done in three phases.

The first phase is the literature study, which reviewed literature related to assessment practices. The second was Document Analysis, wherein the documents related to the study were reviewed. These documents comprised the Multiple-Choice Questions (MCQ) paper, the Objective Structured Clinical Exam (OSCE) paper, and policy documents explaining how the assessment is to be conducted. The documents include the South African Qualification Authority (SAQA) documents and the Health Professions Council of South Africa (HPCSA) documents. The SAQA document specifies the exit level outcomes for the different qualifications, whilst the HPCSA documents mainly looked at the professional attributes that a graduate should have at the completion of the training.

The information obtained was meant to show if the medical academic staff members can translate the desired Module Outcomes accordingly and correctly into an assessment question at an appropriate cognitive level based on either the Bloom's Taxonomy (Krathwohl 2002:212) or the Miller's Pyramid (Miller 1990:s63) for the MCQs and the OSCE respectively. This is based on the mantra that states that: "Assessment drives learning".

Bezuidenhout and Alt (2011:1063), citing Biggs (2003), state that: “students tend to learn what they know, or think will be assessed [on]”. This was shown in the observation of a performance study by Wood (2009:5), wherein the students were exposed to the same content and tested, whilst the other group was exposed but not tested. The tested group showed improved memory and learning than the group that was not tested.

One of the main envisaged outcomes of this study is for it to serve as a tool to improve the current assessment practices within the MBChB 3 CSM, hoping that it could inform assessment practices in the other modules within the ULSoM. In this study, the words teacher and educator will interchangeably refer to the same role.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

This section gives a more detailed background on the ULSoM and the MBChB 3 CSM. Furthermore, it also encompasses a short literature study that considers assessment in the health sciences, Constructive Alignment, and the principles of evaluating and reviewing assessment.

1.2.1 Background to the ULSoM, MBChB programme and the Clinical Skills Module

The section below gives a brief overview of the development of the ULSoM, a brief background on the evolution of the MBChB programme to where it is now, and, finally, the CSM offered at ULSoM.

1.2.1.1 Background to the ULSoM

The University of Limpopo originated in 2014 following the demerger of the former campuses that were part of the former University of Limpopo, which resulted in the University of Limpopo and the Sefako Makgatho health sciences university being formed. The merger was created by the University of the North (UNIN) and the Medical University of Southern Africa (MEDUNSA) in 2004. The current University of Limpopo is located where the former UNIN was in Limpopo province. The ULSoM is the newest school to be formed in the UL. The ULSoM took their first cohort of students in 2016. The student cohort that started the programme then is currently (2021) in its sixth year of study. Some of the staff (lecturers) in the ULSoM taught at the Medunsa campus and is now employed by the new University.

Pertinent to the focus of this study, the teachers who were part of the delivery of the CSM were never exposed to formal training in the teaching and learning, and assessment

practices. They received informal training offered by experts from both Wits University and the University of Cape Town. This study, therefore, is necessary for the objective determination of the assessment practices within the ULSoM using this module as a window. This module is conducted by the Department of Family Medicine, to which the researcher belongs, hence choosing it for the ease of obtaining information.

1.2.1.2 Background of the MBChB programme

The first accreditation to offer the MBChB programme was given to the ULSoM by the HPCSA in 2014. This was provisional as there were still issues that the HPCSA had raised for the ULSoM to resolve. At that time, the ULSoM did not take in any undergraduate students as the Council on Higher Education (CHE) accreditation was still outstanding.

The programme submitted for accreditation to both the HPCSA and the CHE was to run for six years, with the first three years being predominantly preclinical and the last three years primarily clinical. The researcher uses the word “predominantly” as the curriculum is integrated with the inclusion of both aspects in both halves of the programme.

However, in 2015, a “new programme” different from the one approved by the HPCSA in 2014 was inexplicably introduced. Following the introduction of the above mentioned “new programme”, the first student intake was made in January 2016. In August 2016, the “new programme” accreditation was understandably withdrawn as it was rolled out without appropriate approval from the HPCSA and the CHE. The ULSoM was officially instructed to revert to the original programme accredited by the HPCSA in 2014. Both the CHE and the HPCSA gave the ULSoM an instruction to introduce a catch-up strategy to ensure that the students taught in the “new curriculum” do not become unfairly disadvantaged in migrating to the original curriculum. In July of 2017, the ULSoM ultimately managed to produce the amended documentation that was required by both the HPCSA and the CHE and, as a result, regained their accreditation, which is still valid to date.

When the above process happened, all the attention was focused on getting the curriculum up and running thence very little attention was placed on the preparation of the staff to run the programme. The capacitating of the staff started in 2018 as a response to the requirements from both the HPCSA and the Council on Higher Education (CHE).

1.2.1.3 Background to the Clinical Skills Module (CSM)

The CSM at the ULSoM runs from the MBChB 1 up to MBChB 3 levels of study. This module is coordinated by the Department of Family Medicine in collaboration with the Emergency

Medicine Unit, which falls within the domain of Family Medicine. Each of the years focuses on specific content. Since levels one to three are preclinical and mostly classroom-based, the CSM in any particular year introduces the clinical aspects of the modules covered in that year of study.

The CSM offered in the third year of study is a 28-credit module scheduled for seven (7) weeks. It is broken down into six (6) learning outcomes classified into 16 themes. The students are expected to have formative and summative assessments in this module. However, only the summative has an OSCE component; hence the researcher chose this section of the assessment. The reason for selecting the third-year module is the availability of the documents required for the assessment.

The first year of study covers the following topics:

- Communication in a clinical consultation
- Introduction to basic clinical skills
- Information and Communication Technology in Medicine

The second year of study covers the following:

- The structure of the consultation, communication skills and the doctor-patient relationship
- Conducting the interview – obtaining the medical history
- Examination of patients: this focuses on the general examination of patients without
- Integration of disease, circumstances of life and psyche of the patient
- Clinical skills development.

In the third year of study, the CSM covers the domains of the cardiovascular system, the gastrointestinal system, the respiratory system, the urogenital system and introduces the examination of toddlers. The topics covered in the module are offered by teaching staff in the department of family medicine. The CSM, therefore, introduces the clinical aspects to these modules. In the classroom setting mostly the pathology, whereas the CSM presents the clinical examination of the normal system related to the systems taught in that year.

Table 1.1: List of Themes and Topics for MCLA030

| Theme | Topic |
|----------|---|
| Theme 1 | Structure of the consultation |
| Theme 2 | Doctor-patient relationship |
| Theme 3 | Elements of Patient-Centred Care |
| Theme 4 | Conduct an interview |
| Theme 5 | Obtain a medical history |
| Theme 6 | Perform a physical examination |
| Theme 7 | History and examination of the cardiovascular system |
| Theme 8 | History and Examination of the respiratory system |
| Theme 9 | Percentile chart and the road to health chart |
| Theme 10 | Approach to the physical examination of toddlers |
| Theme 11 | Urological examination (Models only) |
| Theme 12 | History and examination of the gastro-intestinal system and the abdomen |
| Theme 13 | Interaction of disease, circumstances of life and psyche |
| Theme 14 | Balance between medical practice and doctor as a person |
| Theme 15 | Principles of clinical epidemiology |
| Theme 16 | Basic life support and other clinical skills |

1.2.2 Assessment practices in health sciences

The South African Qualifications Authority (SAQA) defines “assessment” as the collection of evidence about a learner’s work to make a judgement on that student’s performance (SAQA 2001:15). Their definition is related to Taras (2005:467-468), who states that “assessment” refers to a judgement of students’ work. Taras (2005:467-468), citing Scriven (1967), further says that “assessment” refers to a judgement that can be justified according to a specific weighted set of goals, yielding either comparative or numerical ratings.

According to SAQA, those can be defined as Unit Standards, which are the parts that the qualifications are made of (SAQA 2001:22). SAQA (2001:22) further states that these influence the teaching, learning and assessment processes. The statement by Taras (2005:467-468) and SAQA (2001) further confirms the need for Constructive Alignment in any given module. Constructive Alignment ensures that the set goals within the Learning Outcomes are assessed at the end of the teaching and learning encounter between the learners and the academic staff members (Biggs 1999:26). Assessment, therefore, becomes a measure of whether learning has been achieved in a learning environment.

According to Epstein (2007:388), assessments have three goals, namely:

- i. “To optimise the capabilities of all learners, and practitioners by providing direction and motivation for future learning;
- ii. To protect the public by identifying incompetent physicians; and
- iii. To provide the basis for choosing applicants for advanced learning.”

Assessment can be separated into both formative and summative components. Nicol and McFarlane-Dick (2006:199), citing Sadler (1998), define Formative Assessment as that assessment that is specifically intended to generate feedback on performance to improve

and to accelerate learning (Nicol & McFarlane-Dick 2006:199). Knight (2002:275) describes Summative Assessment as an assessment that is of high stakes in nature as it assesses the outcome of the learning process. This, therefore, can be explained thus: the formative component is that component that is used for learning purposes, whilst the summative part is that which is used to assess if learning had occurred.

In his paper on looking at the assessment in higher education, Knight (2002:275) states that student achievement is related, first and foremost, to engagement (Knight 2002:275). The engagement that the author is talking about in this paper goes beyond engagement in the classroom to also include engagement in the community. He states that students who practice in a community do better if they are encouraged to utilise the community to their benefit.

The engagement may include engagement with the subject matter, academic staff members, peers, etc. In the process of engagement, the interaction with the subject content, transforming and discussing it with others, helps the students internalise the meaning of the content and make connections with what is already known (Nicol & McFarlane-Dick 2006:2007). This, therefore, implies that a reasonable assessment must be clear as to the type and the purpose. Assessors cannot use Summative Assessment criteria for Formative Assessments (Knight 2002:277).

In these assessments, the concepts of “feed out” and “feedback” must be considered. The process of “feed out” is a process whose main aim is to grade a student for promotion, it is therefore used in the Summative Assessment as this is used to gauge the students’ performance as a grade. The process of “feedback” is used in the situation where a student must be given feedback to improve their learning and understanding and is therefore used in the Formative Assessments as this is an assessment for learning (Knight 2002:276-277).

Epstein (2007:388), citing Van der Vleuten (1996), describes five criteria for determining the usefulness of assessment, namely:

- i. “Reliability – the extent to which the measurement is reliable and reproducible.
- ii. Validity – whether the assessment measures that which it claims to measure.
- iii. Impact on future learning.
- iv. Acceptability to faculty and learners; and
- v. Cost – to the individual trainee, the institution and society at large.”

Epstein (2007:389-391) further mentions some of the assessment modalities that are used

in medical education to include the following:

- i. “Multiple Choice Questions (MCQs): These allow for a larger number of examination items in a single assessment. It is challenging to create MCQs on a high Bloom’s Taxonomy level,
- ii. Extended Matching items/Questions (EMQ);
- iii. Short answer questions;
- iv. Assessment by supervising clinicians: This happens in a clinical rotation, whereby a supervisor observes and gets an impression of the student over some time. The grading is done at the end of the rotation.
- v. Direct Observation: This includes both a long case and a mini-Clinical Evaluation Exercise (mini-CEX). Here, the trainee is given time to obtain a history and perform a physical examination of a patient under the direct supervision of the assessor. The supervisor/assessor then assigns a grade for the student’s performance at the end of the exercise.
- vi. Clinical simulation: standardised patients trained to portray specific symptoms may be used, as well as high and low fidelity simulators. This can be used for practising purposes and for assessment as in Objective Structured Clinical Exam (OSCE); and
- vii. Multi-source assessments: In this, the trainer, the patient and other members of the clinical team give feedback to the trainee at the end of the assessment. This is usually done in a clinical setting” (Epstein 2007:389-391).

In an article by Wass, Van der Vleuten, Shatzer and Jones (2001:946), they only mention the following assessment modalities, especially in the assessment of clinical competence: “MCQ, Short Essay, Patient management problem, oral, long case and OSCE”. By looking at the articles by Epstein (2007:388-391) and Wass *et al.* (2001:946), one can conclude that the MCQ, EMQ and short-answer questions may be used in a written assessment, whilst the rest of the assessments are done as a form of assessing for clinical competence.

As already pointed out in the introduction, the ULSOM is still new, whereby exposure of the lecturers to the teaching and learning paradigms is unknown. In the informal discussions that the researcher has had with some of them, it was evident that some of them subscribe to the notion that being a clinician qualifies one to be a teacher. This is a notion that the literature disagrees with as it is now realised that training is essential in the preparation and capacitation of teachers (Steiner, Mann, Centeno, Dolmas, Spencer, Gelula & Prideaux 2006:498).

The researcher’s opinion on this issue is that, due to the above deficiency, most academic

staff members/lecturers may use what they think will work rather than applying educational principles in their practice of the teaching trade. Sometimes, this may lead to a situation wherein the students are not taught and assessed according to the desired learning outcomes. The curriculum should be delivered to measure the students' learning achievement (Retnawati 2016:34).

The curriculum embodies the knowledge and skills that the student is expected to learn in the classroom (Muskin 2016:4). The assessment is the vehicle through which the degree of competence is assessed or measured (Muskin 2016:6). This was expressed by Biggs (2003:3), quoting Ramsden (1992), when he stated that: "for students, the assessment is the curriculum". The preceding statement implies that students view what is assessed as the core of what they are supposed to learn. If the assessment does not cover the desired Learning Outcomes, it means that what the students would have learned would not be as derived from the expected Learning Outcomes.

1.2.3 Constructive Alignment

Constructive Alignment involves linking learning outcomes with working practices and examinations in the course plans. The fundamental question that needs to be addressed in the curriculum design, which will influence the delivery of the content, as quoted from Biggs (2002), by Joseph and Juwah (2012:53), is: "What do we want the students to be able to do as a result of this learning".

Paskevicius (2017:128) further refers to Biggs' (1996) statement thus: "Academic staff members need to be clear about what they want their students to learn, and how they would manifest that learning in terms of performance of understanding". Paskevicius (2017:128) points out that learning outcomes describe a successful student's intended knowledge, professional attributes, and skills.

Increasing the curriculum's transparency and accessibility also has benefits at the departmental and the programme level, potentially creating greater course alignment with the academic programme (Lam & Tsui 2016:1385-1386). This may be beneficial in the development of the curriculum and in making sure that the curriculum addresses the competencies that are stipulated in the Learning Outcomes. This open access to the educational content and, in this case, the curriculum will enable the students to hold the academic staff members accountable in delivering the content (Paskevicius 2017:128).

The process wherein the learning outcomes, the teaching method and the assessment are

aligned is called constructive alignment, which is based on the Constructivism theory by Piaget (1959) (Joseph & Juwah 2012:53). The constructivist approach states that: “The constructivist students construct meaning from the discoveries they make about their environment, whilst academic staff members design learning experiences which are active rather than passive and works at the interface between the curriculum and the student” (Joseph & Juwah 2012:53). Accordingly, Onsman (2015:52), states that, “a constructively aligned curriculum emphasises two key aspects of learning to the students; what they are expected to learn and how they are expected to make that evident”.

Assessment for learning is now marketed in the western world as a key to improved goal attainment in most school subjects, as it influences the teaching and learning process and defines its product (Tolgfors 2018:312). According to Croy (2018:49) and Biggs (2003:26), the assessment of learners should aim to establish that which has been learned. This supports the narrative that states thus: “assessment drives learning”.

Assessment can also be expressed as the measure of the product that the system aims to produce. Hence if we can define the product that we would like to produce, then we can ascertain the kind of learning that has to take place to produce that product. In addition, Sinclair (2006:41) further states that constructive alignment is a principle for devising teaching and learning activities, and assessment tasks that can directly address the intended learning outcomes in a way not achieved in traditional lectures, tutorial classes and examination.

In line with the above, Biggs and Tang (2011), as cited by Lane (2017:414), further promoted the concept of Constructive Alignment whereby learning activities should directly address the intended Learning Outcomes as students construct meaning from what they do (Lane 2017:414). The concept of Constructive Alignment requires that both the teacher and learner fulfil their individual responsibilities so that it can be effective in ensuring the delivery of the intended outcome from the teaching and learning process.

In defining the roles and responsibilities of the academic staff members and the learners in the Constructive Alignment of the curriculum, Biggs (2003:1) states that Constructive Alignment has two aspects to it, the ‘constructive’ aspect refers to the idea that students control meaning through relevant learning activities, and teaching is just a catalyst for learning; and the ‘alignment’ aspect refers to what the teacher does, which is to set up an environment that supports learning activities appropriate to achieve the desired Learning Outcomes.

The key is that the components in the teaching system, especially the teaching methods used in the assessment tasks, are aligned to the learning activities assumed in the intended outcome. If this is done correctly, the learner will be 'trapped' and thus unable to escape without learning what is intended to be learnt. Therefore, this means that if the teacher and the learner can play their roles well, the learner will not have any other option but to remember what they are intended to learn. But all of that is dependent on a well-aligned curriculum whereby the articulations are not ambiguous and do not leave the students unsure of their expectations. This is because Constructive Alignment allows both the teacher and the student to be directed to the same goal in the process of learning (Yazi, Ruslan & Noor 2017:18).

The instructional design suggests that the instructional situation needs to be linked with appropriate learning opportunities and activities that promote learning (Henning, Pinnock & Webster 2017:825). Misalignment occurs if there is a break in the chain what students are taught, learning material and activities that are not assessed, or the learning experience that is not well suited for the delivery of the content. Another reason is students are assessed on material that has not been taught (Henning, Pinnock & Webster 2017:825). In essence, what the students are supposed to learn, as detailed in the Learning Outcomes, and what the students are assessed on should be well aligned. In a situation where there is no alignment, students either learn concepts without being tested on those or learn concepts that are not the intended outcomes of the module.

To evaluate if the assessment in the module assesses what it intends to, the process of blueprinting becomes essential. This process ensures that the learning outcomes are expressed in the assessment process as that is a measure of whether the students have learned what they were expected to know. The blueprinting process will also assist in ensuring that the assessment is set at the correct level of the learning outcomes as expressed in Bloom's taxonomy.

1.2.4 Blueprinting

The assessment of medical doctors can be perceived as threatening to the students rather than providing opportunities to define individual strengths and identify areas of learning that need to be developed (Murphy, Bruce & Eva 2008:96). This might be because there is no sharing of the assessments amongst the staff involved in the delivery of lessons in the same module, such that often, the content of what to assess is left to the discretion of the examiners (Patil, Gozavi, Bannur & Ratnakar 2015:S77). To redress this problem, the blueprinting of the curriculum will be essential. After the course has undergone blueprinting,

the material should be shared with all the staff members to understand the expectation for the assessment process.

The term 'blueprinting' is borrowed from the field of architecture. It means that the assessment needs to be conducted according to a replicable plan (Hamdy 2006:175). Patil *et al.* (2015:S78-S79) state that a blueprint is a map and a specification for an assessment programme that ensures that the assessment programme covers all aspects of the curriculum and educational domains over a specified period.

Assessment is the "tail that wags the curriculum" (Patil *et al.*, 2015:S76). This, in a way, confirms that assessment drives learning (Coderre, Woloschuk & McLaughlin 2009:324) because, if the assessment is not valid, then the product of that teaching and learning experience would not be representative of the desired outcomes of the programme. Blueprinting seeks to ensure that the assessment is representative of the Learning Outcomes so that a confirmation that the students have learned what they are supposed to learn can be made.

The assessment conducted on students must be valid. "Validity" in assessments suggests that candidates achieving the minimum performance level have acquired the level of competence set out in the learning objectives (Coderre *et al.*, 2009:322). This type of validity that relates to the measurement of academic performance is content validity. Content validity gauges the extent to which the assessment covers a representative sample of the material that should be assessed (Patel, Saurabh & Patel 2016:e476). Evaluation content is valid if congruent between the objectives and the learning experiences; congruence between these pillars of education can be facilitated through blueprinting (Coderre *et al.*, 2009:322).

The important aims of blueprinting, according to Hamdy (2006:175), are to:

- "Reduce content under-representation: This refers to under-sampling or even biased sampling; and
- Reduce construct irrelevance variance: This refers to content that is either too hard or too simple or the use of an inappropriate assessment method."

The task of blueprinting is to analyse the learner outcomes in a programme of studies and construct an assessment tool to measure student proficiencies based on those outcomes (Wondga 2016:24). A good blueprinting considers the verbs used in the learning outcomes and strives to use appropriate weighting to assess all outcomes with equity in mind (Wondga

2016:24). Wondga (2016:29) further states that it is essential to analyse each learning outcome and interpret its meaning. This is important in classifying the learning outcome based on the cognitive levels of Bloom's Taxonomy (Krathwohl 2002:2).

Based on the above information by Wondga (2016:24-29), the researcher, as one of the teaching staff in this module, looked at the Learning Outcomes, with specific reference to the verbs used. The verbs were scrutinised and allocated to a particular cognitive level on Bloom's Taxonomy. Bloom's taxonomy is a system that can be used to determine if the level of instruction is as required based on the learning outcomes that are set (cf. page 1). A comparison was made to see if the assessment assessed the Learning Outcome at the correct cognitive level.

1.2.5 Conclusion

The pedagogical approach in the transmission of knowledge is based on John Biggs' Constructivism Theory (Cooper 1993:16). Based on the Theory of Constructivism, the Constructive Alignment principle was coined. This is whereby a teacher must ensure that the curriculum taught to students is constructively aligned within itself.

Constructivism proposes that every individual mentally constructs the world of experience through cognitive processes (Young & Collin 2004:376). This, therefore, gives an impression that the learning that happens in the classroom has to be constructed in the students' minds for it to gain meaning to them. In the light of the teaching and learning, the Learning Outcomes that are given to the students become a world upon which students may start to build the meaning of the content that they are supposed to learn. Based on that, assessment drives learning, and, as pointed out above, students see the assessment as the curriculum (Biggs 2003:3). Therefore, if the assessment is not of the stipulated Learning Outcomes, the students may have a confused world upon which to construct meaning and consequently a muddled understanding of what they are supposed to learn in the module.

Assessment is a measure of learning that is happening or has happened in a classroom setting. An adequately designed assessment will assist the academic staff members and learners assess their teaching and learning habits to make changes where required. Assessments are not a robotic process wherein the teacher thumb-sucks content to evaluate the students on, but it is based on the Learning Outcomes as prescribed by the curriculum or the learning goals of the specific module.

To have an appropriate assessment for a particular module, there needs to be adequate and appropriate alignment within the curriculum, as Biggs (1996) proposed in his description of Constructive Alignment, as cited by Knight (2002:276). Blueprinting, therefore, becomes an important tool to ensure that students are assessed on the identifiable desired outcomes of the teaching and learning process.

1.3 PROBLEM STATEMENT AND RESEARCH QUESTIONS

The MBChB programme at the UL began in 2014, with the first intake of students in 2016. To date, the school does not have mandatory modules for academic staff members that deal with the aspects of teaching, learning and assessment, and as such, very little is known about the academic staff members' knowledge of the concept. This brings about whether the students are taught what they are supposed to learn as evidenced by the assessment given. As a result of the identified gap, the problem that needed to be addressed was to have an objective review of the assessment practices within the ULSoM using the MBChB CSM as a sample, with the view of rolling it out to the rest of the school.

An academic literature search has been done via the University of the Free State (UFS) library using Science Direct, EBSCOhost, Google Scholar and the National Research Foundation (NRF) NEXUS database. The literature has shown that there needs to be alignment between what is learned and what is assessed for students to learn effectively. Successful Constructive Alignment ensures that students learn what they are supposed to know, as in the learning objectives being met.

To align the coursework well, there is a need for staff development with emphasis on exposure to such – something that ULSoM does not emphasise, as evidenced by the lack of a formal programme to address such within the school. For the successful design and implementation of such a staff development module, there is a need to ascertain the baseline knowledge within the school to decide whether the module would be an actual workshop to teach the staff or an update.

1.4 RESEARCH QUESTION

The researcher addressed the following research question: "What is the current assessment practice within the MBChB 3 CMS at the ULSoM?" This question aimed to decide on the baseline of teaching and learning knowledge, emphasising assessment, at the ULSoM.

1.5 AIMS AND OBJECTIVES OF THE STUDY

This section presents the aims and objectives of the study.

1.5.1 Aims of the study

This study aimed to review the current assessment practices in the MBChB 3 CSM at the UL.

1.5.2 Objectives of the study

To achieve the aim of this study, the objectives were formulated as follows:

- i. To contextualise and conceptualise assessment in medical education. This objective was addressed using a comprehensive literature study to clarify all the concepts;
- ii. To contextualise and conceptualise assessment in the module itself. This was done through a Document Analysis and blueprinting (making use of a tick sheet); and
- iii. To review individual assessment papers in the module, through a verified rubric.

1.6 RESEARCH DESIGN OF THE STUDY

The following section provides a description of the research design and methodology.

1.6.1 Research design

Research design is defined by Kothari (2004:2), as the conceptual structure within which research is conducted. The study was conducted as a desktop analysis of the module material, as such this was a qualitative study design. A schematic overview of the study is provided in Figure 1.1 below.

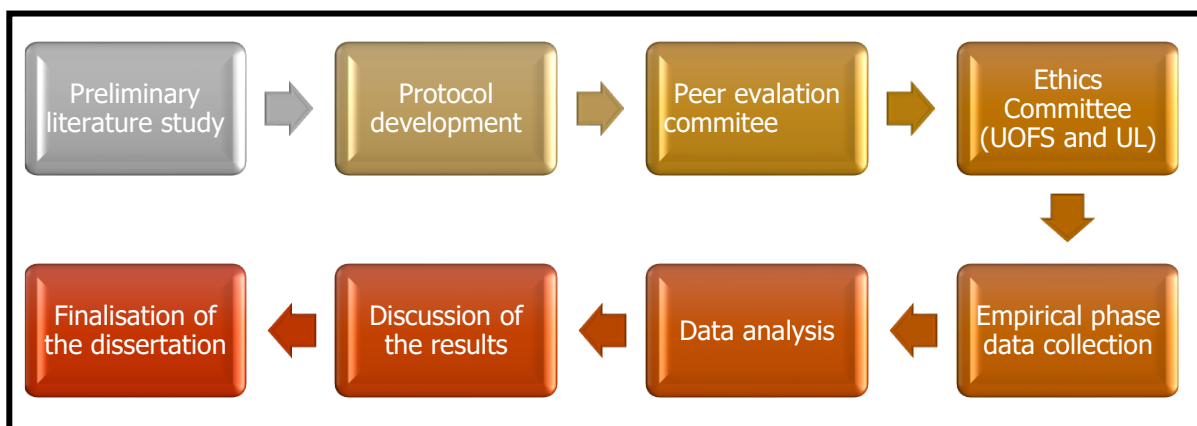


Figure 1.1: Schematic overview of the study

1.7 METHODS OF INVESTIGATION

The research methods used in this study are described and discussed in the following sections.

1.7.1 Literature overview

A literature study aims to enable researchers to write a synthesis of the available literature on a particular topic, thus seeing the trends and history available in a specific topic to better position their arguments (Schutte & Steyn 2015:2-3). In this instance, the literature study assisted the researcher in putting into perspective issues within the research topic. The literature used for this study's purposes included a review of constructive alignment in assessment and good assessment practices. This is detailed in sections 1.2.2 up to 1.2.4. It was also used to decide what documents were necessary for the study. The documents used in this study are the module guide, the test papers, and their respective memoranda.

1.7.2 Document Analysis

This is defined as a method through which documents are systematically reviewed and evaluated, which includes examining and interpreting the collected data to elicit meaning (Bowen 2009:27). In this study, the documents that are analysed include the following:

- The South African Qualifications Authority (SAQA) guides the National Qualification Framework (NQF) level requirements for the medical degree. Included in the evaluation of the SAQA documents was the assessment requirements for higher degrees.
- Health Professions Council of South Africa (HPCSA) documents on professional conduct, looking at the Canadian Medical Directives (CanMEDS) for trainees as adopted by the HPCSA.
- Module guide for the module being evaluated, which gives an indication of what the learning outcomes were and the methods to deliver and assess them.
- The written assessment papers and memoranda were evaluated against the learning outcomes to ensure validity. These were assessed using Bloom's taxonomy; and
- The Objective Structured Clinical Exam (OSCE) paper and the memorandum was evaluated using Miller's Pyramid as a guide.

The document evaluation was necessary to explain the requirements for training (the HPCSA and SAQA documents), which was crucial in setting the standard for training and assessment. The module guide and the assessment papers were evaluated against the requirements from the HPCSA and SAQA documents to give an idea of compliance to the set standards of training. The evaluation process was done over a month.

1.7.3 Blueprinting

This word adopted from architecture refers to the plan to follow when constructing a

structure (Hamdy 2006:175). Assessment is about the system that will be followed in setting an assessment, which helps the assessor ensure everything was covered as determined by the learning outcomes.

In this study, a validated tool used at the UFS's Division Health Science Education was used as a template to determine if the assessment did assess what it intends to assess. There are separate blueprinting tools for both the MCQ and the OSCE assessments.

1.8 QUALITY OF THE STUDY

In this section, the study's quality is detailed by looking at a qualitative study's trustworthiness, credibility, transferability, dependability, and transferability.

1.8.1 Trustworthiness

Trustworthiness is the degree of confidence in data, interpretation and the methods used to ensure quality of a study (Connelly 2016:435). The researcher captured the data, given to another professional to look at and then to the supervisor to ensure the trustworthiness of the data.

1.8.1.1 Credibility

This is a measure of internal validity in qualitative research. It intends to look at whether the study measures what it intends to measure (Shenton 2004:64; Connelly 2016:435). Shenton (2004:64) further defines credibility as dealing with the question: "How congruent are the results with reality".

To ensure that the results are credible, the researcher details all the steps followed in the evaluation process. In this study, the steps that were followed are:

- Documents that relate to assessment as stated in the methodology section were assessed
- The module guide with specific reference to the learning outcomes and the themes were evaluated against a validated rubric from the UFS division of Health Professions Education (HPE) (Table 1).
- The assessment papers were evaluated using a validated rubric from the UFS division of HPE (Table 2)

Table 1.2: Module Blueprinting Rubric

| Learning Outcome | Theme | Assessment Written/ MCQ | Assessment OSCE |
|------------------|-------|----------------------------|-----------------|
| | | | |
| | | | |

Table 1.3: Assessment Blueprinting Rubric

| Questions | Type of question (MCQ, essay) | Action verb used in question | Bloom's Taxonomy level/s | Outcome linked to | Theme linked to |
|-----------|----------------------------------|------------------------------------|--------------------------------|----------------------|--------------------|
| 1.1 | | | | | |
| 1.2 | | | | | |
| 2 | | | | | |

Shenton (2004:69) and Connelly (2016:435) recommend that one of the ways to ensure credibility is to allow for peer review of the research process, to allow for comments and suggestions into the study project. This study was shared with an expert, formerly from the University of Pretoria, who looked at the interpretation of the questionnaire and advised on interpretation. This was being done throughout the study.

1.8.1.2 Transferability

This is defined by Cope (2014:89) and Connelly (2016:435) as the ability of the findings to be applied to other settings or groups. Transferability can be equated to external validity in quantitative research, which is concerned with the extent to which the findings of one study can be applied to other situations (Shenton 2004:69). Shenton (2004:69) and Connelly (2016:435) express that, since the findings of a qualitative project are specific to a small number of particular environments and individuals, it may be impossible to demonstrate that the findings and conclusions are applicable to other situations and populations.

Shenton (2004:69) further points out that the researcher's responsibility is to detail as much information into the processes of the study to enable the reader to identify similarities between the situation of the research and their situation to be able to transfer the findings to their own situation.

In this study, the details of the study, including the tick sheets and rubrics, are available to enable the reader to do the same study to ascertain if the findings are consistent.

1.8.1.3 Dependability

According to Shenton (2004:71), the issues of transferability and dependability are similar in that, the former influences the latter. To ensure the reliability of the outcome, the researcher should detail every process followed in conducting the study. In this study, the researcher has detailed every step that was followed to come to the outcome of the study.

This will enable other researchers to know which steps to follow to arrive at the same findings as the researcher.

1.8.1.4 Confirmability

This refers to the degree to which the findings are consistent and can be repeated (Connelly 2016:435). This is the same as the quantitative researcher's idea of objectivity. This is the measure to which the results of the study are based on the actual findings and not on the researcher's own perceptions (Shenton 2004:72).

In order to address this, the researcher had identified someone that is not actively involved in the process to review the researcher's stance. This has assisted in ensuring that the results are an objective finding of the research process itself and not the researcher's subjective ideas.

1.9 ETHICAL CONSIDERATIONS

1.9.1 Approval

Permission was obtained from the following committees at the UFS:

- The peer evaluation committee constituted by the head of division to ensure that the study is ready for submission for approval; and
- The Health Sciences Research Ethics Committee (HSREC) of the Faculty of Health Sciences (FoHS), UFS.

The Dean of the FoHS and the Vice-Rector: Academic at the University of the Free State were informed of the study.

Gate-keeper permission was obtained from the University of Limpopo's Turfloop Research Ethics Committee (TREC), and permission was also obtained from the University of Limpopo's:

- Director of the School; and
- Head of the Department of Family Medicine (also module leader).

1.9.2 Consent

In this study, there was no need for informed consent as this was a desktop analysis and not an interaction with human subjects, and this was not dealing with specific students' course work, but rather the generic question papers and memoranda.

1.9.3 Right to Privacy and Confidentiality

This study is a desktop analysis of documents. There was no interaction with a specific person, neither is there any mention of individuals in the analysis. This study reviews the processes within the ULSoM, and not that of the practices of certain individual teachers. Therefore, this study did not infringe on any rights to privacy of any individual.

Furthermore, the findings of this study are not associated with any person but rather with the whole group involved in the module. No individual is mentioned by name in the study and the report, as the study is not a finger-pointing exercise but an objective fact-finding mission to positively inform practice.

1.10 DEMARCATION AND SCOPE OF THE STUDY

This study is done in Health Professions Education (HPE) and lies in the domain of Assessment. The study is interdisciplinary as it reaches across the area of HPE and the field of Family Medicine. The teachers responsible for the delivery of the module are under the Family Medicine department.

1.11 VALUE AND SIGNIFICANCE OF THE STUDY

The value and significance of the study include the following:

1.11.1 Value of the Study

This study is necessary, especially since the SoM of the UL is still new. This study aimed to assist the module leader in question, and all involved in understanding the school's current assessment practices. This, the researcher believes, is the first step in quality assuring a module, which could potentially lead to improvement suggestions for the module leader.

It could also be used to evaluate the assessment practices in other modules. It may lead to suggestions for detailed and focussed training of all involved in teaching and learning in the module/programme. Accordingly, should the teachers have a poor understanding of alignment, the results of this study will assist the school in planning and rolling out a basic teaching module for all the teachers, with specific reference to redressing the gap identified in this study.

This study will also assist the ULSoM to properly position itself in the teaching and learning sphere to ensure that the products that come out of the teaching process (i.e., graduates from the ULSoM) are not accidental but somewhat intentional. This ensures the intended

outcome from the intended teaching method for the intended target market (viz., people of Limpopo and ultimately South Africa).

1.11.2 Significance of the Study

The study will provide objective information on the assessment practices within the ULSoM, with the MCLA 030 being the pilot and other modules following suite. This knowledge will form the basis of the design of an assessment module at the level that will be appropriate for the staff (teachers).

1.12 ARRANGEMENT OF THE STUDY

- Chapter 1 is the introduction and background of the study.
- Chapter 2 is the literature survey into the study.
- Chapter 3 is the publishable article based on the African Journal of Health Professions Education (AJHPE) specifications.
- Chapter 4: General discussion/overview.
- Chapter 5: Conclusion, limitations, recommendations, and future studies.

1.13 CONCLUSION

Chapter 1 is an overview of the study and the processes followed in conducting the research. This is followed by a chapter on literature review and a publishable article.

CHAPTER 2

LITERATURE STUDY

2.1 INTRODUCTION

Assessment forms part of the life of students and educators. For the teachers, it helps to adapt the lesson and gauge the students' level of knowledge and skills, whilst it helps in the learning process for the students. There are various definitions of the term "assessment", e.g., Maree and Fraser (2004:132) concluded that assessment is a data-gathering strategy that assists in evaluating students. Rolim and Isaias (2019:1785) say the assessment is the process whereby students' skills and knowledge are assessed to determine if they have learned what they were supposed to know.

Assessment is vital in deciding whether students can practice medicine safely (Lockyer, Carraccio, Chan, Hart, Smee, Touchie *et al.*, 2017:609). In medical education, students are assessed on the acquired competencies in knowledge, skills, and attitudes (Wass, van der Vleuten, Shatzer & Jones 2001:945). These competencies may not be assessed using a single assessment method. As such, multiple assessment methods are thus required to produce the required data for competence determination (Miller 1990:s63; Wass *et al.*, 2001:945).

According to the (SAQA), "assessment" is defined as a process used to gather and interpret information about the competencies of people to judge their achievement (Brits, Bezuidenhout & van der Merwe 2020:2 of 9). These competencies are important in the certification of a student as being competent and therefore assist in the qualification for promotion (Rolim & Isaias 2019:1785).

According to Epstein (2007:388), assessments have three goals, namely:

- i. "To optimise the capabilities of all learners, and practitioners by providing direction and motivation for future learning.
- ii. To protect the public by identifying incompetent physicians; and
- iii. To provide the basis for choosing applicants for advanced learning."

There are different assessment approaches in medicine based on the cognition required from the students. These include the written assessment, the oral assessment, the OSCE which may consist of simulated patients, and the Work-Based Assessment, which includes student observations in a ward (Wass *et al.*, 2001:946-7).

Epstein (2007:389-391) further mentions some of the assessment modalities that are used in medical education to include the following:

- i. “Multiple Choice Questions (MCQ): These allow for a more significant number of examination items in a single assessment. It is challenging to create MCQs on a high Bloom’s Taxonomy level.
- ii. Extended Matching items/Questions (EMQ);
- iii. Short answer questions;
- iv. Assessment by supervising clinicians: This happens in a clinical rotation, where the supervisor observes and gets an impression of the student over some time. The grading is done at the end of the rotation.
- v. Direct Observation: This includes both a long case and a mini-Clinical Evaluation Exercise (mini-CEX). Here, the trainee is given time to obtain a history and perform a physical examination of a patient under the direct supervision of the assessor. The supervisor/assessor then assigns a grade of the student’s performance at the end of the exercise.
- vi. Clinical simulation: standardised patients trained to portray specific symptoms may be used and high and low fidelity simulators. This can be used for practising purposes and for assessment as in an Objective Structured Clinical Exam (OSCE); and,
- vii. Multi-source assessments: In this, the trainer, the patient, and other clinical team members give feedback to the trainee at the end of the assessment. This is usually done in a clinical setting” (Epstein 2007:389-391).

In the assessment of the students, there is a need to ascertain competence in both the controlled and uncontrolled scenarios. The controlled scenario is an examination venue where simulated patients or stable live patients are used. The uncontrolled scenario is in a ward where the student is assessed on their care of patients in the scope of their duty.

Previously, clinical assessments in medicine were done using live patients with the clinical condition of interest. These patients would be stabilised first before being included in the assessment, as a result, the uncontrolled presentations would not be assessed at all (Lockyer *et al.*, 2017:611). To ensure that the students are assessed in that category of patients, the Work-Based Assessment Approach would be the appropriate approach.

2.2 CANMEDS

The Health Professions Council of South Africa (HPCSA) has adopted the professional Canadian Medical Education Directives for Specialists (CanMEDS) framework (HPCSA,

2014). CanMEDS is a framework that explains and identify seven roles or attributes doctors need to effectively meet the healthcare needs of the communities. They serve these roles as follow:

- i. “Medical expert: this is about the ability to integrate specific knowledge, skills, and professional interaction with patients in a patient/client centred care.
- ii. Communicator: This about the ability to elicit appropriate history in doctor-patient interaction. The practitioner should be able to create an environment of safety and liberation for the patient to enable the patient to open up. The practitioner should also be able to convey appropriate messages through verbal or written platforms.
- iii. Collaborator: Being able to collaborate with others in teams will enhance the practitioner's knowledge and skills, thereby improving patient outcomes. The ability to work with other health professionals is included in this competency.
- iv. Leader and manager: Providing leadership in workplace activities, including allocating the resources required for work equitably. Should be able to manage the practice of medicine within an appropriate geographical area. They should be able to identify the services to offer within that area and the required efforts to deliver such.
- v. Health advocate: This includes recognising the patient needs and influencing the provision of such to the patient community.
- vi. Scholar: should demonstrate being a lifelong learner to integrate the learned material with practice.
- vii. Professional: This is about the ethical practice of the health profession in a manner that ensures the health and well-being of individuals and communities. This includes holding oneself to high standards of self-care in a way that leads to a sustainable practice”.

The above are professional attributes with which medical graduates are expected to exit their training. These are part of the “hidden curriculum” that should be taught but is difficult to assess (Hawick, Cleland & Kitto 2017:987). These may be assessed in the clinical skills assessments wherein these professional CanMeds standards can be demonstrated by the candidates.

The Work-Based Assessment is one approach that can be used to assess the professional framework as stipulated in the CanMEDS (Brits, Bezuidenhout & Van der Merwe 2020:5 of 9). This is because, in the Work-Based Assessment, the assessor will be watching the student in their execution of their duties where the approach to patient care can be

monitored in real-time. It is important to give feedback to the student at the end of the assessment to improve their learning. The work-based assessment approach is not done in the MCLA030, though it would be convenient as this is the bridge between pre-clinical and clinical.

2.3 ASSESSMENT PROCESS

Teachers and policymakers use the assessment process to assess and redefine their method of instruction to improve student learning (Kaur, Norman & Nordin 2017:757; Kutlu & Kartal 2018:71-72; Lane & Bourke 2019:22). This is because it has been established that assessment is not just for grade progression but is also crucial in the design of the instruction from the lecturer and learning by the students. This is seen more when applying feedback in assessment (Knight, Leigh, Davila, Martin & Krix 2019:1121).

In the assessment process, it is essential to note that the student communities in the classroom are not from the same background or the same learning culture. This is because of education's internalisation, making education accessible to everyone (Kaur, Norman & Nordin 2017:756). As part of a global village, universities receive students from different countries and regions with diverse academic backgrounds.

Welch (2000), as cited by Kaur, Norman and Nordin (2017:757), states that: "It would be unfair to keep glasses from those that need them and especially unfair to make everyone wear glasses: It is my job as a teacher to make sure that everyone gets the help that they need, and that help will be different for each student." This is because, in addition to the different educational backgrounds, students have different learning styles.

These different styles are preferences that students and teachers must receive and transmit information (Howard, Carver & Lane 1996:227). This does not imply that students and teachers may not be able to comprehend other learning styles, but their preferred learning style is one that they are most comfortable with.

The styles are, namely:

- "Active reflective, which means that these learn by doing,
- Sensing Intuitive, who learn through looking at the facts and the concepts,
- Visual Verbal, who learn by seeing and hearing, meaning that they use their sense of vision and hearing, and
- Sequential Global, who looks at things in a step-by-step manner and then translate to the bigger picture" (Howard, Carver & Lane 1996:228).

To evaluate if students have achieved the minimum required grade for the module to be promoted, they need to go through an assessment process. This can be done as part of the learning process or after the teaching and learning encounter between the teacher and the student.

Assessment is classified as formative, assessment for learning, and summative, which is an assessment of learning (figure 2.1) (Kutlu & Kartal 2018:73). The conducting of these assessments should happen at an opportune time, meaning that the timing should be appropriate to improve the students' teaching and learning process (Lynam & Cachia 2018:225).

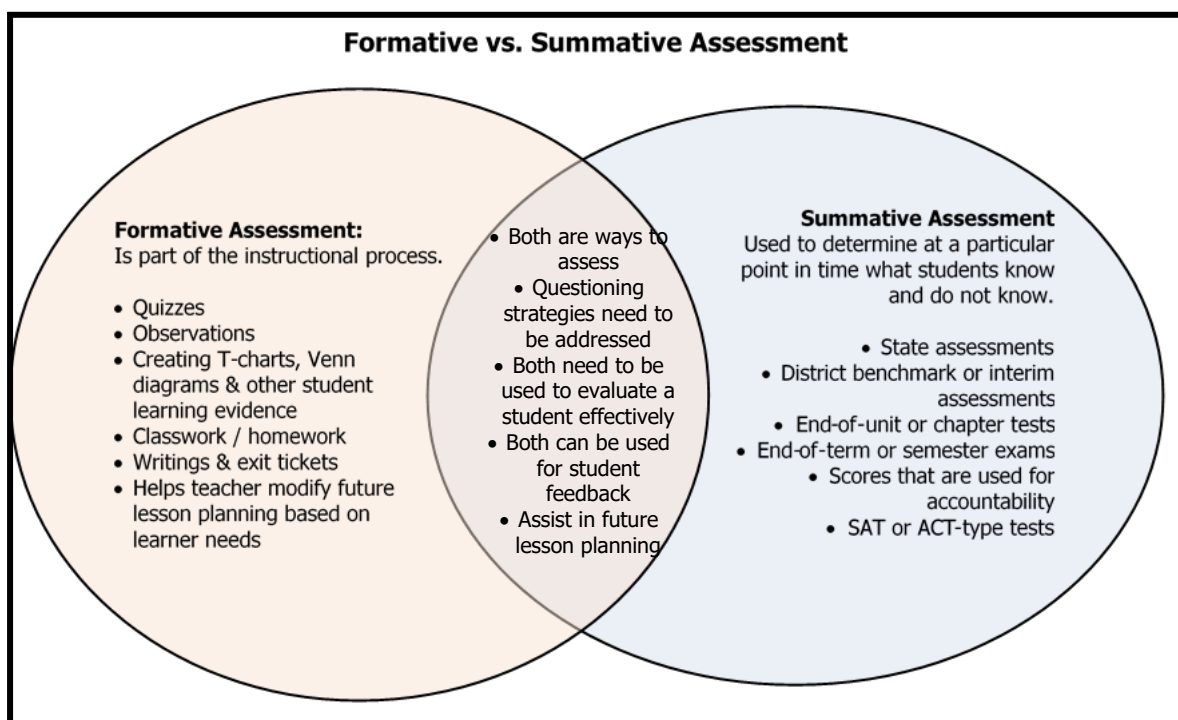


Figure 2.1 Formative versus Summative Assessment (Mahmud, Yaacob, Ramachandiran, Ching & Ismail 2019:26)

2.3.1 Formative Assessment

Formative assessment has been defined as activities that are taken by both the students and the teachers to improve the teaching and learning process (Dixson & Worrell 2016:153). An important aspect of this is giving feedback that guides the student in the acquisition of knowledge (Adachi, Tai & Dawson 2018:299; Knight, Leigh, Davila, Martin & Krix 2019:1121).

This kind of assessment is called assessment for learning (Lockyer *et al.*, 2017:611). This refers to any assessment whose main aim is to improve the teaching and learning process (Alcala, Picos & Pastor 2019:934). The assessment integrated into the teaching and

learning helps the students improve understanding and challenge misunderstanding (Reiman & Sadler 2017:725).

In the current era where there is a need to not leave anyone behind in assessment, the teachers must adopt assessment principles that will assist the students in passing the subject (Dixon & Worrell 2016:153). The Formative Assessment approach is one such method that can improve learning and ensure a favourable throughput from the subject matter.

As mentioned above, this kind of approach encourages deeper learning (Adachi, Thai & Dawson 2018:275; Postareff, Virtanen, Katajavuori & Lindbom-Ylänne 2012:84). Deeper learning, as opposed to superficial learning, is about understanding the principles of the learned material rather than memorising facts (Postareff *et al.* 2012: 84). When the assessment is linked to the learning outcomes, it encourages the students to apply deeper learning in their studies (Postareff *et al.* 2012:84), further amplified through feedback, peer assessment, and self-assessment processes.

The expectation at the end of instruction is that the student should have the skills such as interaction skills, information literacy, and problem-solving skills, which they should be able to apply in both simple and complex situations (Postareff *et al.* 2012:84). To achieve the above skills, the teaching and assessment practices should change and be aligned to the expected outcome of the instruction period.

The best way of using this type of assessment (formative assessment) is to ensure an internal relationship with teaching (Reiman & Sadler, 2017:726). Reiman and Sadler (2017:726) further explain that this internal relationship means that the teaching and the assessment overlap and cannot be separated from each other. Within the teaching and learning encounter, the teaching and the assessment should be linked to each other to achieve the deep learning that should be achieved.

One of the hallmarks of formative assessment is giving feedback (Lockyer *et al.*, 2017:611). Feedback forms part of the extrinsic factors that encourage student learning (Lynam & Cachia 2018:225). One method of providing feedback is through self-and peer-evaluation (Knight *et al.*, 2019:1121). Peer assessment or evaluation is defined as a process of the students making decisions about their own work, whilst peer assessment or evaluation is making decisions about their peers' work (Adachi, Tai & Dawson 2018:295).

Through the process of giving feedback and providing the extrinsic drive to learn, the students will be encouraged to move from a position of being “knowledge consumers” to being “knowledge producers” (Lynam & Cachia 2018:224). This will also enable the students to air their voice in their learning experience, further increasing their learning process, proving that assessment drives learning (Kaur, Norman & Nordin 2017:767).

Therefore, formative assessment is an essential aspect of student learning and should be encouraged as part of the delivery of the module. This will enable students to achieve a deeper understanding of the learned content and ensure that the learning that happens at the end of the module is as intended at the beginning of the module. This will be better achieved if the students become part of the assessment process.

In the MCLA 030 module, formative assessments are done by way of MCQ's which are mainly testing the theory. There is usually no feedback that is given to the students, and neither is there a revision process for the assessment. The OSCE is part of the summative assessment and not the formative assessment.

2.3.2 Summative Assessment

This kind of assessment is helpful at the end of the module and is therefore important for the certification of the student as being competent in the course content (Rolim & Isaias 2019:1785). This assessment of learning happens at the end of the instruction process and is therefore not effective in encouraging learning (Kutlu & Kartal 2018:73).

The summative assessment assesses the students' understanding of the learned material; hence it is mainly done at the end of the module (Dixson & Worrell 2016:156). After sitting for this assessment, there is usually no other engagement with the learning material unless a final examination must be written (Dixson & Worrell 2016:156). This assessment method is thought to promote superficial learning as there is no engagement with the content after the assessment process (Lynam & Cachia 2018:223).

However, summative assessment is important as it assists with the student's grading and the decision about progression as it gives an accurate idea of the students' knowledge and skills (Rolim & Isaias 2019:1785). Traditionally, this used to be just for assessing outcomes in a controlled setting, however, it needs to transform to encompass the evaluation of skills outside the controlled environment (Lockyer *et al.*, 2017:611), as in a real-life situation where patients may not present as well-groomed as things are in a simulation.

The element of assessment authenticity is essential in the summative assessment. These include:

- “Realism: which is the linkage of knowledge with everyday living,
- Contextualism: being able to apply knowledge within situations in a thoughtful and analytical way,
- Problematisation: giving a sense that whatever is learned can be used in problem situations" (Villarroel, Bloxham, Bruna, Bruna & Herrera-Seda 2018:840)

Employers sometimes complain about students' skills learnt from teaching institutions that may not be applicable in the work environment (Villarroel *et al*, 2018:841). Medical students' career starts at the end of a high-stakes assessment, which happens in a controlled environment (Rethan, Norcini, Baron-Maldonado, Blackmore, Jolly, La-Duca, 2002:901). It is important to realise that what happened during assessment and with actual patients are two different scenarios. Further studying actually takes place after they have obtained their qualification (Rethan *et. al*, 2002:902).

The emphasis in the summative assessment should be to ensure that the students have achieved the necessary minimum level of expertise to safely practice medicine. The achieved level of expertise should be adequate for the students to build on as clinicians, which means that the teaching and assessment should be on those practices applicable in medicine. The exit-level assessment should ensure that the patient safety and public accountability aspects are guaranteed (Tan, Van Schalkwyk, Bezuidenhout & Cilliers 2016:40)

To ensure that an assessment is relevant and answers the questions according to the exit-level outcomes, both Bloom's Taxonomy and the Miller's Pyramid are important for the assessment's theoretical (written) aspects and the practical (clinical skills) aspects respectively. The exit level outcomes are those competencies that a learner is expected to have at the end of the instruction to show that they have achieved the requirements for the qualification (SAQA 2001:22) and, in this regard, the module delivered.

2.3.3 Bloom's Taxonomy

Bloom's Taxonomy is defined as an educational framework that classifies the statements that are used in the assessment of the students to ensure that the questions are on the correct cognitive level (Krathwohl 2002:12). Bloom described the taxonomy as a measuring tool in assessment to measure whether the assessment questions are correctly classified

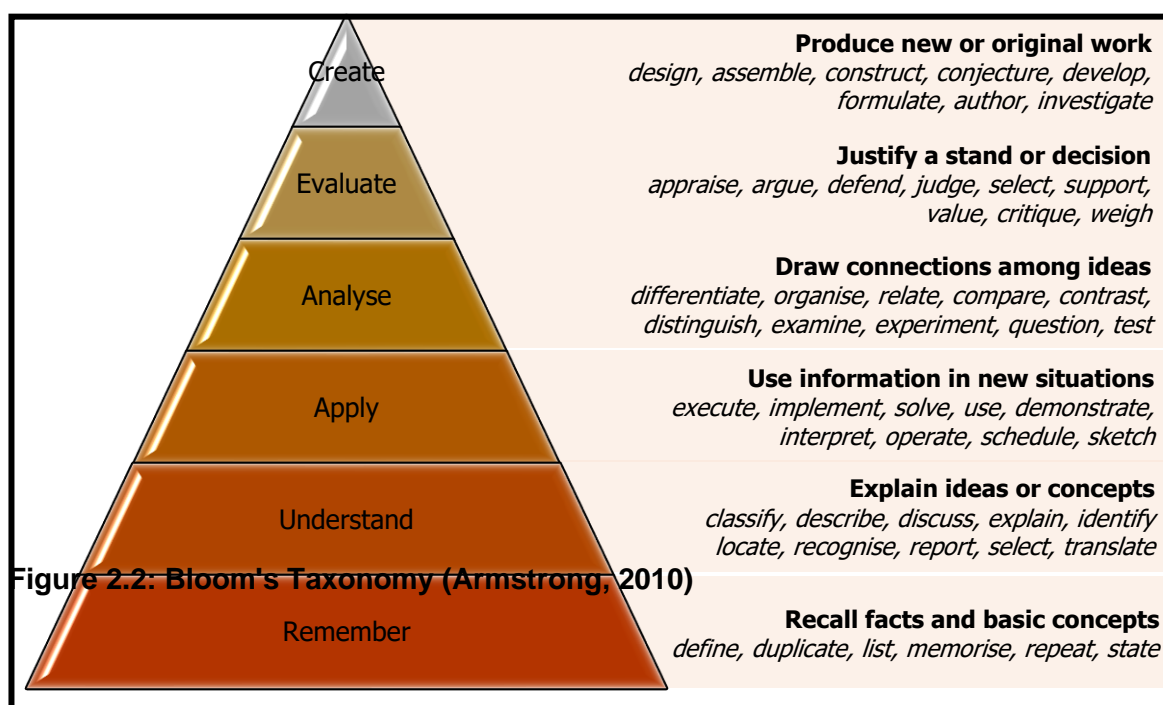
and on the correct cognitive level for the student (Krathwol 2002:212).

Bloom's Taxonomy, also called the Taxonomy of Educational Objectives, is a framework for classifying thinking according to six cognitive levels (Krathwohl, 2002:212; Sivaranam & Krishna 2015:6), these have been updated by Foreman (2010: 47) and presented thus:

- i. "Knowledge – Students recall exactly what they have learned. Verbs to use in the questions are identify, recognise, describe etc.,
- ii. Understand – Students must explain ideas or concepts. Verbs to use are classified, translate, describe etc.,
- iii. Application – This is about applying the knowledge in practice,
- iv. Analysis – Analysing the individual components and their relationship to each other,
- v. Evaluation – This is about a review of the work done by looking the internal evidence and the external criteria of implementation, and
- vi. Synthesis – This is about producing something new from the knowledge acquired".

The knowledge and understanding levels are low order cognitive level. The applying and analysis are of intermediate order cognitive level, whilst the synthesis and evaluation are of high order cognitive level (Sivaranam & Krishna 2015:7).

Anderson and Krathwohl revised Bloom's Taxonomy in 2001. This change has led to the revision of the words used for the different levels from nouns to verbs (Forehand 2010:47). The other change that was affected than was the replacement of the evaluate and synthesis levels, with synthesis coming first and then evaluation last. The changes are noted in Figure 2.2 below.



To ascertain the cognitive level, verbs are used to describe the learning outcomes (Stanny, 2016:1). Specific verbs are used for specific cognitive levels (Stanny 2016:2), which as a result, will make the alignment of the assessment questions to the cognitive level easier by using the verb that is associated with the level. The verbs used as shown in Appendix B (Unknown, 2020).

2.3.4 Miller's Pyramid

The students need to collect, assimilate, and interpret clinical data given by the patient to come to a plausible diagnosis (Thampy, Willert & Ramani 2019:1631). As this is an expected skill, there is a need to assess this competence. A tool that can be used to assess this is Miller's Pyramid.

Regarding practical skills training, the OSCE is the method of choice. To ascertain the cognitive level of delivery for the OSCE, Miller's Pyramid of clinical competence was used in this study. Miller's Pyramid is categorised in the following manner:

- Knows This the base of competence, assessing whether the student knows the content.
- Knows how: This is about an awareness of how to apply knowledge.
- Shows how: This is about application of knowledge to demonstrate the ability to utilise this knowledge in problem-solving.
- Does: This is about the application of the knowledge in a practice setting (Jamieson, Palermo, Hay & Gibsin 2019:274).
- Jamieson *et al.* (2019:274) also include the "is" level, which is not readily seen elsewhere, this is explained below.

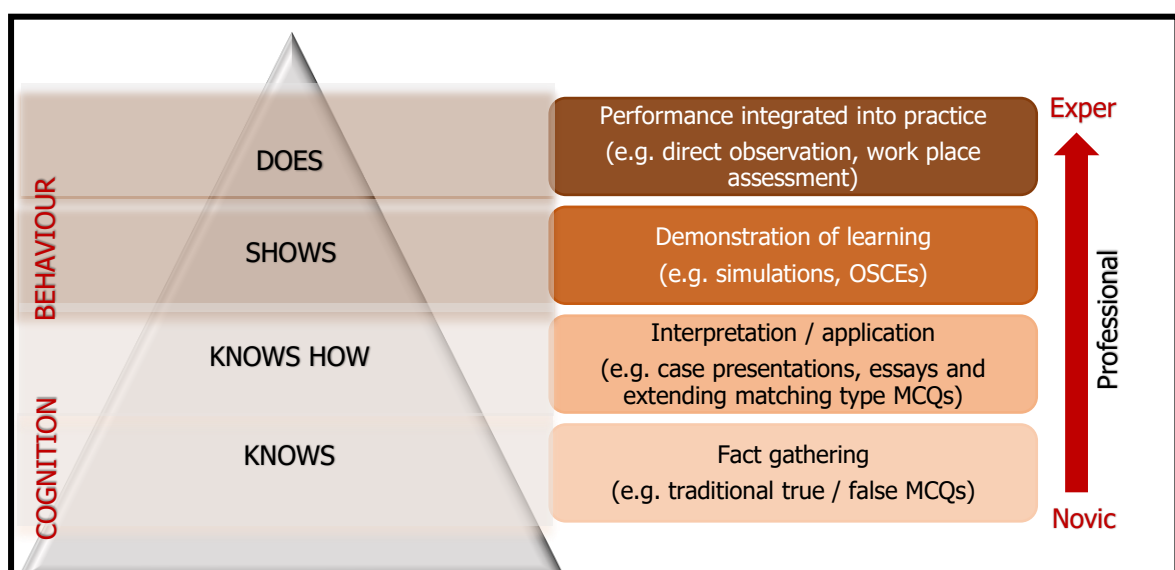


Figure 2.3: Miller's Pyramid

The knowns and knows how levels are measured using a questionnaire system using either a Likert scale or a questionnaire approach, whilst the does aspect is about the interpretation of all the facets of data collection in a clinical situation to come up to a diagnosis (Thampy, Willert & Raman 2019:1633).

According to Jamieson *et al.* (2019:287), the other levels are measured as follows:

- “The show's level is assessed using the OSCE, performance level evaluation and the portfolio of learning (Jamieson et al., 2019:287).
- The does level is assessed using performance evaluation and the portfolio presentation.
- The is level is about professional identity and is, therefore, assesses personality and socialisation”.

2.4 GOOD ASSESSMENT

When planning for assessment, students should not just be spectators watching the teacher, but they also need to be a part of the assessment planning (Reiman & Sadler 2017). Collaborative learning is a process wherein the students are an active part of the assessment process to know and understand the relationship between Learning Outcomes and the assessment. Assessment is constructive with active, self-regulated learners (Reiman & Sadler 2017:725). This is important in ensuring that the students learn what they were intended to learn during instruction (Rudland, Lacey, Kenrick & Tweed 2017:81).

Fairness means that the students should not be advantaged or disadvantaged by the assessment process, meaning that all students, irrespective of gender or race, should be afforded the same opportunity (SAQA 2001:16).

To ensure fairness, it may be important to look at the student profile and their learning styles to ensure that none is disadvantaged because of the teacher's approach to teaching. Teachers and students have their learning styles, which influence how they transmit and receive information (Howard, Carver & Lane 1996:227). The learning styles refer to a preference. However, people can adapt to different learning styles. The teacher should be willing to use various modalities to teach.

The principle of validity means that the assessment measures what it intends to measure (SAQA 2001:17). In the design of assessments, the learning objectives and outcomes are classified according to Bloom's cognitive levels. Therefore, the assessment should measure the outcome that it is intended to measure (Krathwohl 2002:213). The students need to be

made aware of the Learning Outcomes before they even start to engage with the subject matter to be aware of what they are expected to learn from the learning encounter. (Kaur, Norman & Nordin 2017:758). As mentioned in the introduction, the learning is not limited to the classroom but happens even in the communities and other opportunities.

The principle of reliability refers to consistency in assessment (SAQA 2001:18). Consistency means that the assessment should yield the same judgement if performed in the same or similar context (SAQA 2001:18). This can be better achieved if the curriculum is constructively aligned, meaning that the Learning Outcomes, the teaching methods, and the assessment should all be aligned (Ismail, Nat Pa, Mohammad & Yusoff 2020:71-72).

Once the Constructive Alignment has been ensured, there needs to be a blueprint of the assessment to ensure that what is assessed is intended. As part of the blueprint, the model answers should be discussed amongst the teachers to set a standard for the assessment, which will be fixed, objective, and not subjective or based on the examiner's view (Orr 2007:647).

Practicability refers to the practicality of conducting the proposed assessment and getting the desired outcome (SAQA 2001:19). This refers to the availability of financial resources, facilities, equipment, and the time required to administer the assessment without compromising the described Learning Outcomes (SAQA 2001:19). The assessment should rather be adapted to suit the situation than being adopted without ensuring that it will fit the situation of implementation.

The type of assessment used influences the degree of learning by the students (Lynam & Cachia 2018:223). As already pointed out, if the assessment approach is formative, it encourages deeper learning (understanding), as students will have to apply their minds as they engage with it. It is also imperative to address the misconceptions during the delivery of the lesson; something which will help students have the correct understanding of the subject matter.

One of the important modalities in this assessment is giving feedback (Adachi, Tai & Dawson 2018:295). Feedback can be given by either the teacher or the peers themselves, under the teacher's guidance. The feedback is important in ensuring that the students intend to comprehend the subject matter.

2.5 BLUEPRINTING

The curriculum of the (ULSoM) is integrated, which implies that more than one department offers instruction at any given time in delivering the modules. This is common in higher education, where more than one department provides instruction to the same class or cohort of students (Er, Rhadhakrishnan & Nadarajah 2018:572). Therefore, "blueprinting", which includes mapping the assessments in relation to the Learning Outcomes or the desired targets, is essential in this regard (Er, Rhadhakrishnan & Nadarajah 2018:572). It is a word that is used in architecture and means "a detailed plan of action" (Patil *et al.*, 2015: 579). This will further assist in allocating resources for the assessment (Er, Rhadhakrishnan & Nadarajah 2018:572). Assessment is also defined as "the tail that wags the curriculum dog" (Patil, Gosavi, Bannus & Ratnakar 2015:576). It needs to be adequately planned to deliver what it is intended to deliver.

Blueprinting is the mapping of the evaluation to achieve congruency between the Learning Outcomes and the assessment process (Hamdy 2006:17; Coderre, Woloschuk & McClaughlin 2009:322). Blueprinting is essential in ensuring the validity of the assessment, which means that the assessment would be assessing that which it intends to (Coderre, Woloschuk & McClaughlin 2009:322). A valid assessment is one where there is congruency between Learning Outcomes and what is assessed (Patil *et al.*, 2015:577).

In assessment, there is a danger that something that was not taught or not intended for that level of study could be assessed (Rudland *et al.*, 2017:81). Therefore, Blueprinting assists in creating an assessment map that ensures that all the aspects of the curriculum or the module are represented in the assessment (Mokherjee, Chang, Boscardi & Hauer, 2013:884). This makes the running of the assessment manageable, especially in an integrated curriculum, as this will go as far as determining the distribution of questions and the distribution of questions according to the expected cognitive levels (Rudland *et al.*, 2017:82).

Blueprinting also assists in planning the assessment and the allocation of resources that would be required for it (Coderre, Woloschuk & McClaughlin, 2009:322). If done correctly, this would also assist in all aspects of the course design, which would benefit both the teacher and the student (Coderre *et al.*, 2009:324).

Proper blueprinting considers the verbs used in the Learning Outcomes, which assist in interpretation in relation to Bloom's Taxonomy, to design the items that form the assessment (Wondga, 2016:24). Wondga (2016:25) further states that the cognitive levels in the

assessment blueprint should be discussed with faculty for the sake of consensus and fairness in the assessment process.

In line with the above, a properly designed blueprint should take into consideration the institutional milestones in terms of the unfolding of the curriculum (Mokherjee *et al.*, 2013:86-7). These milestones are meant to detail the medical school learning experience of a student from when they begin with their training to the end, when they get certified to practice (Mokherjee *et al.*, 2013:87), this therefore requires that the institution should have detailed Learning Outcomes at every level of training which the blueprint should be closely aligned to (Mokherjee *et al.*, 2013:87).

2.6 CLINICAL TEACHER

The medical education approach has evolved over time from a teacher-centred approach to a student-centred approach (Harden & Crosby 2000:334). At the same time, the assessment approach has changed with the development of simulation training. A practical examination such as the OSCEs is now standard practice in most medical schools (Harden & Crosby 2000:334-341).

The roles of the teacher have therefore been defined by Harden and Crosby (2000:334-341) as an information provider, role model, facilitator, assessor, and planner. Harden and Crosby further provide explanations for each of the roles as discussed below:

- i. Information provider: This is about the teacher providing information to the students. In the traditional approach, the teacher was regarded as the expert, whilst the students were empty vessels waiting for the teacher to feed them with knowledge. This approach has since been challenged through the Student-Centred Approach as the teacher is now only regarded as a facilitator of knowledge. The information giving happens in the ward-based teaching, where the teacher teaches the students the practical approaches to patient care, including history taking, clinical examination, and clinical reasoning in coming up with a diagnosis.
- ii. Role model: Most students learn from what the teacher does more than what the teacher says. As a result, teachers need to be careful of how they behave in front of their students, as students will most probably emulate them. The students appreciate a teacher who is enthusiastic about their work, practices Patient-Centred Care and loves their patients.

The teacher is expected to be a role model in their teaching practices in this role. They can describe their thought processes in the approach to a sick patient

and the process of clinical reasoning to get to a diagnosis.

- iii. The facilitator: This is the teacher's role in ensuring that students learn what they are supposed to learn. The teacher guides the student towards acquiring knowledge. Also linked to this role is the mentorship role, whereby students are assisted to see the bigger picture of their learning and help to deal with its challenges.
- iv. The assessor: Teaching without assessing is like cooking without tasting. The teacher needs to be competent in assessment approaches. Assessment is an aspect of the teaching process that helps students understand the course content better.

As part of the assessment role, the teacher should assess the curriculum of learning to ensure that it is appropriately suited to enable students to learn what they are supposed to learn.

- v. The planner: The teacher is expected to be part of the curriculum planning team. They should be able to plan their own module and ensure that it is in line with the requirements of the curriculum. In some instances, some modules may not relate to the curriculum needs if not properly aligned, hence the teacher is expected to be able to ensure alignment.
- vi. Resource planner: The students spend much more time with the learning aids and their workbooks than with the teachers. The teacher should provide the students with the material that will assist them in their acquisition of knowledge. These resources include learning materials which could be placed online, and study guides (Harden & Crosby 2000:334-341).

In the case of summative assessment approaches, learning is superficial as this tests what the students have learned, which is done at the end of the learning period. This is further confirmed by Lynam and Cachia (2018:223) who further state that Summative Assessment encourages superficial learning whilst Formative Assessment leads to deep learning.

2.7 CONCLUSION

Assessments are an important way of ensuring that students learn what they are supposed to learn. It is important to produce objective proof of the students' knowledge and skills, which is especially important for promoting the student to the next level. This is supported by Pienaar, Wolvaard, Cilliers and Burch (2019:83), who pointed out that assessment helps ascertain the impact of educational experience on student learning.

The module to be assessed should be constructively aligned within itself, meaning that the

learning outcomes, the learning opportunities, and the assessment should be in sync with each other (Postareff *et al.* 2012:84). To achieve the desired outcomes, the assessment must be authentic. An authentic assessment wherein the teacher assesses what the students need to learn as described in the Learning Outcomes (Rudland, Lacey, Kenrick & Tweed, 2017:81). This can be achieved through blueprinting (Er, Rhadhakrishnan & Nadarajah, 2018:572) the constructively aligned curriculum.

Both the formative (assessment for learning) and the summative assessment (assessment of learning) should be conducted to produce the required results, which are related to the learning outcomes and the exit-level requirements for the module.

In the next chapter, Chapter 3, the researcher wrote a publishable article on the research findings.

CHAPTER 3

PUBLISHABLE ARTICLE 1: A VIEW ON ASSESSMENT: MBCHB 3 CLINICAL SKILLS AT THE UNIVERSITY OF LIMPOPO

This article was prepared according to the author guidelines for the *African Journal of Health Professions Education* (AJHPE) (cf. Appendix F)

A VIEW ON ASSESSMENT: MBCHB 3 CLINICAL SKILLS AT THE UNIVERSITY OF LIMPOPO

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Author Contributions:

Dr Maphophe TS was responsible for the conceptualisation and the planning of the study, inclusive of data collection.

Ms Maryna Hattingh was the supervisor who ensured that the work is up to date and also assisted with the sourcing out of articles for the purposes of the study.

Summary:

Number of pages: 11

Number of words: 2766 excluding references

Number of tables and figures: 3

Significance of the work:

The University of Limpopo's School of Medicine (ULSoM) took their first cohort of students in 2016. The knowledge of assessment among lecturers/teachers at the ULSoM's is unknown. This study will assist in creating a baseline of knowledge and practice of assessment by the teachers for proper planning of an intervention programme.

ABSTRACT

Introduction

Medical education aims to produce competent professionals who will be safe to practice the art of medicine. The learning outcomes are meant to guide both the teachers and the students regarding what is supposed to be learned. Therefore, it is important to ensure that the assessment is well aligned to the learning outcomes to ensure that the students are assessed on what they are supposed to learn. This study looked at the assessment practices at the 3rd level skills module at the University of Limpopo.

Methods

This was a desktop analysis of the documents used in the design of the assessment of the MCLA 030 module. These included the learning guides, the learning outcomes, the MCQ paper and the OSCE paper. These were evaluated using the validated rubric from the UFS' division of health professions education, as shown in tables 1 and 2 for the module evaluation and the assessment evaluation.

Results

The MCQs had 83% outcomes alignment and 0% alignment to Bloom's Taxonomy, whilst the OSCE had 58% alignment to the topic with 50% alignment to Miller's Pyramid.

Conclusion

The assessment was poor aligned to the learning outcomes and both Bloom's taxonomy and Miller's pyramid for both the MCQ and the OSCE papers, respectively. This suggests a poor understanding of assessment and alignment with the Learning Outcomes at the ULSoM.

INTRODUCTION

Background

The University of Limpopo's School of Medicine (ULSoM) is the ninth medical school in South Africa, offering the MBChB degree. The ULSoM received accreditation in 2014, with the first group of students commencing in 2016. The group that started with the programme is currently (2021) doing their final year of study at the same University. The teachers' training as part of the ULSoM were workshops conducted by the University of the Witwatersrand and the University of Cape Town.

The MBChB degree lies at a National Qualification Framework (NQF) level 8. The outcomes for this level include the ability to access, store and apply theoretical content relevant to the profession. The student should show competency in problem-solving skills, ethical decision making, and professional practice.^[1] This study was meant to assess the degree to which the assessments are aligned to the learning outcomes as designed for the level of study.

This study was conducted in the ULSoM third-year Clinical Skills Module. The assessment at this level of study includes both the multiple-choice questions (MCQ) and the Objective structured clinical examination (OSCE). To assess the above, both the Blooms taxonomy, which assesses the cognitive level by looking at the verbs used^[2] and Miller's pyramid, which looks at the expertise in applying the theory^[3] respectively.

OBJECTIVES

Medical education assessment has changed in recent years because of student profiles and emphasis on competent medical school graduates. This study evaluates the relationship between Learning Outcomes and student assessment. Valid assessments measure what is intended to be measured.^[4]

The theoretical paper is evaluated using Bloom's Taxonomy as a reference.^[5] The Learning Outcomes are classified according to Bloom's Taxonomy levels, and the assessment questions are compared to ascertain if they are on correct levels. This assists in finding out if the educators can relate the Learning Outcome to the assessment requirement.

To achieve the aim of this study, the objectives were formulated as follows:

- i. To contextualise and conceptualise assessment in medical education. This objective was addressed using a comprehensive literature study to clarify all the concepts.

- ii. To contextualise and conceptualise assessment in the module itself. This was done through a Document Analysis and blueprinting (making use of a tick sheet); and
- iii. To review individual assessment papers in the module, through a verified rubric.

The skills or OSCE paper is evaluated using Miller's Pyramid since the paper assesses the students' practical skills. The Learning Outcomes and the assessment question are classified according to the pyramid and congruence evaluated accordingly.

RESEARCH METHOD AND DESIGN

Kothari (2004) defines research design as the conceptual structure wherein research is conducted^[6] It constitutes the blueprint for collecting, measuring, and analysing data. The method and design used are explained under the subsections.

Method

The study was conducted using document analysis, a systemic procedure for reviewing or evaluating documents.^[7] This intensive study method produces detailed descriptions of a single phenomenon, event, organisation, or program.^[22] It requires that data be examined and interpreted to elicit meaning, understanding and subsequently develop empirical knowledge.^[7]

This study looked at the summative assessment of the MCLA030 module at the ULSoM. The assessments conducted were in the form of an MCQ and an OSCE. Both were evaluated individually to ascertain assessment validity. The authors used a rubric of the UFS for mapping the module and assessments. Tables 3.1 and 3.2 are examples of the rubric used for mapping and evaluating

Setting

The study was done at the ULSoM, looking at the assessment practices in the CSM. The evaluated module is offered in the third year of study.

Design

Document Analysis is particularly applicable to qualitative case studies and has been used as part of qualitative research for many years.^[7] The documents used in the assessment of students were analysed, including the Learning Outcomes, question papers and memoranda. The documents that were used in this study are:

- Multiple-Choice Questions (MCQ) paper,
- The Objective Structured Clinical Exam (OSCE) paper, and

- Policy documents that explain how the assessment is to be conducted, which included the South African Qualification Authority (SAQA) documents and the Health Professions Council of South Africa (HPCSA)

Procedure

The procedure followed during analysis was as follows:

The Learning Outcomes were tabulated using the validated tool from the University of Free State's Division of Health Sciences Education. The questions were listed and evaluated against the Learning Outcomes to ascertain congruency between the Learning Outcomes and questions and then compared to Bloom's Taxonomy levels.

Table 3.1: Module Blueprinting Rubric

| Learning Outcome | Theme | Assessment Written (MCQ) | Assessment OSCE |
|------------------|-------|--------------------------|-----------------|
| | | | |
| | | | |

Table 3.2: Assessment Blueprinting Rubric

| Questions | Type of question (MCQ, essay) | Action verb used in question | Bloom's Taxonomy level/s | Outcome linked to | Theme linked to |
|-----------|-------------------------------|------------------------------|--------------------------|-------------------|-----------------|
| 1.1 | | | | | |
| 1.2 | | | | | |
| 2 | | | | | |

To ensure quality of the study which is the degree of confidence in data, interpretation and the methods used to ensure the quality of a study, ^[8] the following elements were addressed as explained below, looking at credibility, transferability, dependability and conformability:

Credibility

To ensure that the results are credible, the authors have detailed all the steps followed in the evaluation process. Shenton^[9] and Connelly^[8] recommend that one of the ways to ensure credibility is to allow for peer review of the research process and accommodate comments and suggestions to a proposed study project – something which the current authors did throughout the study.

Transferability

Shenton^[9] and Connelly^[8] express that since the findings of a qualitative project are specific to a small number or particular environment and individuals, it may be impossible to demonstrate that the findings and conclusions apply to other situations and populations. Shenton ^[9] further points out that it is the researcher's responsibility to detail information from the study processes to enable the reader to identify similarities between their situation

and the research. The details of the study, including the tick sheets and rubrics used, will be availed to enable the reader to ascertain if the findings can be applied to their situation.

Dependability

To ensure the dependability of the outcome, a researcher should detail every process followed in conducting the study. This will enable other researchers to know which steps to follow to obtain the same results.

Confirmability

Confirmability measures the extent to which the study results are based on actual findings and not the researcher's perceptions.^[9] The authors have identified and subsequently engaged someone not actively involved in the process to review their stance.

RESULTS

MCQ

The MCQ paper consisted of 100 questions, where the students were expected to choose the correct answer out of five options. They were compared with Bloom's Taxonomy levels to see alignment with the Learning Outcome, as shown in Appendix A1. Appendix A2 shows how the data were collected and analysed, whilst Appendix B shows the interpretation of the action verbs within the Bloom's Taxonomy. This paper was written in 2019 by the second group of students to join the ULSOM.

The results indicated that all the questions in the MCQ were at Bloom's level one, **knowledge**. In 86% of the questions, there was no action verb used. In 14% of questions, the verbs were either select (4%), choose (6%) and identify (4%), this is shown in figure 5. The verbs are important in determining the weighting of the learning outcomes, which translates to the interpretation according to the Bloom's taxonomy ^[27].

Regarding alignment to the Learning Outcomes, 17% of questions were not aligned to the Learning Outcomes. The Learning Outcome: Apply the theoretical knowledge in a clinical environment, had 83% alignment, although it was not pegged at the correct Bloom's Taxonomy level as the outcome is for application, and the questions were only on the knowledge level shown in figure 5.

There was technically no alignment to the Learning Outcome in the MCQ assessment as Bloom's Taxonomy levels were different, one being the first level of knowledge whereas it was supposed to be the third level of application.

Discussion:

Based on the above table, the themes that were covered and the frequency is thus:

| Item | Number represented | Percentage representation |
|----------|--------------------|---------------------------|
| Theme 1 | 0 | 0% |
| Theme 2 | 1 | 6% |
| Theme 3 | 1 | 6% |
| Theme 4 | 0 | 0% |
| Theme 5 | 5 | 31% |
| Theme 6 | 23 | 144% |
| Theme 7 | 15 | 94% |
| Theme 8 | 14 | 88% |
| Theme 9 | 4 | 25% |
| Theme 10 | 5 | 31% |
| Theme 11 | 10 | 63% |
| Theme 12 | 8 | 50% |
| Theme 13 | 2 | 13% |
| Theme 14 | 0 | 0% |
| Theme 15 | 15 | 94% |
| Theme 16 | 0 | 0% |

Based on the above table, the assessment was not well mapped to cover all the topics as per the learning outcomes. In the next table, I will look at the Bloom's taxonomy comparing the learning outcomes and the assessment to ascertain if there is congruency.

| Theme Number | Learning Outcome | Bloom's taxonomy level | Question numbers | Bloom's taxonomy level |
|--------------|---|------------------------|------------------------------|------------------------|
| 2 | None | Not applicable | 2 | Knowledge |
| 3 | Apply theoretical knowledge in a clinical setting | Application | 98 | Knowledge |
| 5 | Apply theoretical knowledge in a clinical setting | Application | 65, 67-68, 72, 93 | Knowledge |
| 6 | Apply theoretical knowledge in a clinical setting | Application | 28, 41, 53-58, 60-72, 88, 92 | Knowledge |
| 7 | Apply theoretical knowledge in a clinical setting | Application | 29-33, 43-52 | Knowledge |
| 8 | Apply theoretical knowledge in a clinical setting | Application | 23-27, 34-40, 42, 59 | Knowledge |
| 9 | Apply theoretical knowledge in a clinical setting | Application | 19-22 | Knowledge |
| 10 | Apply theoretical knowledge in a clinical setting | Application | 18, 94-97 | Knowledge |
| 11 | Apply theoretical knowledge in a clinical setting | Application | 73-82 | Knowledge |
| 12 | Apply theoretical knowledge in a clinical setting | Application | 83-87, 89-91 | Knowledge |
| 13 | Apply theoretical knowledge in a clinical setting | Application | 99-100 | Knowledge |
| 15 | Apply theoretical knowledge in a clinical setting | Application | 1-6, 8-17, | Knowledge |

Figure 4: Representation of themes and alignment to learning outcomes

OSCE

The OSCE questions were evaluated the same way as the MCQ, although against Miller's Pyramid of clinical assessment. The authors assessed twelve (12) OSCE stations.

Out of the 12 questions in the OSCE, 8 (67%) were testing clinical skills, 3 (25%) were Multiple-Choice Questions, and 1 (8%) was an extended matching question. Regarding alignment with Miller's Pyramid of assessing clinical skills, 4 (33%) of the questions lies at the first level of **knows** and **knows how**, and 8 (67%) were at the **show how** level.

Regarding alignment with Learning Outcomes, 5 (42%) of the questions do not align to any Learning Outcome, whilst 7 (58%) aligned to one of the three outcomes. These outcomes are practice skills to work with patients, including history taking (25%), Outlining the management/treatment plan of the presenting illness (17%), and performing a physical examination within the confines of a primary care setting (17%).

Of the five that did not align with any Learning Outcome, 3 (60%) were at the correct Miller's Pyramid level, whilst 2 (40%) were not. According to Miller's Pyramid of clinical assessment, three (43%) of the seven aligning to a Learning Outcome were correct.

DISCUSSION

The act of instruction may be conceptualised as having four elements. These elements are Learning outcomes, learning resources; teaching and learning activities; and Assessment.^[10] Those elements should be aligned for the teaching process to be effective and efficient. Joseph and Juwah bring up the question that Biggs (2002) asked about what the teacher wants the students to learn at the end of the instruction^[11]. The study's main objective was to look at the assessment practices by evaluating the relationship between the learning outcomes and the students' assessment within the MCLA030 module at the UL. In essence, this was looking at a modified constructive alignment analysis as it lacked two of the components in the elements by Parskevius, which are learning resources and teaching and learning activities.

For an assessment to achieve the desired goal, the principles of good assessment should be followed: fairness, validity, reliability, and practicability^[1]. Fairness is about the assessment affording an equal opportunity to all that take it irrespective of race or gender. Validity refers to the assessment measuring what it intends to measure, meaning that the learning outcomes are what is assessed in the assessment process.

Reliability means that the assessment is consistent in that it yields the same results in the same or similar context. Practicability refers the practicality of conducting the assessment and achieve the desired outcome. The practicability refers to the financial and logistical preparations for the assessment.

The assessment in the MCLA030 at the ULSoM showed varying degrees of validity. The MCQs offered 83% alignment to the learning outcomes, and even though the evaluation questions aligned with the topic of the assessment, they did not align with the difficulty index of Bloom's Taxonomy. The OSCE assessment fared better than the MCQ as it showed 50% alignment to the learning outcomes. The identified fault in the OSCE was that some of the questions were not practical questions but rather MCQ and Extended matching questions (EMQ).

Based on this study, the students are not assessed on what they are supposed to know, as indicated in the learning outcomes. Seventeen percent (17%) of the MCQs and 42% of the OSCE were not aligned to any Learning Outcome. Adachi, Tai and Dawson supported training in assessing feedback practices amongst teachers and students.^[12] They noted that there is a need to train the teachers as part of Capacity Building to ensure uniformity in the approach to assessment.

The problems outlined with question alignment raise whether the assessors blueprinted the module before compiling the assessment. Blueprinting is the assessment mapping to achieve congruency between the learning outcomes and the assessment process.^[13,14] This process ensures the validity of the assessment.

The task of blueprinting is to analyse the learner outcomes in a programme of studies and construct an assessment tool to measure student proficiencies based on those outcomes.^[15] The study's outcome raises the question of whether the learning outcomes were used to come up with the assessment that aims to assess competence in those.

Another issue that can be raised in the interpretation of the results is the question of whether the teachers saw a lack in the objectives and decided to add new information. That addition according to the council on higher education (CHE), should be ratified if it is more than 50% of the original curriculum.^[16]

The conclusion that can be made based on the above observations is that the assessment within the MCLA030 module at the ULSoM was not valid as it did not measure what it was intended to, based on the non-alignment between the evaluation and the Learning Outcomes.

ETHICAL CONSIDERATIONS

The University of the Free State ethically approved the research (UFS-HSD2019/1871/2104), while the University of Limpopo approved as gatekeepers. The Registrar of the University of Limpopo permitted using the module guide and Summative Assessment questions with their memoranda as data for the study.

Potential benefits and hazards

The study will benefit the ULSoM as it will give a baseline of the level of understanding of assessment amongst the staff members. Because of there being no involvement of human participants, no hazards were envisaged.

Data protection

The principal author stored all the data on his password-protected laptop with a backup on an external hard drive kept in a safe place. The supervisor also kept the copies that were sent to them for review in a password protected device. However, the duty to ensure that the data was available when required was with the principal author.

Practical implications

This study shows the levels of expertise concerning assessment at the ULSoM's MCLA030 module and has provided an objective baseline for the intervention required from the university management.

Limitations of the study

The authors only appraised the MCQs and OSCE, but it would be of value to assess all the assessments conducted in the module. Another limitation is that the students' answer sheets and the memorandum were not evaluated to gain more insight into the module's assessment process. These would have assisted in the professional attributes per the HPCSA guide on CanMEDS.^[17]

RECOMMENDATIONS

Students want to excel in their studies, and when there is no alignment, it influences the success rate of students. This could result in the students being asked elementary questions that are not at the desired level or being asked tough questions. Accordingly, it would be valuable if the ULSoM creates an assessment module for their educators to obtain basic knowledge and understanding of assessment principles and their implications, as supported by Postareff, Virtanen, Katajavuori and Lindblom-Ylänne^[25] who recommends that educators be taught the value and reason for assessments.

CONCLUSION

The current assessment practice in the ULSoM's MCLA030 module is not well aligned to the Learning Outcomes. The students are not assessed on what they are intended to learn at the end of the instruction. There is a need for formal educator training on assessment principles and processes.

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COMPETING INTERESTS

The authors have no competing interests.

AUTHORS' CONTRIBUTION

TSM was responsible for the conceptualisation of the topic. MH was the supervisor who assisted with the article's write-up and ensured that it aligned to its aims and objectives.

DATA AVAILABILITY

Data used in the study are available from the authors.

REFERENCES

1. South African Qualifications Authority (SAQA). 2001. Criteria and Guidelines for Assessment of NQF Registered Unit Standards and Qualifications. *Policy Document*.
2. Krathwohl, D.R. 2002. A Revision of Bloom's Taxonomy: An overview. *Theory into Practice*, 41(4), pp.212-218.
3. Miller, G.E. 1990. The Assessment of Clinical Skills/Competence/Performance. *Academic Medicine*, 65(9), pp.S63-7.
4. Sahu, P.K., Chattu, V.K., Rewatkar, A. & Sakhamuri, S. 2019. Best Practices to Impart Clinical Skills during Preclinical Years of Medical Curriculum. *Journal of Education and Health Promotion*, 8, pp57.
5. Cullinane, A. 2009. Bloom's Taxonomy and Its Use in Classroom Assessment. *National Center for Excellence in Mathematics and Science Teaching and Learning*, 1(13), p.1.
6. Kothari, C.R. 2004. *Research Methodology: Methods and techniques*. New Delhi: New Age International.
7. Bowen, G.A. 2009. Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, (2), pp.27-40.
8. Shenton, A.K. 2004. Strategies for Ensuring Trustworthiness in Qualitative Research Projects. *Education for Information*, 22(2), pp.63-75.
9. Connelly, L.M. 2016. Trustworthiness in Qualitative Research. *Medsurg Nursing*, 25(6), pp.435-437.
10. Paskevicius, M., 2017. Conceptualizing open educational practices through the lens of constructive alignment. *Open Praxis*, 9(2), pp.125-140.
11. Joseph S, Juwah C. Using constructive alignment theory to develop nursing skills curricula. *Nurse Education in Practice*. 2012 Jan 1;12(1):52-9.
12. Adachi, C., Tai, J.H.M. & Dawson, P. 2018. Academics' Perceptions of the Benefits and Challenges of Self and Peer Assessment in Higher Education. *Assessment & Evaluation in Higher Education*, 43(2), pp.294-306.
13. Hamdy, H. 2006. Blueprinting for the Assessment of Health Care Professionals. *The Clinical Teacher*, 3(3), pp.175-179.
14. Coderre, S., Woloschuk, W. & Mclaughlin, K. 2009. Twelve Tips for Blueprinting. *Medical Teacher*, 31(4), pp.322-324.

15. Council on higher education, 2004. Criteria for Programme Accreditation. *Policy document*
16. Wondga, G. 2016. If You Are Not Blueprinting Your Assessment, Read This Article. *Delta-k*, 53(1), pp.24-29
17. Health Professions Council of South Africa (HPCSA). 2014. Core Competencies for Undergraduate Students in Clinical Associate, Dentistry and Medical Teaching and Learning Programmes in South Africa. Pretoria.

CHAPTER 4

GENERAL DISCUSSION AND OVERVIEW

During the training of medical professionals, there is a need to ensure that the trained product is competent in medical knowledge, clinical skills, and application (Wass, Van der Vleuten, Shatzer & Jones 2001:945). Another vital competence expected of the graduates is the professional attributes expressed in the CanMEDS (HPCSA, 2014).

The multiple-choice questions are helpful in assessing theoretical knowledge whilst the OSCE is useful for assessing clinical skills (Wass *et al.*, 2001:946). A skills assessment assesses what the student “can do” rather than what the student knows hence it is done through an OSCE assessment. For an OSCE to be reliable, it should have a minimum of 10 stations (Wimmers & Schauer, 2017:79). In this assessment, the total number of the stations were 12, which were two above the minimum required.

After the training, the students’ competence must be evaluated, something which is done through formative and summative assessments. The formative assessment is used during the delivery of the module to enhance learning; hence it is called assessment *for* learning. The summative assessment follows at the end of the module.

The ULSoM took their first cohort of students in 2016. This group is currently in their final year of study. The researcher noted a gap in the MCLA 030 teacher’s ability to align the learning outcomes to the assessment process. This could be attributed to that these teachers have not had any formal training in assessment principles. This study is designed to evaluate the assessment knowledge of the teachers involved with the delivery of the Clinical Skills Module in the third year of study at the ULSoM. The rationale for doing this is to have a baseline knowledge of assessment among the teachers that are part of the MCLA 030 module so that an appropriate Capacity Building approach may be designed for them.

The evaluated module is a module in the third year of clinical skills with a course code MCLA030. The researcher assessed the Summative Assessment for the study. The study results revealed poor alignment between the Learning Outcomes and the assessment. In the MCQ paper, only 83% of the questions aligned to the topic of the Learning Outcomes; however, there was no alignment with Bloom's Taxonomy levels expected of an assessment of this level. This is indicative of a poor understanding of the assessment process and cognitive alignment necessary on an assessment on this level.

The results also raise the question of whether blueprinting of the module was done for assessment. Of the 83% of MCQs aligned to Learning Outcomes in the evaluation, only one Learning Outcome was represented. To map an evaluation, blueprinting is vital in any module, but especially in multi-disciplinary modules or where the module has many topics to be covered (Coderre, Woloschuk & McClaughlin 2009:322).

In the OSCE exam, eight out of 12 stations were clinical skills questions. The remaining four were MCQ and extended matching questions without application. This indicates little comprehension of what a clinical exam is. An OSCE is a versatile clinical exam that aims to test a student's competence in clinical skills (Zayyan 2011:219).

Of the OSCE questions, 58% aligned to a Learning Outcome, and there was 43% alignment to the Miller's Pyramid level for an OSCE, which is "Shows how". Of the 42% of the questions not aligned to any Learning Outcome, there was a 60% alignment to the Miller's Pyramid level of "Shows how". Based on the results, it is evident that the assessment was not valid as it did not measure the intended outcomes. The 17% non-alignment evidence this to the Learning Outcomes in the MCQ and the 42% non-alignment in the OSCE. Students were assessed on topics not stipulated in the Learning Outcomes.

This outcome suggests poor knowledge and understanding of the assessment processes at the ULSoM. A study by Adachi, Tai and Dawson (2018:304) has shown that teachers need to undergo formal training in assessments as it introduces commonness in the assessment approach, leading to the proper delivery of assessments.

Since the School of Medicine is still new, there is a need to emphasise the capacitation of the teachers for them to be able to enhance students learning. If the teachers are not empowered with knowledge, their instruction and assessment products may not suit their responsibility after the training. Someone once said, "the mistakes of health professionals are seen in the graves", which means poor training might cause patients to die. It is of utmost importance that lecturers in the MBChB programme be encouraged to complete an assessment module at an accredited institution.

4.1 CONCLUSION

In the next chapter, Chapter 5, the researcher discusses the limitations and recommendations of the study.

CHAPTER 5

CONCLUSION, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

5.1 INTRODUCTION

In this study, the researcher addressed the research question: "what is the current assessment practice within the MBChB 3 curriculum at the University of Limpopo's School of Medicine?" This chapter aims to provide a synopsis of the study and make recommendations on the study's findings.

5.2 OVERVIEW OF THE STUDY

This study indicated a poor understanding of the assessment process at the ULSoM. Students were evaluated on topics they were not expected to know as part of their Learning Outcomes. There might be a reason for the deviation from the Learning Outcomes, an example being that some crucial topics were omitted from the curriculum. The staff had to affect these. Amendments in the curriculum which are more than 50% of the original curriculum must be done formally and communicated to the Council on Higher Education (CHE, 2012). All parties involved in teaching the curriculum must be notified of changes.

There is a strong need for formal training at ULSoM on teaching, learning and assessment to learn the correct assessment practices. There is also a need to have a unit within the ULSoM established and designed to ensure the quality of evaluations and support lecturers with question formulation and assessment principles. The establishment of the said unit has always been a recommendation by the HPCSA in the accreditation visits. Attendance to the teaching, learning and assessment training should be made mandatory to all the staff teaching students.

5.3 LIMITATIONS

The researcher recognises the following limitations in the study:

- The study was commissioned just before the first Covid-19 wave, making accessing the data challenging since the country was locked down. The challenge was acquiring the gate-keeper permission from the University of Limpopo and receiving the data from the ULSoM.
- The researcher had to juggle being a first-line worker at the heat of the Covid-19 outbreak, a lecturer at the ULSoM and a student at the University of Free State (UFS). This resulted in the slowed-down rate of the collection, interpretation and analysis of the data. The researcher also struggled to access the library because of

bursary problems. The limited access to the university because of Covid-19 restrictions enhanced this problem.

- The study focused only on one module within the MBChB curriculum at the ULSoM. It would be of value to evaluate the assessment practices of other modules within the School of Medicine to see whether they comply with expected assessment principles. Further evaluation of the remaining modules might be of value.

5.4 CONTRIBUTION AND SIGNIFICANCE OF THE STUDY

This study contributed to the body of knowledge regarding assessment principles at the School of Medicine, University of Limpopo. The research made a valuable contribution by recommending an assessment course for all educators in the ULSoM.

5.4.1 Recommendations and future studies

The researcher wants to recommend a duplication of the same study for the other modules within the ULSoM to assess if these findings only apply to one department or not. This will assist in forming a baseline knowledge within the school to design an appropriate intervention. In addition to the duplication of the same study in other modules, another study that looks at the training of the academic staff on teaching, learning and assessment is recommended.

5.5 CONCLUDING REMARKS

Assessment of students is an integral part of the curriculum at universities. Assessors assess students' progress. That is why that needs to be conducted according to standard principles designed to measure the outcomes it is supposed to measure. Assessment must be clearly defined and executed according to appropriate assessment methods.

REFERENCES

Adachi, C., Tai, J.H.M. & Dawson, P. 2018. Academics' Perceptions of the Benefits and Challenges of Self and Peer Assessment in Higher Education. *Assessment & Evaluation in Higher Education*, 43(2), pp.294-306.

Armstrong, P. 2010. Bloom's Taxonomy. Vanderbilt University Center for Teaching. <https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>. (Accessed: 13 October 2021).

Bezuidenhout, M.J. & Alt, H. 2011. 'Assessment Drives Learning': Do assessments promote high-level cognitive processing? *South African Journal of Higher Education*, 25(6), pp.1062-1076.

Biggs, J. 1999. What the Student Does: Teaching for enhanced learning. *Higher Education Research & Development*, 18(1), pp.57-75.

Biggs, J. 2003. Aligning Teaching and Assessing to Course Objectives. *Teaching and Learning in Higher Education: New trends and innovations*, pp.13-17.

Brits, H., Bezuidenhout, J. & Van der Merwe, L.J. A framework to Benchmark the Quality of Clinical Assessment in a South African Undergraduate Medical Programme. *S Afr Fam Pract.* 2020; 62 (1): a5030.

Bowen, G.A. 2009. Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, (2), pp.27-40.

Coderre, S., Woloschuk, W. & McLaughlin, K. 2009. Twelve Tips for Blueprinting. *Medical Teacher*, 31(4), pp.322-324.

Connelly, L.M. 2016. Trustworthiness in Qualitative Research. *Medsurg Nursing*, 25(6), pp.435-437.

Cope, D.G. 2014, January. Methods and Meanings: Credibility and trustworthiness of qualitative research. In *Oncology Nursing Forum* 41(1), pp. 89-91.

Council on higher education, 2004. Criteria for Programme Accreditation. *Policy document*

Croy, S.R. 2018. Development of a Group Work Assessment Pedagogy Using Constructive Alignment Theory. *Nurse Education Today*, 61, pp.49–53

Dixson, D.D. & Worrell, F.C. 2016. Formative and Summative Assessment in the Classroom. *Theory into Practice*, 55(2), pp.153-159.

Epstein, A.S. 2007. The Intentional Teacher. *Exchange*, pp.734-742.

Er, H.M., Radhakrishnan, A.K. & Nadarajah, V.D. 2018. Development of an Institutional Assessment Framework. *Medical Education*, 52(5), pp.572-573.

Forehand, M. 2010. Bloom's Taxonomy. *Emerging Perspectives on Learning, Teaching and Technology*, 41(4), pp.47-56.

Hamdy, H. 2006. Blueprinting for the Assessment of Health Care Professionals. *The Clinical Teacher*, 3(3), pp.175-179.

Harden, R. & Crosby, J. 2000. AMEE Guide No 20: The Good Teacher is More Than a Lecturer - The twelve roles of the teacher. *Medical Teacher*, 22(4), pp.334-47.

Hawick, L., Cleland, J. & Kitto, S. 2017. Sending Messages: How faculty influence professionalism teaching and learning. *Medical Teacher*, 39(9), pp.987-994.

Health Professions Council of South Africa (HPCSA). 2014. Core Competencies for Undergraduate Students in Clinical Associate, Dentistry and Medical Teaching and Learning Programmes in South Africa. Pretoria.

Henning, M.A., Pinnock, R. & Webster, C.S. 2017. Does Progress Testing Violate the Principles of Constructive Alignment? *Medical Science Educator*, 27(4), pp.825-829.

Hortigüela Alcalá, D., Palacios Picos, A. & López Pastor, V. 2019. The Impact of Formative and Shared or Co-Assessment on the Acquisition of Transversal Competences in Higher Education. *Assessment & Evaluation in Higher Education*, 44(6), pp.933-945.

Howard, R.A., Carver, C.A. & Lane, W.D. 1996. March. Felder's Learning Styles, Bloom's Taxonomy and the Kolb Learning Cycle: Tying it all together in the CS2 course. In *Proceedings of the Twenty-Seventh SIGCSE Technical Symposium on Computer Science Education* (pp. 227-231).

Ismail, M.A.A., Pa, M.N.M., Mohammad, J.A.M. & Yusoff, M.S.B. 2020. Seven Steps to Construct an Assessment Blueprint: A practical guide. *RESOURCE*, 12(1).

Jamieson, J., Palermo, C., Hay, M. & Gibson, S. 2019. Assessment Practices for Dietetics Trainees: A systematic review. *Journal of the Academy of Nutrition and Dietetics*, 119(2), pp.272-292.

Joseph, S. & Juwah, C. 2012. Using Constructive Alignment Theory to Develop Nursing Skills Curricula. *Nurse Education in Practice*, 12(1), pp.52-59.

Kaur, A., Noman, M. & Nordin, H. 2017. Inclusive assessment for linguistically diverse learners in higher education. *Assessment & Evaluation in Higher Education*, 42(5), pp.756-771.

Knight, P.T. 2002. Summative Assessment in Higher Education: Practices in Disarray. *Studies in Higher Education*, 27(3), pp.275-286.

Knight, S., Leigh, A., Davila, Y.C., Martin, L.J. & Krix, D.W. 2019. Calibrating assessment literacy through benchmarking tasks. *Assessment & Evaluation in Higher Education*, 44(8), pp.1121-1132.

Kothari, C.R. 2004. *Research Methodology: Methods and techniques*. New Delhi: New Age International.

Krathwohl, D.R. 2002. A Revision of Bloom's Taxonomy: An Overview. *Theory into Practice*, 41(4), pp.212-218.

Kutlu, Ö. & Kartal, S.K. 2018. The Prominent Student Competences of the 21st Century Education and the Transformation of Classroom Assessment. *International Journal of Progressive Education*, 14(6), pp.70-82.

Lam, B.H. & Tsui, K.T. 2016. Curriculum Mapping as Deliberation—Examining the Alignment of Subject Learning Outcomes and Course Curricula. *Studies in Higher Education*, 41(8), pp.1371-1388.

Lane, A. 2017. The Systemic Implications of Constructive Alignment of Higher Education Level Learning Outcomes and Employer or Professional Body Based Competency Frameworks

Lane, R. & Bourke, T. 2019. Assessment in Geography Education: A systematic review. *International Research in Geographical and Environmental Education*, 28(1), pp.22-36.

Lockyer, J., Carraccio, C., Chan, M.K., Hart, D., Smee, S., Touchie, C., Holmboe, E.S., Frank, J.R. & ICBME Collaborators. 2017. Core Principles of Assessment in Competency-Based Medical Education. *Medical Teacher*, 39(6), pp.609-616.

Lynam, S. & Cachia, M. 2018. Students' Perceptions of the Role of Assessments at Higher Education. *Assessment & Evaluation in Higher Education*, 43(2), pp.223-234.

Mahmud, M.M., Yaacob, Y., Ramachandiran, C.R., Ching, W.S. & Ismail, O. 2019. Theories into Practices: Bloom's Taxonomy, Comprehensive Learning Theories (CLT) and E-Assessments. *ICEAP 2019*, 2(2), pp.22-27.

Miller, G.E. 1990. The Assessment of Clinical Skills/Competence/Performance. *Academic Medicine*, 65(9), pp.S63-7.

Mookherjee, S., Chang, A., Boscardin, C.K. & Hauer, K.E. 2013. How to Develop a Competency-Based Examination Blueprint for Longitudinal Standardized Patient Clinical Skills Assessments. *Medical Teacher*, 35(11), pp.883-890.

Murphy, D.J., Bruce, D. & Eva, K.W. 2008. Workplace-Based Assessment for General Practitioners: Using Stakeholder Perception to Aid Blueprinting of an Assessment Battery. *Medical Education*, 42(1), pp.96-103.

Muskin, J.A. 2015. Student Learning Assessment and the Curriculum: issues and implications. *Educational Theory*, 58(1), pp.63-82.

- Nicol, D.J. & Macfarlane-Dick, D. 2006. Formative Assessment and Self-Regulated Learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), pp.199-218.
- Onsman, A. 2015. Constructively aligning the curriculum of a “New Generation” Bachelor of Environments degree from a social realism perspective. *Cogent Education*, 2(1), p.1061264.
- Orr, S. 2007. Assessment moderation: constructing the marks and constructing the students. *Assessment & Evaluation in Higher Education*, 32(6), pp.645-656.
- Paskevicius, M. 2017. Conceptualizing Open Educational Practices through the Lens of Constructive Alignment. *Open Praxis*, 9(2), pp.125-140
- Patel, T., Saurabh, M.K. & Patel, P. 2016. Perceptions of the Use of Blueprinting in a Formative Theory Assessment in Pharmacology Education. *Sultan Qaboos University Medical Journal*, 16(4), p.e475.
- Patil, S.Y., Gosavi, M., Bannur, H.B. and Ratnakar, A., 2015. Blueprinting in Assessment: A tool to increase the validity of undergraduate written examinations in pathology. *International Journal of Applied and Basic Medical Research*, 5(Suppl 1), p.S76
- Pienaar, L., Wolvaardt, L., Cilliers, F. & Burch, V. 2019. Involvement, self-reported knowledge and ways in which clinicians learn about assessment in the clinical years of a medical curriculum. *African Journal of Health Professions Education*, 11(3), pp.83-87.
- Postareff, L., Virtanen, V., Katajavuori, N. & Lindblom-Ylänne, S. 2012. Academics' Conceptions of Assessment and Their Assessment Practices. *Studies in Educational Evaluation*, 38(3-4), pp.84-92.
- Reimann, N. & Sadler, I. 2017. Personal Understanding of Assessment and the Link to Assessment Practice: The perspectives of higher education staff. *Assessment & Evaluation in Higher Education*, 42(5), pp.724-736.

Rethans, J.J., Norcini, J.J., Baron-Maldonado, M., Blackmore, D., Jolly, B.C., LaDuca, T., Lew, S., Page, G.G. & Southgate, L.H. 2002. The Relationship between Competence and Performance: Implications for assessing practice performance. *Medical education*, 36(10), pp.901-909.

Retnawati, H. 2016. The Challenges of Junior High School Mathematic Teachers in Implementing the Problem-Based Learning for Improving the Higher-Order Thinking Skills. *Online Journal of Counseling & Education*, 5(3).

Rolim, C. & Isaias, P. 2019. Examining the Use of e-Assessment in Higher Education: Teachers and students' viewpoints. *British Journal of Educational Technology*, 50(4), pp.1785-1800.

Rudland, J.R., Lacey, C., Kenrick, K. & Tweed, M., 2017. How Do We Know That We Are Assessing The 'Right Things'? *Focus on Health Professional Education: A Multi-disciplinary Journal*, 18(1), pp.80-87.

South Africa Qualifications Authority (SAQA). 2001. Criteria and Guidelines for Assessment of NQF Registered Unit Standards and Qualifications. *Policy Document*.

Schutte, F. & Steyn, R. 2015. The Scientific Building Blocks for Business Coaching: A literature review. *SA Journal of Human Resource Management*, 13(1), p.11.

Shenton, A.K. 2004. Strategies for Ensuring Trustworthiness in Qualitative Research Projects. *Education for Information*, 22(2), pp.63-75.

Sinclair, J.M. 2006. *Constructive Alignment in Medical Education* (Doctoral dissertation, University of Oxford).

Sivaraman, S.I. & Krishna, D. 2015. Bloom's Taxonomy–Application in Exam Papers Assessment. *Chemical Engineering (VITU)*, 12(12), p.32.

Stanny, C.J. 2016. Reevaluating Bloom's Taxonomy: What measurable verbs can and cannot say about student learning. *Education Sciences*, 6(4), p.37.

Steinert, Y., Mann, K., Centeno, A., Dolmans, D., Spencer, J., Gelula, M. & Prideaux, D. 2006. A Systematic Review of Faculty Development Initiatives Designed to Improve Teaching Effectiveness in Medical Education: BEME Guide No. 8. *Medical Teacher*, 28(6), pp.497-526.

Tan, C.P.L., Van Schalkwyk, S.C., Bezuidenhout, J. & Cilliers, F. 2016. Mapping Undergraduate Exit-Level Assessment in a Medical Programme: A blueprint for clinical competence? *African Journal of Health Professions Education*, 8(1), pp.45-49.

Taras, M. 2005. Assessment–Summative and Formative – Some theoretical reflections. *British Journal of Educational Studies*, 53(4), pp.466-478.

Thampy, H., Willert, E. & Ramani, S. 2019. Assessing Clinical Reasoning: Targeting the higher levels of the pyramid. *Journal of general internal medicine*, 34(8), pp.1631-1636.

Tolgfors, B. 2018. Different Versions of Assessment for Learning in the Subject of Physical Education. *Physical Education and Sport Pedagogy*, 23(3), pp.311-327.

Villarroel, V., Bloxham, S., Bruna, D., Bruna, C. & Herrera-Seda, C. 2018. Authentic Assessment: Creating a blueprint for course design. *Assessment & Evaluation in Higher Education*, 43(5), pp.840-854.

Wass, V., Van der Vleuten, C., Shatzer, J. & Jones, R. 2001. Assessment of Clinical Competence. *The Lancet*, 357(9260), pp.945-949.

Wimmers, P.F. and Schauer, G.F., 2017. Validating OSCE performance: the impact of general intelligence. *Health Professions Education*, 3(2), pp.79-84.

Wondga, G. 2016. If You Are Not Blueprinting Your Assessment, Read This Article. *Delta-k*, 53(1), pp.24-29

Wood, T. 2009. Assessment not Only Drives Learning, It May Also Help Learning. *Medical Education*, 43(1), pp.5-6.

Yazi, S.A.M., Ruslan, N.F. & Noor, F.Z.M. 2017. Constructive Alignment: A bibliometric analysis.

Young, R.A. & Collin, A. 2004. Constructivism and Social Constructionism in the Career Field. *Journal of Vocational Behavior*, 64(3), pp.373-398.

Cooper, P.A., 1993. Paradigm shifts in designed instruction: From behaviorism to cognitivism to constructivism. *Educational technology*, 33(5), pp.12-19.

Zayyan, M., 2011. Objective structured clinical examination: the assessment of choice. *Oman medical journal*, 26(4), p.219.

APPENDICES

APPENDIX A: DATA CAPTURING MCQ

APPENDIX B: BLOOM'S ACTION VERBS

APPENDIX C: DATA CAPTURING OSCE

APPENDIX D: UFS ETHICS APPROVAL LETTER

APPENDIX E: GATEKEEPER'S PERMISSION

APPENDIX F: AUTHOR GUIDELINES FOR AJHPE

APPENDIX G: TURN-IT-IN REPORT

APPENDIX H: LETTER FROM THE LANGUAGE EDITOR

DATA CAPTURING MCQ

| Table of themes for the module. | |
|---------------------------------|--|
| Theme | Topic |
| Theme 1 | Structure of the consultation |
| Theme 2 | Doctor-Patient relationship |
| Theme 3 | Elements of patient centred care |
| Theme 4 | Conduct an interview |
| Theme 5 | Obtain a Medical history |
| Theme 6 | Perform a physical examination |
| Theme 7 | History and examination of the Cardiovascular system |
| Theme 8 | History and Examination of the Respiratory System |
| Theme 9 | Percentile chart and the road to health chart |
| Theme 10 | Approach to the physical examination of toddlers |
| Theme 11 | Urological examination (Models only) |
| Theme 12 | History and examination of the Gastro-intestinal System and the abdomen. |
| Theme 13 | Interaction of disease, circumstances of life and psyche |
| Theme 14 | Balance between medical practice and doctor as a person |
| Theme 15 | Principles of clinical epidemiology |
| Theme 16 | Basic Life Support and other clinical skills |

| Blueprint of learning outcomes | | | |
|--|--|--------------------|-----------------|
| Educational outcome | Learning activity or Theme | Assessment written | Assessment OSCE |
| By the end of this rotation you should be able to demonstrate the following: | | | |
| Apply the theoretical knowledge in the clinical setting | Skills lab and primary care setting exercise | | |
| Practice the skills required to work with patients, including history taking | Skills lab and Primary care setting | | |
| Perform a physical examination within the confines of a primary care setting | Skills lab and Primary Care setting | | |
| Assess the patient comprehensively | Skills lab and Primary Care setting | | |
| Formulate hypothesis or diagnosis | | | |
| Outline the management or treatment plan of the presenting problem/illness | | | |

| Blueprint of assessments | | | | | |
|--|---------------------------------|----------------------------------|-------------------------|-------------------|---|
| Question | Type of question (MCQ or Essay) | Action verb used in the question | Bloom's taxonomy level | Outcome linked to | Theme linked to |
| 1. In epidemiology, which one of the following statements is true regarding descriptive epidemiology? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidemiology |
| 2. Which one of the following statements is true regarding applied epidemiology? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidemiology |
| 3. Analytic epidemiology can be researched using different types of study designs. Which study design is not appropriate for Analytical epidemiology? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidemiology |
| 4. When considering the hierarchy of evidence in Epidemiological studies. Which of the following combinations is correct when considering the power of evidence from the strongest to the weakest study? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidemiology |
| 5. When considering data collection, which one of the following studies is nicknamed as a "snapshot" type of study design? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidemiology |
| 6. Which one of the following studies usually (but not exclusively) adopts a retrospective study design? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidemiology |
| What studies would be most appropriately conducted to answer the questions below them (Questions 7 to 12): A. Randomized Control Trials B. Cohort C. Case-control D. Cross-sectional E. Qualitative | | | | | |
| 7. For what conditions do patients call their GP out of hours? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 2 Doctor-Patient relationship |
| 8. What are the barriers to handwashing in healthcare settings? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidemiology |

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| 9. Does paternal exposure to ionising radiation before conception cause childhood leukaemia? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidermiology |
| 10. Does laparoscopic cholecystectomy cause less morbidity and a swifter return to work than a small incision cholecystectomy? | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidermiology |
| 11. Disease prevalence is calculated in the following way: | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidermiology |
| 12. The incidence of a disease is calculated in the following way: | MCQ | Not identified | # Knowledge/Remembering | None | Theme 15: Principles of clinical epidermiology |
| <p>For each of the statements BELOW choose the most likely option from the list PROVIDED BELOW. Each option may be used once, more than once, or not at all. Questions 13 to 17.</p> <p>A. Cross-sectional B. Randomised Control Trial C. Cohort D. Qualitative E. Case-control</p> | | | | | |
| 13. Only realistic study design for uncovering aetiology in rare diseases | MCQ | choose | Knowledge | None | Theme 15: Principles of clinical epidermiology |
| 14. Many findings and outcomes can be analysed to create new theories/studies or in-depth research | MCQ | choose | Knowledge | None | Theme 15: Principles of clinical epidermiology |
| 15. Somewhat less potential for bias than case-control studies, but equal potential for confounding | MCQ | choose | Knowledge | None | Theme 15: Principles of clinical epidermiology |
| 16. Especially susceptible to exposure misclassification | MCQ | Choose | Knowledge | None | Theme 15: Principles of clinical epidermiology |
| 17. Volunteer biases: the population that participates may not be representative of the whole | MCQ | Choose | Knowledge | None | Theme 15: Principles of clinical epidermiology |
| 18. Select one item from the following that is not characterised as a danger sign in children. | MCQ | Select | Knowledge | \$Apply the theoretical knowledge in the clinical environment | Theme10: Approach to a physical exam in toddlers. |

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| 19. Select the statement that best describes the rules of breastfeeding. | MCQ | Select | Knowledge | \$Apply the theoretical knowledge in the clinical environment | Theme 9: Percentile charts and the road to health chart |
| 20. Which one of the following statements is inaccurate when outlining the benefits of breastmilk? | MCQ | Identify | Knowledge | \$Apply the theoretical knowledge in the clinical environment | Theme 9: Percentile charts and the road to health chart |
| 21. Which of the following statements are accurate when it comes to the introduction of additional foods for babies? | MCQ | Identify | Knowledge | \$Apply the theoretical knowledge in the clinical environment | Theme 9: Percentile charts and the road to health chart |
| 22. It is the responsibility of the caregiver to make sure that the child is kept safe and protected from diseases and illnesses. Identify the one statement that is misplaced on the list below. | MCQ | Identify | Knowledge | \$Apply the theoretical knowledge in the clinical environment | Theme 9: Percentile charts and the road to health chart |
| 23. Which one of the following is not part of the upper respiratory tract? | MCQ | Identify | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 24. The lower respiratory tract consists of all of the following except | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 25. Which one of the following statements is not true ? | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 26. Which one of the following is not true about Bronchial breath sound? | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 27. Which one of the following is not true about Bronchovesicular breath sound? | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |

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| 28. Which one of the following is not true about the sounds heard on percussion? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 29. Cardiovascular risk factors are all of them except | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 30. Cardiovascular examination: inspection of the mouth, you will look for all except | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 31. Key cardiovascular symptoms are all except | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 32. Past medical history of a cardiovascular patient include all except | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 33. Which one of the following is not true about heart valves? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 34. Which of the following statements is FALSE when describing crackles? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 35. Which of the following statements is FALSE when considering auscultation of the respiratory system. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 36. Which of the following statements is TRUE in describing the other tests that are performed during a Respiratory System Examination. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |

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| 37. One of the following is NOT TRUE for the features found in patients with Pleural effusion: | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 38. Which one of the following is not a true feature of severe Chronic Obstructive Pulmonary Disease? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 39. Which of the following signs and symptoms are not pathognomonic with lung cancer? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 40. Which of the following respiratory conditions do not typically cause clubbing? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 41. Which of the following facial signs are well matched with their aetiology? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 42. When considering the chest deformities. Which of the following statements is/are true? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and examination of the respiratory system |
| 43. What heart condition is Marfan's syndrome associated with? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 44. Which of the following heart conditions will not cause a patient to have a collapsing pulse? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 45. One of the following is not a typical cardiac symptom or presentation: | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |

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| 46. Which one of the following is the MOST important symptom of heart disease? | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 47. Which of the following statements is incorrect when considering the facial features caused by specific conditions in CVS Examination? | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 48. Which one of the following anatomical areas is not a true referral area of pain that arises in the heart? | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 49. Which one of the following conditions are not a true cause of a raised JVP? | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 50. When locating the apex beat, one ought to describe the position and character thereof. Which one of the following statements is FALSE regarding the position/character of the apex beat? | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 51. Which one of the following is not a feature of Mitral Regurgitation? | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 52. One of the following statement(s) is/are false regarding the features of Aortic Regurgitation: | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 7: History and examination of the cardiovascular system |
| 53. Select one condition below that can causes gum hypertrophy in patients | MCQ | Select | Knowledge | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 54. One of the following terminologies are misplaced when describing colour changes of the nails. | MCQ | Not identified | #Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |

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| 55. Which one of the following conditions is not a true cause of Iron deficiency anaemia? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 56. Folic acid deficiency leads to the development of Macrocytic anaemia. Which combination of causes is true Folic Acid Deficiency? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 57. All the causes of central cyanosis can also result in peripheral cyanosis. Which of the following causes is unique to peripheral cyanosis? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 58. Only one of the following endocrine conditions cause clubbing. Which one is it? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 59. Please select the respiratory condition that does not typically cause the development of clubbing. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 8: History and Examination of the Respiratory System |
| 60. Which one of the following conditions is not a direct cause of lower limb oedema? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 61. In an obese patient, which lymph nodes would be difficult to palpate? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 62. One of the statements below is not true regarding the association of lymph node characteristics with the possible underlying cause. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 63. The initial assessment of the patient involves the measurement of vital signs. Which one of the following items is not considered as one of the initial vital signs to be done? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |

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| 64. One of the following items is not an example of body habitus and posture | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 65. Which one of the following does not result in scarring alopecia? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination Theme 5: Obtain a Medical history |
| 66. One of the following facial features are not found in patients with Acromegaly | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 67. Patients with excessive cortisol may develop the following conditions. Which condition does not occur as a consequence of this condition? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination Theme 5: Obtain a Medical history |
| 68. The term "Facies Hippocratic" is no longer widely used in medicine. Patients who appear that way are usually called: | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination Theme 5: Obtain a Medical history |
| 69. Patients with Marfan Syndrome have a very distinctive appearance. One of the following features is not usually found in these patients. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 70. One of the following is not a true facial feature of patients with thyrotoxicosis. Which statement is incorrect? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 71. Which of the following statement(s) is correct in describing the features found in patients with Parkinson's disease? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 72. Which one of the following conditions is not a true cause of Aphthous ulcers? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination Theme 5: Obtain a Medical history |
| 73. The following is true about taking a urological history. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical | Theme 11: Urological system examination |

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| | | | | knowledge in the clinical environment | |
| 74. The following does not form part of the urological system. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 11: Urological system examination |
| 75. Choose the correct statement. | MCQ | Choose | Knowledge | \$Apply the theoretical knowledge in the clinical environment | Theme 11: Urological system examination |
| 76. The following cannot be classified under the types of incontinence. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 11: Urological system examination |
| 77. Renal/Flank pain that is related to inflammation will not give the following symptom. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 11: Urological system examination |
| 78. Which of the following statement(s) is/are true regarding bladder symptoms. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 11: Urological system examination |
| 79. The following conditions result in painless scrotal swelling, except for one. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 11: Urological system examination |
| 80. The following is not a feature of Priapism | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 11: Urological system examination |
| 81. The following conditions result in painless scrotal swelling, except for one. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 11: Urological system examination |
| 82. Which of the following definitions is incorrect. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 11: Urological system examination |

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| 83. Which one of the following is not a feature of Chronic liver disease? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 12: History and examination of the gastrointestinal system and abdomen |
| 84. Which one of the following is not a typical cause of malodorous breath in a patient. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 12: History and examination of the gastrointestinal system and abdomen |
| 85. One of the following is not a true cause of abdominal distension | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 12: History and examination of the gastrointestinal system and abdomen |
| 86. Select the one item that is not a cause of hepatomegaly | MCQ | Select | Knowledge | \$Apply the theoretical knowledge in the clinical environment | Theme 12: History and examination of the gastrointestinal system and abdomen |
| 87. Select the one item that is not a cause of splenomegaly | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 12: History and examination of the gastrointestinal system and abdomen |
| 88. The following statements describe the different ways in which one can decipher between the spleen and the kidney during palpation. Which statement is incorrect. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 6: Perform a physical examination |
| 89. Which of the following forms part of the Gastrointestinal tract? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 12: History and examination of the gastrointestinal system and abdomen |
| 90. The following is not a symptom of gastrointestinal system disease. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 12: History and examination of the gastrointestinal system and abdomen |
| 91. One of the following statements is false when considering the position of different structures within the abdomen. | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 12: History and examination of the gastrointestinal system and abdomen |
| 92. The following sign cannot be elicited by examining the patient's hands? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical | Theme 6: Perform a physical examination |

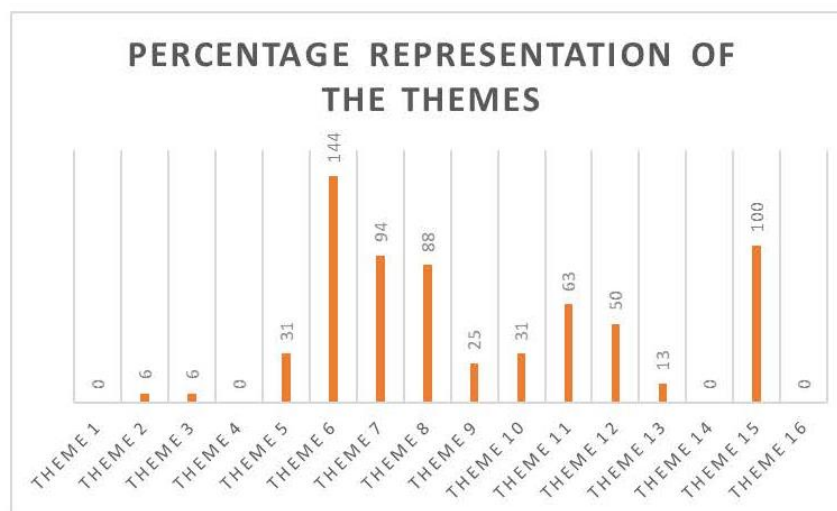
| | | | | | |
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| | | | | knowledge in the clinical environment | |
| 93. With regards to taking history from a child, which of the following statements is true? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 5: Obtain a medical history |
| 94. When performing an examination on a child, which of the following should you do? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 10: Approach to the physical exam of toddlers. |
| 95. When examining the chest, | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 10: Approach to the physical exam of toddlers. |
| 96. With regards to the examination of the abdomen, which of the following is not true? | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 10: Approach to the physical exam of toddlers. |
| 97. With regards the Uro-genital examination in children: | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 10: Approach to the physical exam of toddlers. |
| 98. As part of creating rapport, it is important to: | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 3: Elements of patient centred care |
| 99. The patient's family support system has the following effect on health: | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 13: Interaction of disease, circumstances of life and psyche |
| 100. According to the WHO, the definition of health includes the following: | MCQ | Not identified | # Knowledge/Remembering | \$Apply the theoretical knowledge in the clinical environment | Theme 13: Interaction of disease, circumstances of life and psyche |

Key: #: based on the structure of the question and the responses thereof, the cognitive level is assumed to be at this level.
\$: Though to be linked to this outcome, though the verbs used are not precisely at the same Bloom's taxonomy cognitive level.
*: Thought to be related to this theme, though the information suggests another system or theme.

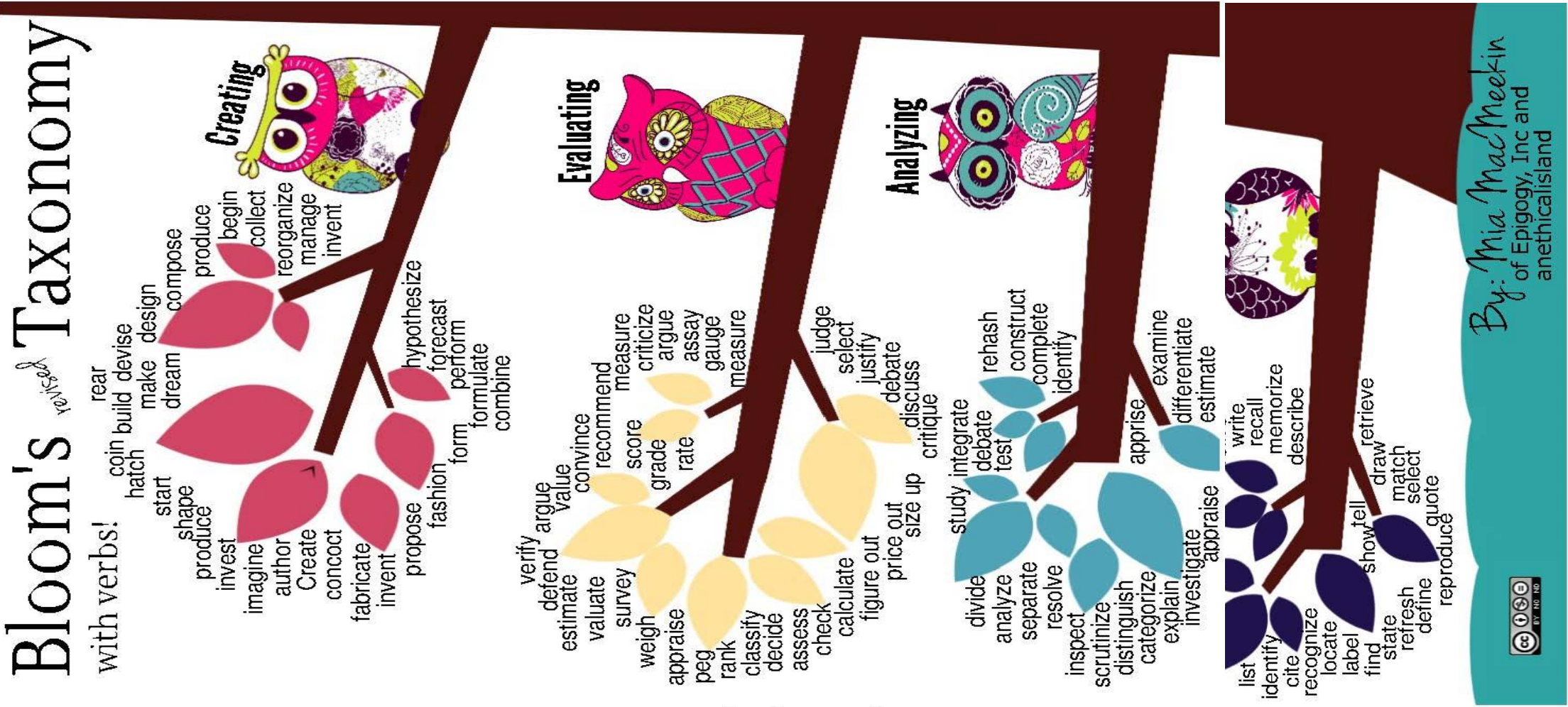
The result of the assessment shows that the questions were not set at the correct Bloom's taxonomy level. The questions were of lower order whilst the learning outcomes required a higher order assessment.

The number of themes that were represented in the Multiple-choice question assessment were 12 out of 16, giving a 75% representation rate. None of the themes were represented at the correct Bloom's taxonomy level, giving a 0% alignment rate. Of these, the representation of individual theme with the whole assessment ranged from 0% to 144%, meaning that there blue-printing and the mapping was not done in such a way as to ensure an equitable representation of all the themes within the assessment.

Percentage of representation for the represented themes



Number representation of each theme



DATA CAPTURING OSCE

| Table of themes for the module | |
|--------------------------------|--|
| Theme | Topic |
| Theme 1 | Structure of the consultation |
| Theme 2 | Doctor-Patient relationship |
| Theme 3 | Elements of patient centred care |
| Theme 4 | Conduct an interview |
| Theme 5 | Obtain a Medical history |
| Theme 6 | Perform a physical examination |
| Theme 7 | History and examination of the Cardiovascular system |
| Theme 8 | History and Examination of the Respiratory System |
| Theme 9 | Percentile chart and the road to health chart |
| Theme 10 | Approach to the physical examination of toddlers |
| Theme 11 | Urological examination (Models only) |
| Theme 12 | History and examination of the Gastro-intestinal System and the abdomen. |
| Theme 13 | Interaction of disease, circumstances of life and psyche |
| Theme 14 | Balance between medical practice and doctor as a person |
| Theme 15 | Principles of clinical epidemiology |
| Theme 16 | Basic Life Support and other clinical skills |






| Blue print of learning outcomes | | | |
|--|--|--------------------|-----------------|
| Educational outcome | Learning activity or Theme | Assessment written | Assessment OSCE |
| By the end of this rotation you should be able to demonstrate the following: | | | |
| Apply the theoretical knowledge in the clinical setting | Skills lab and primary care setting exercise | | |
| Practice the skills required to work with patients, including history taking | Skills lab and Primary care setting | | |
| Perform a physical examination within the confines of a primary care setting | Skills lab and Primary Care setting | | |
| Assess the patient comprehensively | Skills lab and Primary Care setting | | |
| Formulate hypothesis or diagnosis | | | |
| Outline the management or treatment plan of the presenting problem/illness | | | |

| Blueprint of assessments | | | | | |
|--|---------------------------------|----------------------------------|------------------------|---|---|
| Question | Type of question (MCQ or Essay) | Action verb used in the question | Bloom's taxonomy level | Outcome linked to | Theme linked to |
| Station One: History taking 38 year old male present with brief episode of chest pain lasting for 15 minutes which has a squizzing pressure or tightness in the chest. Proceed with the consultation | OSCE | Not identified | #Application | Practice the skills required to work with patients, including history taking Apply the theoretical knowledge in the clinical setting | Theme 2: Doctor-Patient relationship Theme 3: Elements of patient centred care Theme 4: Conduct an interview Theme 5: Obtain a medical history |
| Station 2: History taking 18 year old female, Mary Mabasa, comes to you as a referral from one of the nurses at the clinic you are working in. Please proceed with the consultation and address what ever issues that may arise. Please proceed with the consultation. | OSCE | Not identified | #Application | Practice the skills required to work with patients, including history taking Apply the theoretical knowledge in the clinical setting | Theme 2: Doctor-Patient relationship Theme 3: Elements of patient centred care Theme 4: Conduct an interview Theme 5: Obtain a medical history |
| Station Two: History taking. 45 year old lady, Princess Mamabolo has been constantly abused at home by the husband. She came to get help from you. Please proceed with the consultation | OSCE | Not identified | #Application | Practice the skills required to work with patients, including history taking Apply the theoretical knowledge in the clinical setting | Theme 2: Doctor-Patient relationship Theme 3: Elements of patient centred care Theme 4: Conduct an interview Theme 5: Obtain a medical history |
| Station three: Knee joint examination. 25 year old male is a known professional rugby layer. He was kicked on the left knee while | OSCE | Conduct an examination | Application | Perform a physical examination within the confines of a primary care setting | Theme 2: Doctor-Patient relationship Theme 3: Elements of patient centred care |






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|---|-----------------------|-----------------|-------------|--|---|
| <p>practicing for the match to occur the following day. He complains of severe pain and swelling. Please conduct the knee joint examination. Then conduct the following special tests: McMurray's test, the patellar apprehension test and Apley's test, LOOK, FEEL and MOVE. When you are done with your examination, please present the findings to the examiner.</p> | | | | <p>Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis</p> | <p>Theme 6: Perform a physical examination</p> |
| <p>Station 4: Cerebellar function examination Mrs Angelina Leopard is 56 years old consulted you after suddenly lost consciousness at home. Please examine the cerebellar function.</p> | OSCE | Examine | Application | <p>Perform a physical examination within the confines of a primary care setting Apply the theoretical knowledge in the clinical setting</p> | <p>Theme 2: Doctor-Patient relationship Theme 3: Elements of patient centred care Theme 6: Perform a physical examination</p> |
| <p>Station 5: Question and Answer sheet Clinical examination on a child is different from that of an adult. What are the special(unique) features in the examination of the toddler?</p> | Short Answer Question | None identified | #Knowledge | <p>Apply the theoretical knowledge in the clinical setting</p> | <p>Theme 10: Approach to the physical examination of a toddler</p> |
| <p>Station 6: Question and answer sheet What general health promotion measures (other than pharmacological intervention), can be instituted in the</p> | Short Answer Question | None identified | #Knowledge | <p>Outline the management or treatment plan of the presenting problem/illness</p> | <p>Theme 13: Interaction of disease, circumstances of life and psyche</p> |

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| management of type 2 Diabetes mellitus in adults? | | | | Apply the theoretical knowledge in the clinical setting | |
| Station 7: Question and answer sheet. Immunisation is one of the health promotion activity in child health care. Please name 5 adverse events that require reporting by the acergiver after immunisation? | Short Answer Question | Name | Knowledge | Outline the management or treatment plan of the presenting problem/illness Apply the theoretical knowledge in the clinical setting | Theme 9: Percentile chart and the road to health chart |
| Station 8: Question and answer sheet What study would be most appropriately conducted to answer the questions below? (Tandomised Control trial, Cross-scetional, Case-control, Cohort and Qualitative) | | | | | |
| 8.1 How does smoking cessation affect the risk of stroke in middle aged men? | Extended matching questions | None | #Understanding | Apply the theoretical knowledge in the clinical setting | None |
| 8.2 How do patients and carers view the service provided by a mental health team | Extended matching questions | None | #Understanding | Apply the theoretical knowledge in the clinical setting | None |
| 8.3 For a given patient with asthma, does beclomethason give better symptomatic control than fluticasone? | Extended machting questions | None | Analyze | Apply the theoretical knowledge in the clinical setting | None |
| 8.4 Do clinicians change their practice as a result of education? | Extended matching questions | None | #Understanding | Apply the theoretical knowledge in the clinical setting | None |
| 8.5 Early hypothesis testing or for investigating the cause of rare outcomes? | Extended matching questions | None | #Understanding | Apply the theoretical knowledge in the clinical setting | None |

Station 9: Questions: For all the images below. Provide a possible diagnosis. Then provide one possible cause for each

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|--|------|---------------|--------------|--|--|
|  | OSCE | None | APPLICATION | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |
|  | OSCE | None | APPLICATION | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |
|  | OSCE | None | application | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |
|  | OSCE | None | application | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |
|  | OSCE | None | APPLICATION | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |
| Station 10: CPR (Single rescuer) 65 year old John Tladi collapses in the ward while walking from his bed to the bathroom. Please proceed with rescue efforts | OSCE | No identified | #Application | Apply the theoretical knowledge in the clinical setting | Theme 16: Basic life support and other clinical skills |

Station 12: For all the images below. Provide a possible diagnosis. Then provide one possible cause for each.

| | | | | | |
|--|------|----------------|--------------|--|---|
|  | OSCE | Not identified | #Application | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |
|  | OSCE | Not identified | #Application | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |
|  | OSCE | Not identified | #Application | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |
|  | OSCE | Not identified | #Application | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |
|  | OSCE | Not identified | #Application | Apply the theoretical knowledge in the clinical setting Formulate hypothesis or diagnosis | Theme 6: Perform a physical examination |

Key: #: based on the structure of the question and the responses thereof, the cognitive level is assumed to be at this level.

#: Though to be linked to this outcome, though the verbs used are not precisely at the same Bloom's taxonomy cognitive level.

*: Though to be related to this theme, though the information suggests another system or theme.

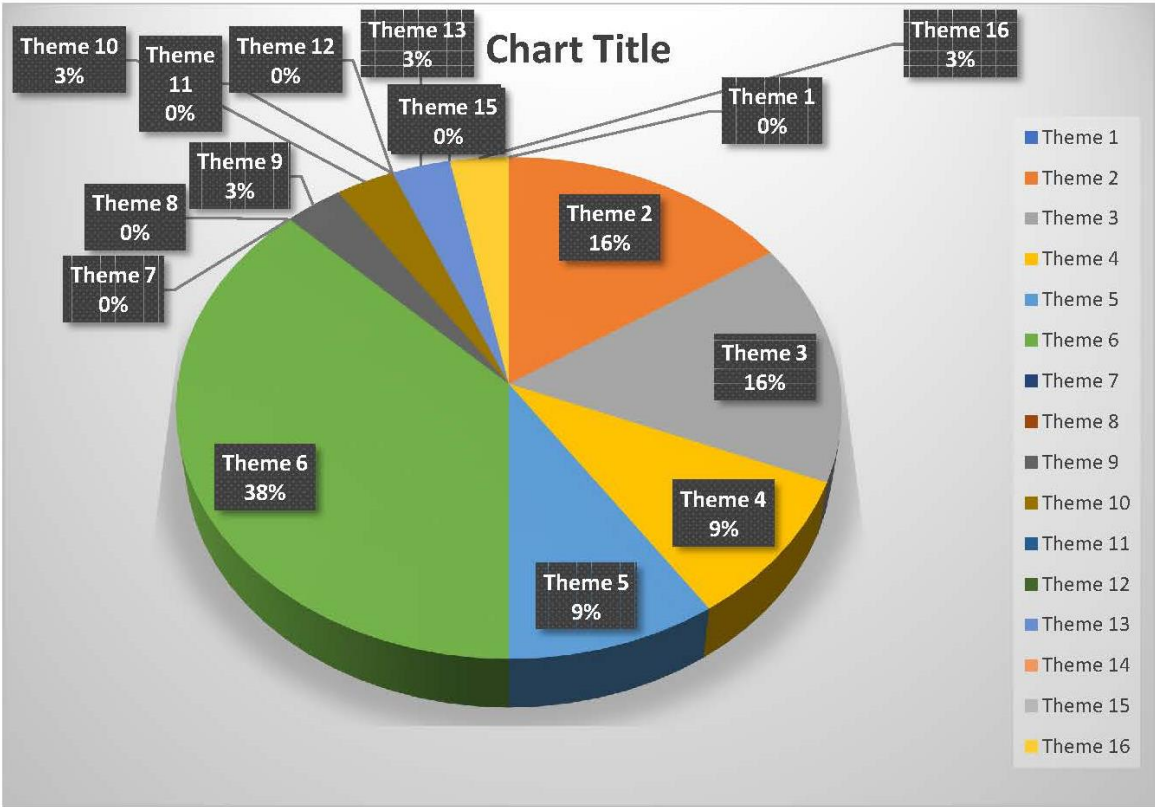
| Item | Number represented | Percentage representation |
|----------|--------------------|---------------------------|
| Theme 1 | 0 | 0% |
| Theme 2 | 5 | 31% |
| Theme 3 | 5 | 31% |
| Theme 4 | 3 | 19% |
| Theme 5 | 3 | 19% |
| Theme 6 | 12 | 75% |
| Theme 7 | 0 | 0% |
| Theme 8 | 0 | 0% |
| Theme 9 | 1 | 6% |
| Theme 10 | 1 | 6% |
| Theme 11 | 0 | 0% |
| Theme 12 | 0 | 0% |
| Theme 13 | 1 | 6% |
| Theme 14 | 0 | 0% |
| Theme 15 | 0 | 0% |
| Theme 16 | 1 | 6% |

Based on the table above, some themes were not mapped into the practical assessment. Theme 6 was more represented than the other themes in the OSCE, with 12 times appearance.

In terms of Bloom's taxonomy levels for the OSCE, the table below shows the result.

| Theme Number | Learning Outcome | Bloom's taxonomy level | Question numbers | Bloom's taxonomy level |
|--------------|---|------------------------|--------------------------------|------------------------|
| 2 | Practice the skills required to work with patients, including history taking Apply the theoretical knowledge in the clinical setting | Application | Stations one, 2, two, 3 and 4. | Application |
| 3 | Practice the skills required to work with patients, including history taking Apply the theoretical knowledge in the clinical setting | Application | Stations one, 2, two, 3 and 4 | Application |
| 4 | Practice the skills required to work with patients, including history taking Apply the theoretical knowledge in the clinical setting | Application | Stations one, 2 and two | Application |
| 5 | Obtain a medical history | Application | Stations one, 2 and two | Application |

Percentage representation per theme



UFS ETHICS APPROVAL LETTER

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HEALTH SCIENCES
GESONDHEIDSWETENSKAPPE

Health Sciences Research Ethics Committee

26-Mar-2020

Dear Dr Themba Selby Maphophe

Ethics Clearance: A view on Assessment: MBChB 3 Clinical skills module at the University of Limpopo

Principal Investigator: Dr Themba Selby Maphophe

Department: Office of the Dean: Health Sciences Department (Bloemfontein Campus)

APPLICATION APPROVED

Please ensure that you read the whole document

With reference to your application for ethical clearance with the Faculty of Health Sciences, I am pleased to inform you on behalf of the Health Sciences Research Ethics Committee that you have been granted ethical clearance for your project.

Your ethical clearance number, to be used in all correspondence is: UFS-HSD2019/1871/2104

The ethical clearance number is valid for research conducted for one year from issuance. Should you require more time to complete this research, please apply for an extension.

We request that any changes that may take place during the course of your research project be submitted to the HSREC for approval to ensure we are kept up to date with your progress and any ethical implications that may arise. This includes any serious adverse events and/or termination of the study.

A progress report should be submitted within one year of approval, and annually for long term studies. A final report should be submitted at the completion of the study.

The HSREC functions in compliance with, but not limited to, the following documents and guidelines: The SA National Health Act. No. 61 of 2003; Ethics in Health Research: Principles, Structures and Processes (2015); SA GCP(2006); Declaration of Helsinki; The Belmont Report; The US Office of Human Research Protections 45 CFR 461 (for non-exempt research with human participants conducted or supported by the US Department of Health and Human Services- (HHS), 21 CFR 50, 21 CFR 56; CIOMS; ICH-GCP-E6 Sections 1-4; The International Conference on Harmonization and Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH Tripartite), Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines, Constitution of the HSREC of the Faculty of Health Sciences.

For any questions or concerns, please feel free to contact HSREC Administration: 051-4017794/5 or email EthicsFHS@ufs.ac.za.

Thank you for submitting this proposal for ethical clearance and we wish you every success with your research.

Yours Sincerely

Dr. SM Le Grange

Chair : Health Sciences Research Ethics Committee

Health Sciences Research Ethics Committee

Office of the Dean: Health Sciences

T: +27 (0)51 401 7795/7794 | E: ethicsfhs@ufs.ac.za

IRB 00011992; REC 230408-011; IORG 0010096; FWA 00027947

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Office of the Registrar**

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17 March 2020

Dr. TS Maphophe,

Email: themba.maphophe@ul.ac.za

Dear Dr. Maphophe,

GATEKEEPER PERMISSION TO CONDUCT RESEARCH

TITLE: A VIEW ON ASSESSMENT: MBChB 3 CLINICAL SKILLS MODULE AT THE UNIVERSITY OF LIMPOPO

PRINCIPAL INVESTIGATOR: Dr. TS Maphophe
SUPERVISOR: Dr. C van Wyk
INSTITUTION: University of the Free State
DEGREE: Master of Health Professions Education (HPE)

Kindly be informed that Gatekeeper permission is granted to you to conduct research at the University of Limpopo entitled: **"A view on Assessment: MBChB 3 Clinical Skills Module at the University of Limpopo"**.

Kind regards,

**PROF. JK MASHA
UNIVERSITY REGISTRAR**

Cc. Prof. RN Madadzhe, Acting Deputy Vice-Chancellor: Teaching and Learning
Dr. T Mabila, Director: Research Development and Administration
Prof. P Masoko – Chairperson: Research and Ethics Committee
Ms A Ngobe – TREC Secretariat

APPENDIX F AUTHOR GUIDELINES FOR AJHPE

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- Numbers should be written as grouped per thousand-units, i.e. 4 000, 22 160.
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If you wish material to be in a box, simply indicate this in the text. You may use the table format –this is the *only* exception. Please DO NOT use fill, format lines and so on.

Preparation notes by article type

Research

Guideline word limit: 3 000 words (excluding abstract and bibliography)

Research articles describe the background, methods, results and conclusions of an original research study. The article should contain the following sections: introduction, methods, results, discussion and conclusion, and should include a structured abstract (see below). The introduction should be concise – no more than three paragraphs – on the background to the research question, and must include references to other relevant published studies that clearly lay out the rationale for conducting the study. Some common reasons for conducting a study are: to fill a gap in the literature, a logical extension of previous work, or to answer an important

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- May include up to 3 illustrations or tables.
- A max of 20 - 25 references

Structured abstract

- This should be no more than 250 words, with the following recommended headings:
 - **Background:** why the study is being done and how it relates to other published work.
 - **Objectives:** what the study intends to find out
 - **Methods:** must include study design, number of participants, description of the research tools/instruments, any specific analyses that were done on the data.
 - **Results:** first sentence must be brief population and sample description; outline the results according to the methods described. Primary outcomes must be

described first, even if they are not the most significant findings of the study.

- **Conclusion:** must be supported by the data, include recommendations for further study/ actions.
- Please ensure that the structured abstract is complete, accurate and clear and has been approved by all authors. It should be able to be intelligible to the reader without referral to the main body of the article.
- Do not include any references in the abstracts.

Scientific letters/short reports

These are shorter length, scholarly research articles of no more than 1500 words. Single-institution, and/or studies with sample sizes <100 are better submitted as short reports.

Guideline word limit: 1 500 words

- Abstract: Structured, of about 250 words, with the following recommended headings: Background, Objectives, Methods, Results, and Conclusion.
- May include only one illustration or table
- A maximum of 8 references

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Are personal opinion pieces that address an area in health professions education that would be of interest to the readership. Forum pieces while reflecting the authors personal views, should be scholarly, and arguments well-supported.

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Are very brief articles that share work in progress, lessons learnt or innovations in medical education.

- They should be no more than 500 words in length
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Guideline word limit: 400 words

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- May include only one illustration or table
- Must include a correspondence address.

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Guideline word limit: 400 words

Should be offered within the first year of the practitioner's death, and may be accompanied by a photograph.

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- If illustrations submitted have been published elsewhere, the author(s) should provide evidence of consent to republication obtained from the copyright holder.
- Figures must be numbered in Arabic numerals and referred to in the text e.g. '(Fig. 1)'.
- Each figure must have a caption/legend: Fig. 1. Description (any abbreviations in full).
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- Ensure all graph axes are labelled appropriately, with a heading/description and units (as necessary) indicated. Do not include decimal places if not necessary e.g. 0; 1.0; 2.0; 3.0; 4.0 etc.
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Tables

- Tables should be constructed carefully and simply for intelligible data representation. Unnecessarily complicated tables are strongly discouraged.
- Large tables will generally not be accepted for publication in their entirety. Please consider shortening and using the text to highlight specific important sections, or offer a large table as an addendum to the

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- Authors must verify references from original sources.
- Citations should be inserted in the text as superscript numbers between square brackets, e.g. These regulations are endorsed by the World Health Organization,^[2] and others.^[3,4-6]
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- Volume and issue numbers should be given.
- First and last page, in full, should be given e.g.: 1215-1217 **not** 1215-17.
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Some examples:

- *Journal references:* Price NC, Jacobs NN, Roberts DA, et al. Importance of asking about glaucoma. Stat Med 1998;289(1):350-355.
<http://dx.doi.org/10.1000/hgjr.182>
- *Book references:* Jeffcoate N. Principles of Gynaecology. 4th ed. London: Butterworth, 1975:96-101.
- *Chapter/section in a book:* Weinstein L, Swartz MN. Pathogenic Properties of Invading Microorganisms. In: Sodeman WA, Sodeman WA, eds. Pathologic Physiology: Mechanisms of Disease. Philadelphia: WB Saunders, 1974:457-472.
- *Internet references:* World Health Organization. The World Health Report 2002 - Reducing Risks, Promoting Healthy Life. Geneva: WHO, 2002.
<http://www.who.int/whr/2002> (accessed 16 January 2010).
- Legal references
- Government Gazettes:
National Department of Health, South Africa. National Policy for Health Act, 1990 (Act No.

116 of 1990). Free primary health care services. Government Gazette No. 17507:1514. 1996.

In this example, 17507 is the Gazette Number. This is followed by :1514 - this is the notice number in this Gazette.

- Provincial Gazettes:

Gauteng Province, South Africa; Department of Agriculture, Conservation, Environment and Land Affairs. Publication of the Gauteng health care waste management draft regulations. Gauteng Provincial Gazette No. 373:3003, 2003.

- Acts:

South Africa. National Health Act No. 61 of 2003.

- Regulations to an Act:

South Africa. National Health Act of 2003. Regulations: Rendering of clinical forensic medicine services. Government Gazette No. 35099, 2012. (Published under Government Notice R176).

- Bills:

South Africa. Traditional Health Practitioners Bill, No. B66B-2003, 2006.

- Green/white papers:

South Africa. Department of Health Green Paper: National Health Insurance in South Africa. 2011.

- Case law:

Rex v Jopp and Another 1949 (4) SA 11 (N)
Rex v Jopp and Another: Name of the parties concerned

1949: Date of decision (or when the case was heard)
 (4): Volume number
 SA: SA Law Reports
 11: Page or section number
 (N): In this case Natal - where the case was heard. Similarly, (C) would indicate Cape, (G) Gauteng, and so on.
 NOTE: no . after the v

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From submission to acceptance

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A VIEW ON ASSESSMENT: MBCHB 3 CLINICAL SKILLS MODULE AT THE UNIVERSITY OF LIMPOPO

CHAPTER 1: ORIENTATION TO THE STUDY

This section will represent an overview and orientation of the study. These will be presented according to the headings and subheadings based on the item being discussed.

1.1 INTRODUCTION

This study assessed the view on assessment within the Bachelor of Medicine and Bachelor of Surgery (MBChB) programme at the University of Limpopo School of Medicine (ULSoM). Clinical skills module (CSM). This module is offered from the first to the third year of study. In this study, the researcher used the module as a pilot for the third year of study.

The purpose of this study was to review and describe the current assessment practices with the MBChB 3 CSM at the ULSoM. Although the CSM module is offered from the first to the third year of study, it is not continuous. This study was done in three phases.

The first phase was the literature study, where literature related to assessment practices was reviewed. The second was a document analysis, where the researcher reviewed the documents related to the study. These documents included the multiple-choice questions (MCQ) paper, the objective structured clinical exam (OSCE), and policy documents explaining how the assessment should be conducted. The documents included the South African Qualification Authority (SAQA) documents and the Health Professions Council of South Africa (HPCSA) documents.

The information obtained was meant to show if the medical academic staff members can translate the desired module outcomes accordingly and correctly into an assessment question at an appropriate cognitive level based on Bloom's taxonomy.

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LETTER FROM THE LANGUAGE EDITOR

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29 November 2021

To Whom It May Concern

EDITING CONFIRMATION: Dr T.S. Maphophe's Mini-Dissertation

This letter is meant to acknowledge that I, MM Mohlake, as a professional editor, have meticulously edited the mini-dissertation of Dr T.S. Maphophe, entitled "A View on Assessment: MBCHB 3 Clinical Skills Module at the University of Limpopo".

Thus I confirm that the readability of the work in question is of a high standard.

For any enquiries please contact me.

Regards



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