Medical students' perceptions of their learning during longitudinal primary care clinical placements in a sub-Saharan medical school

By

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DECLARATION

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ABBREVIATIONS AND ACRONYMS

BRC	Block Rotation Clerkship
CoP	Communities of Practice
CP	Clinical Placement
DME	Department of Medical Education
FoM	Faculty of Medicine
IT	Information Technology
LIC	Longitudinal Integrated Clerkship
LP	Longitudinal Placement
MCPI	Manchester Clinical Placement Index
MoH	Ministry of Health
NGO	Non-Governmental Organisations
NHP	National Health Policy
PBL	Problem Based Learning
PCC	Primary Care Clinics
UB	University of Botswana
UBFoM	University of Botswana Faculty of Medicine
WFME	World Federation for Medical Education

ABSTRACT

Clinical placements are used as a bridge from classroom learning to real life settings (Stupans et al., 2013). Over the years, the Block Rotation Clerkship (BRC) model of clinical placements has been adopted by educational institutions and applied in different health settings such as hospitals, primary care or rural centres. However, emerging evidence in the literature supports the use of other models of placements over the BRC model to achieve clinical training outcomes (Wamsley et al., 2009; Hirsh et al., 2012). In view of this, Longitudinal Integrated Clerkships (LICs) have been shown as an acceptable alternative to the traditional block rotations (Strasser & Hirsh, 2011; Hauer et al., 2012; Hirsh et al., 2014).

At the University of Botswana, an approach similar to LICs has been adopted for clinical placements. This approach involved changing clinical placements from a rotational structure to a longitudinal one in community primary care clinics. Consequently, the purpose of this study was to investigate the perceptions of second year medical students of their learning in the newly introduced longitudinal placements in primary care clinical settings.

A cross sectional survey design which used the Manchester Clinical Placement Index (MCPI) tool to determine students' perceptions of these newly introduced placements was adopted. The tool consisted of eight items that related to students' experiences in clinical placements. Students then shared their views pertaining to the items in the tool. The tool generated quantitative and qualitative data which were analysed separately and thereafter points of alignment within the two sets of findings were identified for interpretation. This process was done using the MCPI domains as the organising framework for each item in the tool.

Analysis of the quantitative data indicated that the majority of the students (more than 60%) perceived teaching of clinical tasks as optimal in the longitudinal placements at UB. Other items in the quantitative data which had majority of students perceiving them as appropriate included: leadership in terms of supervision at the placements, reception of students at placements, clinic staff supporting student learning at the placements and observations of students by staff when performing clinical tasks.

In comparison to the above items, three items of organisation, facilities and feedback in the placements drew contrasting data from the students. The organisation of the placements was perceived as satisfactory by approximately half of the students (51%). There is clear evidence from the quantitative data that students were not satisfied with two items: clinic facilities as a learning environment and the feedback they received on how they performed clinical tasks. This was evidenced by less than half of the students strongly agreeing that both of these items were appropriate in the placements.

Although the extrapolation was done with caution, the qualitative data from group leaders who completed the questionnaire advanced some of the reasons which could have explained the quantitative scores given by the students. According to the group leaders, the leadership was viewed as satisfactory because clinic staff who in most cases were nurses assumed responsibility over the students and allowed them to interact with patients. In terms of reception, they cited that the explanations of what was expected of the students made them feel welcome in their placement sites.

In addition, the group leaders also indicated that clinic staff were supportive and possessed desirable human qualities that contributed to their learning at the placements. They also reported that the teaching they obtained on how to perform clinical tasks was delivered with clear instruction. The group leaders also added that there was sufficient observation from the different health professions in the clinics when they were performing tasks.

In contrast, group leaders also advocated for an improvement in the feedback given to them while on placement. The structure, content and time were some of the factors that leaders felt presented challenges to staff when providing feedback. Primary care clinic facilities were viewed by few students as an appropriate learning environment. The group leaders revealed that the lack of space in the clinics to support academic activities as one of the reasons that could have contributed to this perception of students'.

In conclusion, the findings of the study indicated that students perceived their learning experience at the placements to be beneficial, except for the feedback. Furthermore, the organization of the placement and reception of students at the placement was also perceived as adequate by majority of the students. Clinic staff at the placements, who played the role of teachers and supervisors of the students were found to be supportive to students' clinical learning. According to the students, more could be done to improve community primary care clinics as a learning environment. In light of these results, the Faculty needs to consider steps to improving feedback given to students while on placement, and improving primary care clinics to provide an optimal learning environment for students.

Keywords: Perceptions, Longitudinal placements, MCPI, learning experience, medical students

OPSOMMING

Kliniese plasings word gebruik om die gaping tussen die klaskamer en die praktyk te oorbrug (Stupans et al., 2013). In die verlede het opvoedkundige inrigtings enkeldissipline-kliniese vakskappe (EKVs) ingestel in verskillende gesondheidsorgstelsels soos hospitale, primêresorg-eenhede en plattelandse sentra. Tog wys nuwe getuienis in die literatuur daarop dat ander plasingsmodelle benodig word om gewensde kliniese opleidingsuitkomste te bereik (Wamsley et al. 2009; Hirsh et al. 2012). Teen dié agtergrond is longitudinale geïntegreerde plasings (LGPs) aanvaarbare plaasvervangers vir tradisionele enkeldissipline-kliniese vakskappe (Strasser & Hirsh, 2011; Hauer et al., 2012; Hirsh et al., 2014).

By die Universiteit van Botswana word 'n benadering soortgelyk aan die LGP tans vir kliniese plasings gebruik. Die voorafgaande stelsel van 'n weeklikse rotasie deur verskillende eenhede is vervang deur 'n longitudinale plasing in primêresorg-klinieke in die gemeenskap. Gevolglik stel hierdie navorsing hom ten doel om die insigte van tweedejaar- mediese studente vas te stel, ten opsigte van hulle leerondervindings in die nuwe longitudinale plasings in primêresorg-eenhede.

Vir die ondersoekontwerp is op 'n deursnit-benadering besluit, en hiervoor is die 'Manchester Clinical Placement Index' (MCPI)-instrument gebruik om studente-insigte i.v.m. die nuwe plasingsmodel te bepaal. Die MCPI-vraeboog bestaan uit agt items wat verband hou met studente se ondervindings tydens kliniese plasings, en bied studente die geleentheid om hulle gesigspunte t.o.v. elke item te lig. Kwalitatiewe en kwantitatiewe gegewens is sodoende verwek wat afsonderlik ontleed is. Vervolgens is raaklyne tussen die twee stelle gegewens vasgestel wat tot verdere vertolking gelei het; hiervoor het die MCPI-items as raamwerk gedien.

Ontleding van die kwantitatiewe gegewens dui daarop dat die meerderheid studente (meer as 60%) die onderrig van kliniese take in die longitudinale plasings hoog ag. Ander aspekte wat die meerderheid studente aanvaarbaar gevind het was leierskap tydens die plasings, studente se ontvangs by hulle aankoms, leerondersteuning verskaf deur kliniekstaflede, en toesig tydens die uitvoer van kliniese take. Daarteenoor was studente-menings meer uiteenlopend t.o.v. drie items, synde organisasie, fasiliteite en terugvoer. Net die helfte van die studente (51%) het die organisasie van die plasings as bevredigend beskou. Daar was ook aansienlike ontevredenheid met kliniekfasiliteite as 'n leeromgewing en met die terugvoer wat studente ontvang wanneer hulle kliniese take uitvoer: minder as die helfte van die studente was van mening dat die gehalte van dié twee items toereikend was.

Die kwalitatiewe gegewens wat groepleiers verskaf het is omsigtig gebuik om moontlike redes vir studente se kwantitatiewe waardebepalings te verskaf. Groepleiers is van mening dat leierskap hoog aangeskryf word omdat die verpleegkundiges wat die klinieke meestal beman verantwoordelikheid vir die studente aanvaar en hulle toelaat om met pasiënte om te gaan. Ontvangs is positief beskou omdat die verwagtinge wat staflede van studente het met die intrapslag verduidelik word, wat die studente gevolglik tuis laat voel. Die groepleier-gegewens dui ook daarop dat kliniekstaflede studente ondersteun en dat hulle gewensde menslike eienskappe besit wat bydra tot die leerproses tydens die plasings. Die onderrig wat studente ontvang t.o.v. die uitvoer van kliniese take word vergesel deur duidelike voorskrifte. Toesig tydens die uitvoer van kliniese take is ook toereiekend en word verskaf deur 'n verskeidenheid gesondheidsberoepspelers.

In teenstelling hiermee beveel groepleiers aan dat die terugvoer wat studente gedurende die plasings ontvang verbeter moet word. Hulle is van mening dat die struktuur van die plasings, hulle inhoud, en beskikbare tyd dit vir staflede moelik maak om terugvoer te gee. Daar was ook min studente wat saamstem dat die fasiliteite in primêresorg-klinieke 'n toepaslike leeromgewing bied, en volgens groepleiers is 'n gebrek aan die nodige hulpmiddels in klinieke om akademiese aktiwiteite te ondersteun moontlik een van die redes waarom studente tot hierdie slotsom gekom het.

Ter opsomming dui die bevindings van die ondersoek daarop dat studente hulle leerondervinding tydens die plasings as bevredigend beskou, met uitsondering van die terugvoer wat hulle ontvang. Baie studente ag die organisasie van die plasings en hulle ontvangs om toereikend te wees. Die optrede van kliniekstaflede as leerkragte en toesighouers by die plasings ondersteun die studente se kliniese leerproses. Die studente is van mening dat meer gedoen behoort te word om primêresorg-klinieke in die gemeenskap as 'n leeromgewing te verbeter.

Sleutelwoorde: insigte, longitudinale plasings, MCPI, leerondervinding, mediese studente

CHAPTER ONE: ORIENTATION OF THE STUDY

1.1. Introduction

Clinical placements (CPs) have been adopted by a substantial number of institutions to enhance the clinical experience for students in the health professions (Thistlethwaite et al., 2013). They are seen as an essential bridge from the classroom to the health service settings (Stupans, March, & Owen, 2013).

Clinical placements were introduced at the University of Botswana (UB) with the inception of the medical programme in 2009. Apart from providing the students with the opportunity to develop their clinical skills, this initiative was also meant to uphold the University's efforts to respond to a social responsibility imperative. Walters et al. (2012) encourage medical schools to be socially responsible by developing educational and training programmes that improve the health status within the communities in which they take place. This imperative is also stressed by Kwizera and Iputo (2011) who called on sub-Saharan Universities to embrace social responsibility as part of their philosophies.

Initially, clinical placements at UB were based in tertiary hospitals and community primary care clinics (PCC). Using community PCCs for placements is consistent with the observation by Prideaux, Worley and Bligh (2007) that there is a growing trend of including the wider community in medical education. In addition, these placements are aligned to the National Health Policy (NHP) which advocates for the improvement of health care in communities through medical education (Republic of Botswana, 2011).

Crampton, McLachlan and Illing (2013) reiterate the idea of enhanced community health care through an academic project by explaining that clinical placements are usually generalist in nature and based in primary care clinics in an effort to expose students to the local patient demographics. The placements also adhere to the World Federation for Medical Education (WFME) recognised quality standards for a basic medical education programme. These standards advocate for early patient contact in primary care settings to teach history taking, physical examination and communication skills (World Federation for Medical Education, 2015).

The main purpose of clinical placements is to facilitate student learning from real life experiences. Jayawickramarajah (1987) reporting from a psychological perspective, refers to learning experience as the interaction between a learner and the external conditions in the environment to which they can react. The learning experiences students encounter when dealing with real and authentic patient cases in clinical placements are intended to facilitate the accomplishment of the educational outcomes set for clinical training. Understanding how

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the achievement of learning outcomes is accomplished in these contexts is therefore important, particularly in terms of students perceptions of their learning experiences in a longitudinal model based in community primary care clinics.

1.2. Background

The Faculty of Medicine (FoM) at UB offers a five-year problem-based learning (PBL) medical curriculum. According to the Faculty's approved regulations, the undergraduate curriculum is integrated and it embraces a community oriented approach to teaching and learning (University of Botswana, 2007).

This approach to teaching and learning, is also informed by the NHP which guides the university in determining attributes expected of its students upon completion of the programme. The principal mandate of the NHP is to improve primary health care in all communities countrywide (Republic of Botswana, 2011). It is on the basis of these considerations that health professions institutions in Botswana have been sanctioned to develop programmes that can achieve this mandate.

The UB, as the largest and most prestigious institution of higher learning in the country is expected to play an exemplary role in the quest to meet the NHP demands. Early patient contact through clinical placements is viewed by the Faculty as an appropriate response to the NHP especially that it also meets the basic standards of an undergraduate curriculum as recommended by the WFME.

1.3. Problem statement

For the past six years, the UB programme had clinical placements for medical students which run for the entire academic year in the FoM. The initial arrangement involved students rotating in different health facilities on a weekly basis. The health facilities included two community PCCs, departments of Internal Medicine and Paediatrics in a referral hospital, a specialist diabetic clinic and an outpatient psychiatric facility.

Although formal research has not been conducted, since the programme commenced, both Faculty personnel and students have raised concerns about the placements. One of the concerns raised by the students was that they felt that they received limited teaching from the clinic staff. They also complained that the facilities used for placements are government owned hospitals and primary care centres which serviced large volumes of patients hence resulting in limited learning opportunities.

The tension between teaching and service provision in health systems has been noted by Prideaux et al. (2009) who indicate that pressures of clinical services on clinicians have

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occurred at the expense of time for teaching. Foster and Laurent (2013, p.4) also highlight the "increasing challenge for clinical teachers to develop and practice their teaching skills in busy hospitals where their primary role is patient care".

The students also expressed a concern about the challenge of being placed in new clinical settings every week. In their opinion, this led to limited understanding of the particular health system in which hospitals or clinics are embedded. The work of Worley et al. (2016) on LICs supports UB student's concern of being made to rotate between clinical settings on a weekly basis. They advocate for ongoing and authentic student participation instead of episodic encounters with patients. Hauer et al. (2012) studied the influence of the structure of clerkships (i.e. block or longitudinal model) on students' integration into care teams and how this affected their overall satisfaction with the clerkships. They indicate that the level at which students were integrated into care teams had an impact on their motivation and feelings of competence to provide patient centred care.

After six years of implementing rotational clinical placements through PCCs and tertiary hospital departments, a decision was taken by the UBFoM to change from the rotational structure of the placements to a longitudinal arrangement. This decision was based on students concerns discussed above and the existing body of literature which suggests that LICs were designed to address weaknesses of block rotation clerkships (BRCs) (Hirsh, Holmboe, & Ten Cate, 2014; Walters et al., 2012).

The change meant that students would undertake placements in one fixed health facility for the whole academic year instead of weekly rotations between different sites. Unlike the previous rotational method, the newly introduced longitudinal placements (LPs) were limited to PCCs only, and did not take place in tertiary hospital settings.

While the decision of the FoM was based on the reasons mentioned above and informed by current literature, it is now necessary to track the experiences of the students on this new format. Lizzio, Wilson and Simons (2002) report a general principle that perceptions of learning environments significantly influence achievement of academic outcomes. Ramsden (1991) explored the relationship between learning environments and learning outcomes further and proposed a model which showed how students' perceptions of a learning environment significantly influenced their approach to learning and learning outcomes. It is on the basis of this proposition that this study intended to establish UB students' perceptions of the new longitudinal structure and how this may affect their learning.

1.4. Rationale for the study

Davis (1991) posits that perception is an important aspect of a change process and a reliable predictor of adoption and implementation. Although he was writing from a non-clinical context, his assertion is relevant to this study. It was therefore fitting to find out what were the students perceptions about the new structure of longitudinal placements at UB that came into effect in August 2015. Kaufman (2003) supports the inquisition of students' perceptions of their learning in longitudinal placements by relating it to the adult learning theory which advances that learners should be involved in mutual planning of curricular content.

The students perceptions of the new placements system should, therefore, provide valuable feedback that could enable the Faculty to obtain an insight into the extent to which students believed that the change had resulted in an improved clinical learning or not. In addition, ongoing quality assurance of teaching innovations is necessary to improve how learning is organized in academic institutions (Genn, 2001). Therefore, having evidence that shows how the new structure is being perceived by students and how it influences their learning would feed into curriculum review processes. In particular, there is a programme review process that is planned for UB in 2017. Thus, this study is potentially timely as its findings could feed into the programme evaluation processes at UB which are a form of quality improvement in a medical programme as recommended by the WFME.

Mazotti, O'Brien, Tong and Hauer (2011) highlight that the perceptions of students of a new placement system would have a bearing on their attitude towards the clinical education programme. This in turn could affect student's motivation to learn. It is clear from the anecdotal evidence that students' perceptions of the previous system raised multiple concerns which might have affected their learning experiences.

The new placements are based in primary health care facilities. With that in mind, this study will provide valuable indirect information about the health and education systems at primary care level in the country. In addition to observations form other researchers, the use of primary care facilities in medical education has also been noted by Salminen, Öhman and Stenfors-Hayes (2016) who observed an increasing share of medical students learning taking place in primary health care. In addition, Frenk et al. (2010), in their Lancet Commission for transforming education to strengthen health systems in an interdependent world, also warn against education systems with predominant hospital orientation at the expense of primary care as was the case with the previous placement structure.

1.5. Research question

This study was guided by the following research question:

What are the perceptions of second year medical students about their learning experience in their longitudinal placements in primary care clinics?

The aim of the study was to determine students' perceptions of their learning experience in a longitudinal primary care setting. Specific objectives were formulated after a thorough review and critical analysis of the literature and applying it to UB context in order to unpack the learning experiences of students in the placements. These specific objectives included investigating students' perceptions of:

- Teaching and learning in the placements
- Organization of the placements
- Relationships with the health care staff working in the PCCs
- PCC as a learning environment.

1.6. Research design

A cross sectional survey design was used in this study, where quantitative and qualitative data were collected from second year medical students. The data were collected concurrently using the Manchester Clinical Placement Index (MCPI) tool. The MCPI has evidence for content validity for use in community based placements (Beckman, Cook, & Mandrekar, 2005; Dornan, Muijtjens, Graham, Scherpbier, & Boshuizen, 2012) thus making it suitable for the UB context. The eight items in the tool included the following aspects of placements;

- Leadership in terms of supervision of students while on placements
- Reception and induction of students at the clinics
- Support students obtained from the people in the clinics
- The level of instruction students received
- Observation of students while performing clinical tasks
- Feedback from teachers to students on their learning of clinical tasks
- Facilities available at the clinics
- Organization of the placements.

This tool allowed for a collection of both sets of data pertaining to the above items through open and close-ended questions (see Section 4.2.3). The additional qualitative data provided rich information about students' perceptions of their learning in the placements (Bell, Boshuizen, Scherpbier, & Dornan, 2009).

The advantage of having both sets of data was that it would provide a more in-depth understanding of students' perceptions (Johnson, Onwuegbuzie, & Turner, 2007; Creswell, 2014). The data were analysed based on the eight items of the tool. Firstly, the quantitative

data was analysed for each item. This analysis was then revisited in light of the corresponding qualitative data from the sampled group leaders for that particular item. This allowed for a more comprehensive interpretation given that the rationale behind the quantitative scores for each item could be deduced to some extent.

1.7. Setting

The study was carried out in the FoM at the UB situated in Gaborone, the capital city of Botswana. The FoM was established through a presidential directive in 2009. At that time, the principal objective of establishing this Faculty was to address the inherent shortage of human resources in the health sector. However, over time the FoM's mandate was expanded to offer a medical programme which seeks to identify and respond to the health needs and challenges faced by the health system of the country (University of Botswana, 2007).

The FoM learning environment boasts of modern, state of the art information technology (IT) infrastructure. This is evidenced by the availability of electronic and interactive smart boards and monitors in the PBL rooms, and the anatomy and clinical skills laboratories. The students also have reliable internet access in their classrooms and around campus residential areas. The FoM at UB appears to be relatively well resourced in comparison to other medical schools in the sub-Saharan context where Mullan et al. (2011) noted weak infrastructure and lack of equipment as barriers to effective medical education programmes.

Furthermore the FoM comprises of approximately 70 dedicated academic and 20 support staff to implement the programme that enrols about 50 students in each academic year. The programme is divided into pre-clinical (Phase I) and clinical years (Phase II) with the former occurring in the first two years of training and the latter in the last three. Clinical placements occur in phase I of the programme because the Faculty's adoption of early real patient exposure.

1.8. Definition of key terms

Clinical placement: refers to the attachment of students to clinical settings to provide an opportunity for them to practice their clinical skills under appropriate guidance and supervision (Greenstock, Brooks, Malloy, Fiddes, & Fraser, 2014).

Clinic Staff: are personnel who work in clinics and support students to perform their learning activities. These include: doctors, nurses, pharmacy technicians, health care educators and midwives.

Community oriented programmes: are programmes where student learning is not only based on the biomedical and scientific aspects of patient problems but also about the community context and how it affects patients and their clinical problems (Strasser, 2010).

Integrated programmes: are programmes that deemphasize the compartmentalization of disciplines and unify interdisciplinary teaching (Hassan, 2013).

Learning: is the process whereby knowledge is created through the transformation of experience (Kolb, 1984).

Longitudinal placements: a regular and recurrent placement that occurs in the same setting over a period of time (Thistlethwaite et al. 2013).

Patient centred: an approach that promotes providing care that takes into account individual patient needs and treats them with respect and dignity when making decisions (Reynolds, 2009).

Primary care clinics: are government owned public health facilities located in and out of the city of Gaborone which provide primary health care to individuals and their families. The ten clinics in this study consisted of six clinics based in Gaborone (city) and four based in the outskirts of Gaborone (within a 30 km radius from the city centre).

Problem based learning: is an alternative to the conventional instructional way of teaching where students work in small groups to address a problem set out in a case scenario (Schmidt, 1983). Students are expected to understand the problem by initially clarifying the terms and concepts in the scenario. Then students define and analyse the problem by developing learning objectives pertaining to the problem. Students are then expected to collect additional information outside the group and then meet again to discuss the information they have acquired about the problem. All of these group activities are done in the presence of a facilitator who does not actively participate in the discussions because the aim of this method of instruction is for it to be student centred and independent of the facilitator's input.

Clinical teaching: instruction, observations and feedback given to students by health staff in health care facilities on how to perform clinical tasks better. Thampy, Agius and Allery (2014) advocate for the widening of the definition of clinical teaching to include role modelling in the workplace, adapting curricular materials and using of reflective learning explore the multifaceted details of teaching.

1.9. Report outline

This chapter has provided a succinct overview of this study. Chapter Two reviews the literature and educational theories relating to clinical placements. It also highlights the key concepts in this study and explains the conceptual framework as well as factors to consider when developing clinical placements. Chapter Three deals with understanding how clinical placements are conducted in the UB setting. The methodology of the study, including the study design, trustworthiness of the data and the researcher's role are described in Chapter Four. Chapter Five presents the findings of the study in relation to the aims, objectives and the research question. The discussion of the results in relation to the literature, educational theories and study limitations are described in Chapter Six. Finally, Chapter Seven brings the findings of the study and their implications for the local setting together and provides recommendations based on these findings.

CHAPTER TWO: THEORETICAL PERSPECTIVES

2.1. Introduction

The discussion on theoretical perspectives that informed this study is organised into three main parts. The first part will be an overview of the literature relating to clinical placements and it deals with the evolution of clinical placements in terms of their structure, the different settings of the placements and their effects on student learning. The second part identifies and comments on the learning theories related to the study. The last section concludes the discussion by highlighting the gaps in the literature and demonstrating how the study plans to address them.

2.2. Overview of clinical placements in health professions education

Clinical placements provide opportunities for students to develop and practice clinical skills under the guidance of supervisors (Barnett, Cross, Shahwan-Akl, & Jacob, 2010). Dornan et al. (2012) explain that terms like rotations, firms, clerkships and general practice (GP) attachments are often used to describe such placements and each term carries different assumptions about what students experience during the placements. In the context of UB the term placement has been adopted.

The aim of clinical placements is to facilitate skills transfer from a protected simulated environment to service in a clinical setting. Placing students in clinical contexts appears to enhance the integration of relevant basic sciences to medical practice (Mathers, Parry, Scully, & Popovic, 2006). It also complements simulated learning by providing opportunities to practise clinical skills (Hays, 2013).

2.3. The structure of clinical placements

The literature documents different ways in which clinical placements have evolved and how they are structured to respond to different contexts. Clinical placements can be conducted in a block rotation format, which Hirsh et al. (2014) describe as the traditional approach. By definition, this approach typically includes two to twelve weeks of learning in a single discipline such as Internal Medicine, Emergency Medicine and others. During such placements, medical students are assigned to join service teams in that particular discipline (Hauer et al., 2012).

The advantages of this system are elucidated by Holmboe, Ginsburg and Bernabeo (2011) who argue that the use of a rotational system provides a greater diversity of exposure to different disciplines. They also suggest that frequent rotations teach students how to adapt and cope with multiple practice styles and varying expectations, all of which are skills that

would be beneficial to future practice. Furthermore, block rotations promote greater student independence which is stimulated by the adaptive skills that students develop as they rotate in changing clinical settings (Holmboe et al., 2011).

Over time, it has been suggested that LICs are more beneficial when compared to BRCs (Hauer et al., 2012; Greenhill & Poncelet, 2013; Hirsh et al., 2014; Worley et al., 2016). Greenhill and Walters (2014) describe LICs as occurring when short block rotations are replaced by longer clinical immersion experiences (of at least a semester) in one fixed clinical setting. They point out that in LICs, students participate in comprehensive care of patients' over time and develop continuing relationships with patients and clinicians in that particular clinical setting (Voss, Coetzee, Conradie, & Van Schalkwyk, 2015; Worley, Prideaux, Strasser, Magarey, & March, 2006; Worley et al., 2016).

It is through these longer experiences that students meet the core clinical competencies across multiple disciplines simultaneously. In simple terms, students are not constrained to a single discipline. Rather, they learn different disciplines everyday as they present to the hospital or clinic they are placed in. A typical day in a LIC setting could present an opportunity for a student to encounter patients with a paediatric, surgical or any other health related problem. Different typologies of LICs have been identified (Blended, amalgamative and comprehensive) based on the length of time students spend in these placements in an academic year and the number of disciplines covered in that period (Worley et al., 2016).

The benefits of LICs in terms of educational outcomes include improved student learning and professionalism associated with them (Hirsh, Walters, & Poncelet, 2012; Ogur, Hirsh, Krupat, & Bor, 2007; Worley et al., 2016). Greenhill and Poncelet (2013) also reinforce the superiority of LICs by arguing that LICs are credible and effective pedagogical alternatives to traditional BRCs in medical education.

It is important to make a clear distinction between LPs and LICs. Thistlethwaite et al. (2013) explain the difference between the two by elaborating that LP is a general term that is associated with longer placements that have

2.4. The setting of the placements

There are factors described in the literature which support the implementation of LICs in rural areas (Thistlethwaite et al., 2013; Voss et al., 2015). The advantages of longitudinal clerkships in rural settings are reported by Van Schalkwyk et al. (2013) as creating opportunities for transformative learning and increasing the likelihood of students returning to work in that

particular rural area. Transformative learning occurs when an experience challenges ones particular way of thinking, and the learning experience is really transformative when it results in the development of leadership attributes which ultimately produce an enlightened change agent (Frenk et al., 2010). Crampton et al. (2013) have argued that rural placements benefit students in terms of knowledge, confidence and skills.

Continuity has also been foregrounded as being an enabling factor associated with placements in rural settings. "Educational continuity" has been offered as a positive outcome from longitudinal placements in rural settings. Hirsh et al. (2012) defines educational continuity as student direct engagement in the continuities of care hence leading to development of stronger and closer relationships with patients and preceptors in the placements. Continuity of care, on the other hand, is achieved when the curriculum offers students more opportunities to connect with patients (Hirsh, Ogur, Thibault, & Cox, 2007). An important factor which is argued to influence the use of rural areas over urban regions in LICs is the relatively small population base which makes it easier to develop these close relationships (Strasser & Hirsh, 2011). However, over time LICs are also being piloted for implementation in urban areas and teaching hospitals such as the Harvard medical school (Worley et al., 2006; Hirsh et al., 2012).

On the other hand, BRCs are said to occur mostly in hospital based settings with facilities to offer diverse speciality care. Hauer et al. (2012) note that BRCs students predominantly have inpatient experiences with frequent rotations in different disciplines within the same teaching hospital. There is limited evidence of implementation of block rotations in deep rural settings. One could thus infer that the lack of specialised hospitals in rural areas is the reason for such an occurrence.

The use of other health care settings, such as ambulatory care for placements has also been described (Ogrinic, Mutha, & Irby, 2002). Although this occurs at a lesser extent compared to hospital settings, Prislin et al. (1998) acknowledge that in ambulatory care, placements can be structured in either a block or longitudinal model. Ambulatory care settings are described as outpatient care for patients through offering consultations, diagnosis and rehabilitation and so forth (Ogrinic et al., 2002). Ambulatory care centres are similar to primary care clinics in terms of what students are exposed to, typically a variety of clinical cases as opposed to hospitals where patients are admitted based on their diagnosis (Salminen et al., 2013). In the Lancet Commission, Frenk et al. (2010) present primary health care centres as responsible for health welfare of communities they serve through health education and strong public health innovations aimed at disease prevention. Primary care clinics in Botswana, the setting of this study, are described in detail in Chapter Three.

2.5. The effects of placements on learning

Hauer et al. (2012) indicate that students in both BRCs and LICs reported fulfilling important supportive roles in patient care. However, they note that students in LICs consistently described having a greater opportunity to grow into the doctor role with patients.

Even though Myher, Woloschuk, Jackson and McLaughlin (2014) are in agreement with how both structures support students development in their doctor role, their other focus was on the academic performance of students in BRCs as compared to those in LICs. After ensuring that prior academic performance in both student groups matched, they proceeded to study the summative results of the students. They discovered that the students' assessments in theoretical knowledge and clinical skills produced comparable results in both structures. This is also in congruence with Van Schalkwyk et al. (2015) discovery of similar examination performances in students in LICs in rural settings in South Africa when compared with their urban based colleagues who were trained in a rotation based model.

The assessment of students in BRCs has been described as suffering some shortcomings that emanate from the challenge of preceptors having to evaluate a student's performance based on a few characteristics and over a relatively shorter timeframe (Mazotti et al., 2011). In block rotations students work with a number of preceptors, one of whom finally has to evaluate a student's performance. Sometimes these preceptors have to evaluate students they have had minimal contact with or even those they have not seen with patients. The above issues coupled with other complexities that exist in evaluating students' in BRCs compelled Mazotti et al. (2011) to conduct a study that would put this into a clearer perspective. The study focused on comparing students' perceptions of their evaluations in BRCs and LICs models. At the end of the study, their findings indicated that students felt that the evaluation processes in LICs were more favourable compared to in BRCs. The reasons advanced were that the longer timeframe and closer relationships between students and preceptors in LICs could partially explain the favourable academic performances in both formative and summative assessments.

In an area closely related to the research described in this report, Prislin et al. (1998) studied students' perceptions of longitudinal ambulatory clerkships in PCCs. With their results focussing on the practical component of learning, Prislin et al. (1998) found that students perceived longitudinal ambulatory clerkships as having a greater impact on clinical skills enhancement compared to block rotations. However, in contrast to this, Ogrinic et al. (2002) discovered that the theoretical knowledge acquisition of students in an ambulatory longitudinal model was similar to those in block ambulatory rotation model at the end of the placement. This finding is consistent with studies discussed earlier regarding academic performances in

LICs (Myher et al., 2014; Van Schalkwyk et al., 2015), where students' acquisition of theoretical knowledge was not dependent on whether the placement setting was in a rural or urban region.

Other studies that dealt with students' perceptions of their learning in primary health care centres were focused on specific skills. For example, Widyandana, Majoor and Scherpbier (2012) studied learning outcomes of pre-clinical medical students who underwent clinical skills training in a simulated environment compared to those in primary health care. Their results showed that students who trained in primary health care centres were more confident and well prepared to perform clinical skills compared to their counterparts.

In summary, the body of literature discussed above seem to indicate that the structure and setting of placements has a similar effect on theoretical and clinical skills acquisition. Furthermore, there is compelling evidence from the literature that longitudinal placements provide a conducive environment for the development of relationships between students and their supervisors. This in turn results in students perceiving assessments in longitudinal placements to be more favourable compared to those in rotational placements. There is evidence indicating that primary care and ambulatory care settings offer an ideal learning environment that supports clinical skills training.

2.6. Theoretical underpinnings

A theory that underpins the rationale for clinical placements is that of experiential learning. Kolb (1984) explains his experiential theory and how student's perceptions of their experience in the placements influences their learning. He proposes four phases of a learning cycle (see figure 2.1 below). The first phase is referred to as the concrete experience. At this stage, students enter the experiential world which represents the start of clinical placements in this present study.

The next phase encompasses complex learning processes where through observation and reflection students extract the crux of learning from their experiences. Then in a process referred to as abstract conceptualisation students identify principles to be learnt and form an opinion to integrate into their existing knowledge. Lastly students try out what they have learned from their experiences in the phase of active experimentation (Kolb, 1984).

Yardley, Teunissen and Dornan, (2012) who reviewed Kolb's earlier work argue that experiential learning theory explains how individuals learn as they react to their perceptions of experiences throughout their lives. Based on Kolb's work, one can infer that while students are on placements they interpret experiences from the external world (i.e. what is learnt in the clinics) and give them personal meaning that takes individual beliefs and values into account.

In the light of this, students' perceptions of their experiences as learners in the clinical placements were investigated through this study.

Thus, it can be inferred from Kolb's (1984) work, and Yardley et al. (2012) subsequent application of it, that students in clinical placements can learn from observing and reflecting on activities that are performed by staff in the clinics. Their pre-existing knowledge obtained from the biomedical and clinical skills classes at the university can be drawn in and be integrated with their experiences at the placements. As a result, through the progressive development from observations and reflection of learning activities students accrue the confidence to actively experiment on what they have observed. The following diagram represents Yardley and colleagues' depiction of Kolb's learning cycle.
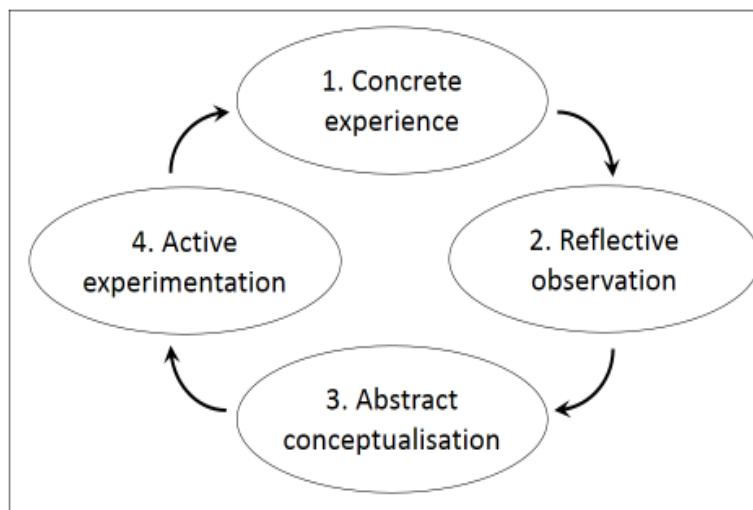
Figure 2.6. Kolb's learning cycle (Yardley et al., 2012)

Another theory that relates to clinical placements is the situativity theory. Durning and Artino (2011) explain how the two aspects of this theory, situated cognition (i.e. thinking and knowledge) and situated learning theory embrace each other. The situated cognition theory inculcates the importance of the environment and the social interaction associated with knowledge content instead of viewing cognition only as an information processing activity. Notable relationships between Kolb's experiential theory and the situated cognition exist, because both of these theories embrace the link between thinking and applying knowledge in the social environment where it occurs.

Situated learning has been reviewed by educationalists who mostly view it as part of the idea of situated cognition. However, Durning and Artino (2011) report that even though situated

learning is closely related to situated cognition, it introduces additional perspectives to the understanding of learning in social contexts. Culatta (2015), drawing from Lave and Wenger's argument that learning occurs as a function of activity, context and culture in which it occurs, explains that learners need comprehensive social interaction. Durning and Artino (2011) add on that, once that happens learners become involved in a community of practice (CoP) which enable certain behaviours to be acquired.

The concept of legitimate peripheral participation is introduced in the situated learning theory as a process that demands meaningful (i.e. legitimate) involvement in any activity (i.e. peripheral participation) that is led by a teacher who is a member of a CoP (Lave & Wenger, 1991). It involves a transformation of the student and the CoP member together through learning in a social context (Durning & Artino, 2011) within the confines of context and culture of that community. According to the situated learning theory, learning does not always require the CoP member to be a master of content. Rather it propagates, increasing responsibility on both parties to learn. It facilitates the evolution of learner and the CoP member to learn with and from one another. Lave and Wenger (1991) argue that this process of learning results in newcomers becoming more active and consequently aligned into the CoP.

The process of a learner being aligned to the CoP does not just happen but hinges on the extent to which a newcomer can be given the opportunity to practice within the community. Therefore, it can be deduced that students at the placements start peripherally as newcomers. At this point students do not necessarily drive their own learning process. However, once they have entered a CoP in the clinics there is the potential for them to move towards becoming doctors and they experience a fundamental change in their world view (i.e. transformative learning described in more detail below).

It is therefore imperative for this study to investigate students' perceptions of their learning experience. This could provide useful information regarding the opportunities students are afforded while on placement to participate in activities that could align them to communities of practice in the clinics.

The PCCs provide an environment for students to interact with patients of diverse problems. Salminen et al. (2016) elaborate on how transformative learning theory in clinical settings such as the PCCs can be applicable. This theory is based on a transformative learning experience which results in a structural shift in an individual's thoughts, feelings and actions (Kitchenham, 2008). This structural shift occurs through a change in their frames of reference as individuals experience new perspectives. The frames of reference refer to the structures of assumptions through which people define their world and these influence perceptions, feelings and cognition of individuals (Mezirow, 1997).

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In terms of students in placements, these potentially transformative perspectives are derived from learning through interactions with patients, peers, supervisors and other health professionals at the clinics (Greenhill & Walters, 2014). It is important to understand how this change in frames of references occurs, especially in the context of clinical placements. Greenhill and Walters (2014) explain this phenomenon by highlighting that students' transition to being clinicians occurs when they experience a disorientating process that takes them out of their comfort zones. Taylor (2008) explains that transformative learning requires this period of discomfort prior to discovery which to stimulate a change in ones frames of reference. Given the learning context in the placements, it is possible for students to experience these disorientating experiences that may challenge them. But, it is critical for students to actively participate in responsibilities relating to patient care while on placement to enhance the opportunities for transformative learning experiences. Such responsibilities may include history taking, patient examinations and health education for patients. Additionally, transformative learning theory strongly recommends that for a change in frames of reference to occur the experience by students should be accompanied by a reflective dialogue with supervisors or clinic staff (Mezirow, 1997; Kitchenham, 2008; Taylor, 2008).

The importance of the reflective exercise in ensuring that transformative learning occurs is reiterated by Greenhill and Poncelet (2013) who reveal that longitudinal placements allow students time to reflect on health issues from a social context because students are able to follow up patients. They further explain that through reflection and guidance from clinical teachers and peers, students are able to challenge and rejuvenate their personal values.

In bringing these theories together, it can be deduced that the learning process of the students cannot be separated from their context (i.e. clinics, communities of practice) and that the experiences students obtain in their placements also have an impact on how they perceive their learning. Secondly the relevance of CPs to the medical profession could result in a change in the student's frames of reference which could lead to development of new attributes.

2.7. The conceptual framework

The use of conceptual frameworks has been discussed by various reseachers as a way oforganizing and connecting the different facets of this study into a single coherent structure (Boet, Sharma, Goldman, & Reeves, 2012; Bezuidenhout & Van Schalkwyk, 2015). The framework used in this study provides a systematic structure and organisation to support the rationale and justification of why and how the study will be conducted (Ringsted, Hodges, & Scherpbier, 2010). The framework attempts to show the overarching elements of clinical placements in terms of structure, where the placements are typically based in terms of location, and how the structure and setting of clinical placements can have an effect on the

learning experiences of students. This diagram below illustrates the conceptual framework of the study.
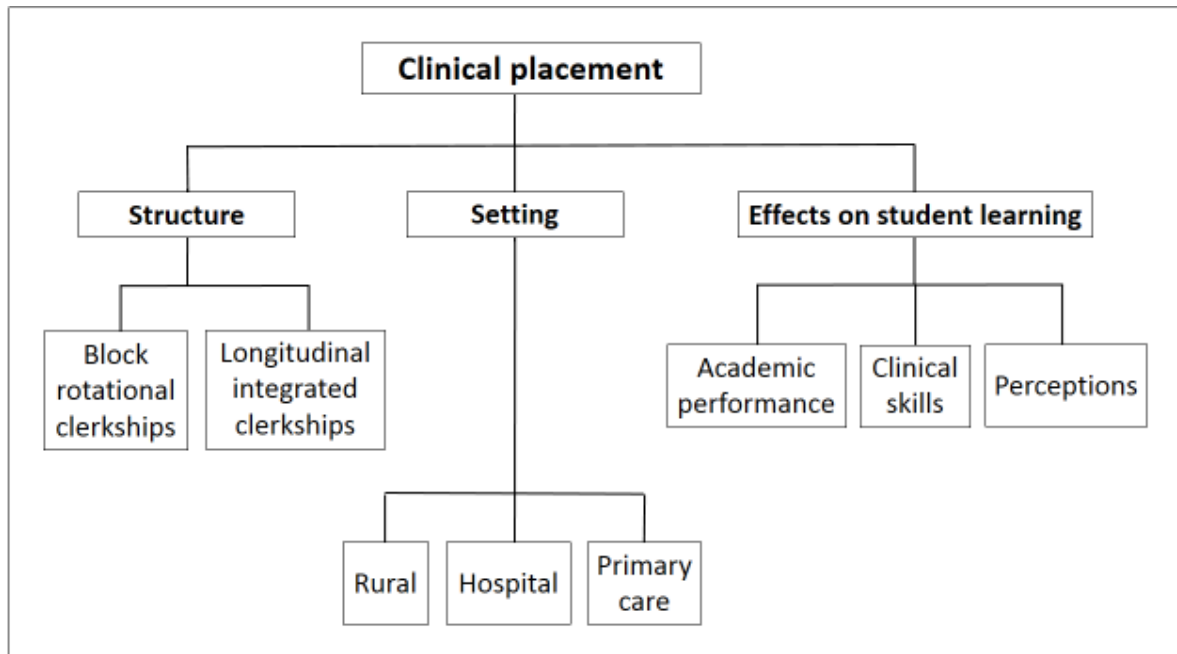
Figure 2.7 The conceptual framework

2.8. Conclusion

It is clear from the literature surveyed that LICs have gained popularity and are largely favoured by a growing number of institutions over the block rotations. At UB, the change of placements that has been implemented closely follows the LICs, but only to a certain degree. What primarily sets the placements at UB apart from the LICs is the expectation of students at the placement. The objective at UB is not primarily intended to integrate the learning of different core specialities (such as Internal Medicine, Emergency Medicine, Surgery etc.) while on placements but rather for students to engage in different learning activities (patient consultations with diverse problems, health education talks, patient home visits etc.) at the clinics depending on the patient cases they interact with.

There are three characteristics that the LPs at UB possess that need further investigation. Firstly pre-clinical students learn through helping patients from the community, and the curriculum is what walks through the door at the clinics. This means that students have no predetermined patient cases for learning but rather they learn from the diverse patient presentations that occur at the clinic. This is different to BRCs because there are no specific medical disciplines set to be learnt. They are also different to the LICs because the primary

outcome of the placements is not necessarily integrating the learning of clinical disciplines while on site.

Additionally the setting of the placements is in an urban region and its outskirts of a developing country (i.e. most studies in the literature were in strictly urban or rural settings). Lastly the settings are relatively poorly resourced. The student perceptions in clinical settings with the above-mentioned characteristics were not found in the literature. Therefore, this study was conducted to bridge that gap.

CHAPTER THREE: CONTEXTUALISATION

3.1 Introduction

This chapter provides an overview of the clinical placement structure at UB. It gives a detailed account of the organization, teaching and learning and the assessment practice that occurs at the placements. Furthermore, it gives a comprehensive description of the PCCs and what they offer as learning environments.

The establishment of a medical school in Botswana was informed by a feasibility study in 1995 which underscored the overwhelming shortage of local doctors in the country (Republic of Botswana, 2011). The establishment of the medical school developed overtime, initially through partnerships with other medical schools regionally and internationally in countries such as South Africa, Australia and the Czech Republic until in 2009 when it became an independent and fully-fledged Faculty.

The vision of the Faculty is to deliver a programme that is integrated, community-oriented and with a problem based approach to the teaching and learning process (University of Botswana, 2007). The five-year curriculum at UBFoM is divided into two phases, namely the two-year preclinical and three year clinical phase. The former focuses on basic sciences such as anatomy, physiology and pharmacology with integrated clinical skills training in a skills laboratory and early patient contact through clinical placements. The clinical phase on the other hand exposes students to several clinical disciplines through rotations in the Medical, Obstetrics and Gynaecology, Surgical and Mental Health departments in a tertiary hospital.

Some of the key pillars of the graduate profile of the Faculty encompass a commitment to safe and effective care, patient centred care, lifelong learning, critical thinkers and problem solvers (University of Botswana, 2007). The graduates of the course at UBFoM are also expected to be able to communicate and collaborate effectively in a highly professional and ethical manner where principles of honesty and humility are embraced (see Addendum 1).

The community oriented approach of the programme and commitment to early patient contact motivated the inclusion of clinical placements in the pre-clinical phase. Through integration the early patient contact ensures that there is no rigid separation between pre-clinical phase and clinical phases of teaching and learning in the curriculum.

3.2 The Context of clinical placements at UB

3.2.1. Organization

Clinical placements at UB occur once weekly for a duration of 16 weeks in the academic year for both first and second year medical students. The placement duration is scheduled for half a day, starting from 0730 hours when the clinics open for service until 1300 hours in the afternoon. A group of approximately 50 students is divided into ten groups which results in approximately five students per group attached to one clinic. Students are expected to behave in a professional manner while on placement. The professional behaviour expected from the students involves respect to patients and clinical staff working in the clinics and appropriate dress code while on placements (University of Botswana, 2009). Through an approach recommended by the Council on Higher Education in South Africa in that learning outcomes in community based education should be specific (Council on Higher Education, 2006) UBFoM developed the following outcomes and learning activities for students at the placements (see Addendum 2);

- Measuring vital signs such as temperature, blood pressure and so forth from patients using clinical equipment available in the clinics. At the time of placement, students would be competent in the above-mentioned skills as a result of the teaching and practice of skills in the laboratory at the university.

- Taking medical histories and examining patients who have presented to clinic that day, and then presenting their findings to the doctor or nurse in charge of helping patients in consultation.

- Working in multi-disciplinary health care teams with community care nurses, pharmacy technicians and midwives and assisting them with their clinical duties.

- Delivering patient education health talks on common conditions that present to clinic such as diabetes and hypertension. This process is led by the nurse and is implemented in collaboration with health education students, using the results from clinical audits to determine which conditions are common in clinic and are inevitably pressing issues to patients.

- Taking part in home visits to appreciate the social and psychological aspects of diseases. These are usually patients known to the students after obtaining their medical histories from them whilst on the queue to seek medical consultation. After the patients have finished with their medical consultations, a pair of students accompany them to their homes in an effort to get exposed to and understand other aspects of patients' life that may affect their health.

Additional learning outcomes that include the graduate attributes previously mentioned and rules of the conduct of the students are stipulated in their logbooks (see Addendum 2). The outcomes are discussed and reinforced to students in an orientation talk given by Faculty personnel prior to placements.

There are multiple issues that have to be addressed before placements commence. Firstly, the official permission that allows students to be placed in the clinics for academic purposes has to be sought. In Botswana, PCCs are under the authority of the District Management Health Team (DHMT). There is a community health officer at the DHMT, who works in collaboration with the Faculty through the Department of Medical Education (DME) to select the suitable clinics for placements. There are a total of 35 community primary care clinics in and around Gaborone under the control of DHMT (Republic of Botswana, 2011).

The decision to have clinical placements within a relatively shorter radius from the University campus was influenced by the availability of resources. The financial resources needed by the university to transport students coupled with the non- availability of supervisors to commit to distant clinic sites majorly influenced the decision to select the ten clinics. One of the challenges encountered in the process of placing students in the clinics is usually due to other health professions programmes (i.e. Nursing, Health Education, Pharmacy Technician and others) also seeking the same opportunity of patient contact for their students in the sites. This occurs because clinics have limited space in terms of physical infrastructure to accommodate high volumes of students at the same time. However, this is occasionally mitigated by the DHMT developing timetables which schedule students from different programmes on different dates and times in the clinics.

Subsequent to obtaining permission, the DME liaises with the clinics and approaches all the selected ten clinics for thorough discussions with the clinic management and staff to elaborate on how the programme works. This approach is implemented over time and in stages, with the aim of cultivating and developing a stronger university and clinic partnership. A strong partnership between the university and the clinics is well-documented as a positive predictor of successful placements in communities (Council of higher education, 2006; Prideuax et al., 2007). The process of partnership building involves multiple visits by the DME to the clinic sites and several meetings between relevant authorities including clinic management, DHMT and Faculty leadership (i.e. Deputy Dean and Programme Directors). Additionally, when the university organises continuing professional development courses on issues of clinical service, an invitation is extended to staff in these clinics. This is meant to sustain relationships with staff in the clinics. The issues discussed between the Faculty and clinic staff are mainly the expectations of students while on placements, the contents of the student's logbook and

to ensure that the clinic staff understand the concept that students will be simultaneously offering service and learning.

Nevertheless, there are challenges to the process of establishing community primary care clinics and university partnerships. Chief amongst these is the overwhelming pressure the clinic staff have to deal with in terms of balancing their primary role of service provision to the patients with the demands from the students. This is not unique to primary care clinics in Botswana as Prideaux et al. (2007) noted a similar predicament in Australia. Wilcox et al. (2015) conducted a study in five African countries (i.e. Botswana, South Africa, Mali, Uganda and Sudan) aimed at quantifying the number of health workers in primary care centres, and established that staffing in primary health care remains an issue of concern. Although in their study, Botswana and South Africa appeared to have made reasonable improvements in the number of health workers in primary care centres, the health worker density had not increased at the desired rate to meet World Health Organisation (WHO) targets in most of these countries. In Botswana, the NHP estimates the current ratio of clinic staff to patients to be low with one clinic staff member consulting at least 50 patients in a day (Republic of Botswana, 2011). This makes it difficult for staff to undertake additional academic duties.

3.2.2. The Learning Environment: Community Primary Care Clinics

The PCCs in Botswana account for first contact care for at least 80% of patients in the country (Republic of Botswana, 2011). The clinics are government owned and are open to use by the public at any time within each clinic's operational times. The health policy in Botswana mandates all citizens be given free health services at any health facility of their choice. Primary care clinics are designed to triage and stabilize patients before referral to secondary and tertiary hospital care.

In terms of physical infrastructure, these clinics are equipped with a relatively large waiting area room and smaller consultation rooms (which range from 5-10 in number) depending on the services offered by the clinic (see Addendum 3). The equipment available in the rooms is for basic clinical duties such as measuring vital signs, wound dressings, taking blood samples and physical examination and so forth. The managers, who in most cases are nurses have a separate office which is well furnished with a computer, printer and other electronic devices to support administrative duties. However, internet connection is not available in most clinics to support e-learning activities such as accessing online information sources and communications from Faculty websites for students while onsite. The clinics also lack well equipped emergency rooms to deal with serious life threatening conditions. Such cases are referred to tertiary hospitals for further management.

Most of the clinics operate for 10 hours, but there are those that operate for 24 hours and offer maternity services as well (see Addendum 3). The staff in the PCCs consists of nurses, health educators, community health workers, pharmacy technicians and occasionally medical doctors.

In almost all of the clinics, the managers are nurses whilst medical doctors offer their services based on their rosters. On average, a medical doctor comes twice a week in most of the clinics. As a result of doctors not being present on a daily basis, most of the consultations are performed by family nurse practitioners or general nurses in cases of severe shortage. The family nurse practitioners are nurses by profession who have also been trained and licenced by the Botswana Health Professions Council to diagnose and treat simpler conditions, and to refer cases they are unable to manage. Clinical teaching to health professions students is not explicitly mentioned in the scopes of practice of the family nurse practitioners and other health professionals working in the clinics. However, there is a general expectation for health professionals in the clinics to work in collaboration with higher education institutions to support and facilitate student learning amongst students placed in their clinics.

3.2.3. Teaching and learning

The learning that occurs in the clinics is mostly guided by the logbook given to students at the start of the semester. Wimmers, Schmidt and Splinter (2006) explain the use of logbooks as being to capture patient encounters and other learning activities. At UB, logbooks are used to guide students as far as what is expected in terms of the learning outcomes they are expected to achieve while on placement. However, this does not restrict the learning strictly to what is stipulated in the logbook as students typically acquire additional skills while on placement.

Clinic staff are also expected to be familiar with the contents of the logbook so that they can facilitate student learning when the opportunity arises. Since clinic staff are usually busy, the DME ensures that detailed presentations are given to the clinic staff in all the selected clinics prior to the commencement of placements. These presentations are also inclusive of explaining the learning outcomes expected of students and the educational model followed for the placements.

The model of learning adopted seeks to foster work in a symbiotic relationship model described by Prideaux et al. (2007). For this relationship to develop, the model advances that the relatively longer time students spend in the same clinics results in them becoming familiar with clinic work and protocols. They explain that in this model, students learn by helping staff in the clinic by doing their work in patient care. For instance, certain clinical duties such as

taking vital signs such as temperature, blood pressure and drawing blood samples from patients are performed by competent students.

Once students become competent in certain clinical skills, they can do the work independently and consequently lighten the workload of the clinic staff. Therefore, clinic staff are prompted to teach students some of the clinical duties. Mazotti et al. (2011) also realized a similar phenomenon when they noted that longitudinal relationships between students and receptors prompt preceptors to invest in improving their students' clinical skills. However, it must be stressed that this process requires thorough supervision and feedback before students can be allowed to independently perform such responsibilities.

In addition, students are frequently visited by preceptors from UB for at least an hour each week. These are academic clinical staff known to students as their lecturers from different departments in the Faculty such as Public Health, Family Medicine, Medical Education and so forth. In view of the half day placements (see Section 3.2.1), discussions between the UB preceptor and students is limited to an hour only to ensure that most of the time is channelled to meaningful experiential learning activities. The decision to limit the duration between the students and their preceptor to an hour was taken in the light of the already short placements of half a day in mind.

The role of the preceptor is essentially to offer academic support to students and facilitate open dialogue with students to discuss issues of concern relating to clinical training in the placements. Such issues include ethical issues, dealing with difficult patients, challenges peculiar to primary care setting and biomedical perspective of patients' conditions. The roles of preceptors have been developed and clarified in the Faculty handbook. The preceptors of the ten groups of students in the different clinics usually meet at the start of the academic year to touch base and discuss issues common to them. Attempts are made by the preceptors to ensure that the standard of discussions between them and the students is similar across all the groups. This is done by ensuring that the preceptors are all familiar with their roles according to the Faculty handbook. Furthermore, an additional meeting with other preceptors is held towards the end of the semester to discuss cases and issues arising at the different placement sites for peer feedback. However, it must be mentioned that students receive most of their training from the clinic staff since they spend more time with them.

3.2.4. Assessment

Most of the assessment is formative. In this format, feedback is used as a positive way to guide student learning to improve their knowledge, skills and behaviours. According to the student handbook, clinical placements are one of the learning events in the curriculum where

attendance is mandatory (University of Botswana, 2006). Since attendance at the placements is mandatory for all students, failure to attend the placement without a valid reason could result in the student repeating the year.

Although summative assessments can be used in clinical placements in the form of written tests and Objective Structured Clinical Examinations (OSCE) (Hirsh et al., 2012), formative assessments have been deemed sufficient by the UBFoM for several reasons. The main reason is that the learning outcomes for these placements were mainly designed for patient exposure in order to augment clinical skills classes taught at the university campus. Summative assessments are typically used for high stake examinations (Harden & Dent, 2014) and the clinical placements at UB were not designed to make decisions at that level.

The feedback given to students is mostly verbal and is provided by the clinic staff as students perform their clinical duties during placement. There are no guidelines or rubrics provided to guide clinic staff on how to give feedback to students after performance of clinical tasks. This probably leads to a variance in the way feedback is provided by clinical staff across the clinic sites. The staff are expected to countersign on the students logbooks after successful completion of clinical tasks with no form of grading of the level of competence expected.

Clinic staff and preceptors usually aim to meet twice in a semester, initially half way in the semester at four weeks and at the end of the semester. The responsibility to schedule these meetings lies with preceptors' and they have to liaise with clinic managers for this to happen. These meetings do not always occur twice as planned due to the busyness of clinics. The clinic managers have the feedback information because clinic staff that supervises students submit reports to the manager and student participation and progression also forms part of the report given to the manager. Although this particular feedback in the managers' report is not individualised, it is vital because it provides overall information on what students are generally excelling in and the challenges they experience.

3.2.4. Conclusions

Clinical placements at UB comprise of once weekly attachment of students in the same primary care clinic for the entire academic year. The clinics integrate the clinical skills learnt in a simulated environment to real authentic life cases. Student learning in placements is mostly driven by providing service while on placements under the guidance of clinic staff. Given the challenges faced in the context of primary care clinics and the teaching and learning activities that occur, it is important to determine how these local issues would affect how the students would perceive their learning while on site.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1. Introduction

The choice of research methodology for this study was influenced by the following factors; the appropriateness to the research question, and the practicality and feasibility of the approach (Dornan et al., 2012). The methodology selected for this research is in line with the suggestions by Ringsted et al. (2010) that studies should deal with researchable problems regarding general questions about learning, teaching and education in local contexts. They add that research should have practical relevance by providing knowledge that can guide educational practice. These stipulations were taken into account by adopting a mixed method cross-sectional survey design, using the MCPI as the instrument to collect data from medical students regarding their perceptions of the newly introduced longitudinal placements in primary care clinics.

4.2. Research design

A descriptive, mixed method cross-sectional survey design was utilised to gain an insight into students' perceptions of learning in a longitudinal model in primary care clinical placements. In providing a framework for classifying the purposes of educational research, Cook, Bordage and Schmidt (2008) describe descriptive studies as the first step in scientific method. Given the introduction of LPs as an educational intervention at UBFoM and the intention to document students' perceptions to this, a descriptive approach was deemed appropriate for the objective of this study.

Ringsted et al. (2011) criticize descriptive studies on the basis that they may be too simple and lack a generalisation perspective. They suggest the use of educational theories in the conceptual and theoretical frameworks of these studies to address such weaknesses. Laskov, Dornan and Teunissen (2017) also support the use of theory in medical education research by framing and basing research questions on educational theories. In this study, attempts to mitigate the weaknesses of the descriptive component of the study were done through relating the research questions to a theoretical framework described in Chapter Two.

A mixed method approach is becoming increasingly articulated as a response to the long lasting debates discussing the advantages and disadvantages of quantitative versus qualitative research (Yvonne Feilzer, 2011; Cleland, 2015). The use of mixed method research has been described in numerous literature as it continues to grow as a research paradigm (Johnson et al., 2007; Schifferdecker & Reed, 2009). For this research, the definition by Creswell (2014) of mixed method research is adopted. It advocates for a mixed method to be

"an ideal approach when a researcher has access to both quantitative and qualitative data" (Creswell, 2014, p. 218) as it is the case with the MCPI tool. The MCPI is also described as a validated mixed method instrument to evaluate training and teaching and learning in community placements (Dornan et al., 2012). In addition, Johnson et al. (2007) indicate that a mixed method approach is a useful strategy that could help in understanding the need and impact of an intervention programme. Since this current study intended to understand the students' perceptions, both quantitative and qualitative data were needed.

Furthermore, a mixed method approach is known to be effective in gaining a clearer understanding of issues and the voices of participants (Johnson et al., 2007; Boet et al., 2012; Guetterman, 2015). The quantitative data provided an indication of the degree to which students affirmed or disputed a specific perception of a particular item as it appeared on the MCPI. The qualitative data on the other hand, involved written responses in the MCPI regarding the strengths and weaknesses of each item in relation to the quantitative scores (see Section 4.2.3). These helped the researcher to understand the explanation for the quantitative score given for a particular perception.

Creswell (2014) suggests that criteria have to be developed to justify the selection of a mixed method study design. In this study, the following elements made up the criteria that influenced the choice of mixed method study:

- Both quantitative data (Likert rated close ended statements) and qualitative (open ended written explanations of the Likert score) responded to the research questions.
- Both sets of data had to be collected and analysed rigorously.
- Both sets of data were equally important in relation to the experiential, situated and transformative learning theories that underpinned the study.

The type of mixed method design that was used is the convergent parallel design. Creswell (2014) indicates that in this approach the qualitative and quantitative data are collected, analysed separately and results are compared to determine if the findings confirm or refute each other. The key assumption of this approach is that both sets of data provide different types of information as evidenced by the qualitative views from the students and the quantitative scores in the instrument. The overall aim was to align the findings from the two sets of data. It is for this reason that the MCPI tool was selected since it made provision for the concurrent collection of both sets of data. The following diagram illustrates how data was collected and analysed.
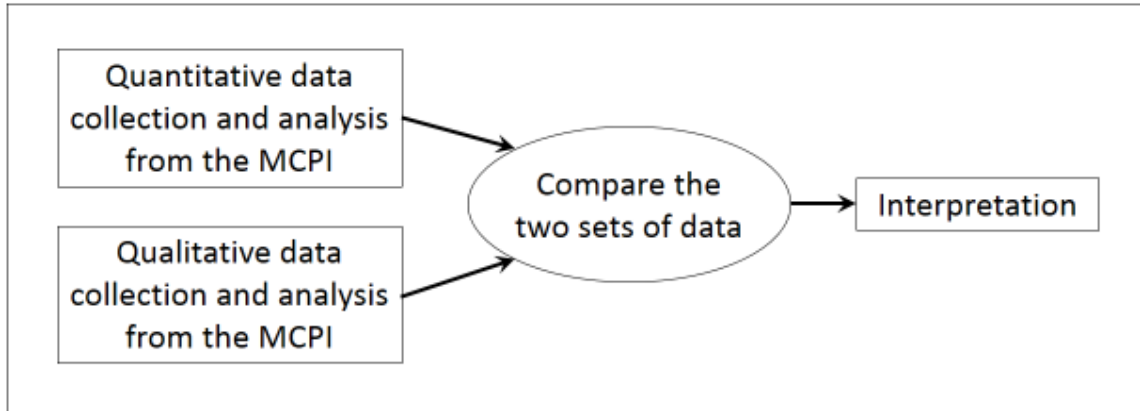
Figure 4.2. Data collection and analysis process

According to Levin (2006), cross-sectional studies are carried out at one point in time or over a short period of time. She further explains how they are frequently used when the purpose of the study is descriptive, usually in the form of a survey. Students' perceptions were sought at the end of the academic year and a survey was selected because of its time efficiency. Levin (2006) cautions against the shortcomings of the snapshot approach of these studies. She argues this by citing that different results may be obtained if the study is undertaken at another time. This was considered in this study by explicitly encouraging and affording students' time to think retrospectively on their past experiences and document them in the survey.

As mentioned above, the aim of the study was to determine learning experiences of medical students in longitudinal placements in primary care clinics. As a result, the study revolved around the following question;

What are the perceptions of second year medical students about their learning experience in their longitudinal placements in primary care clinics?

4.2.1. Study population

The study population targeted the whole cohort of the 53 second year medical students in the 2015/16 academic year. These students were selected because they had experienced the rotational placement structure before the introduction of longitudinal placements. Thus, their prior experience placed them in a better position to give a clear reflection of the learning experiences in the two placement systems than would first year students.

The first year students were excluded because even though they had the experience with the longitudinal placements they had not experienced how the placements were before the change was effected. The third, fourth and fifth year medical students were excluded because they did not have any experience with the longitudinal clinical placements structure.

4.2.2. Sampling

The study population was sampled as follows

- The whole cohort was offered section A of the MCPI (see Addendum 4) to complete.
- Then the democratically elected student group leaders at each placement site were offered section B (see Addendum 5) of the tool to be fill in. The group leaders were already known to the participants as they had selected them at the start of the placements. The group leaders' selection process was student lead and independent from any Faculty or clinic staff input.

The decision to have only the group leaders completing section B of the questionnaire was motivated by the availability of resources. Offering section B of the questionnaire to the whole cohort of students would have generated high volumes of qualitative data. This would have required ample resources to adequately analyse the data within the context of a small scale study of this nature. Therefore for pragmatic reasons, this approach was chosen looking at the time and resources that would have been needed if all participants were also offered the qualitative section to complete.

The sample strategy adopted for the selection of group leader representatives for students was a stratified purposive sampling approach. This is a process of sample selection from the target population where the sub-populations (called strata) are considered in order to enhance the sample's representativeness (Polit & Beck, 2010). It is a non-probability sampling technique where a deliberate choice of an informant is done due to the qualities they possess (Tongco, 2007).

Student group leaders in this study were assumed to possess a more informed insight due to their experiences at the placements. By virtue of their position, they were privy to information that other students may have not had access to thus making their perception more diverse. An example of some of the privileges the group leaders were entitled to include the regular meetings they had with the clinic managers. In these meetings, issues of concern to the students whilst on placement were discussed. The students would initially meet as a group to discuss their issues and reach a consensus which the leaders would present at the meetings with the manager. Furthermore, if the clinic managers wanted to communicate any information to students, the same meetings would be used as a medium to do so. This prompted the decision to sample them to complete the additional qualitative component of the questionnaire.

This method of sampling group leaders to complete the qualitative section of the questionnaire was fallible because of the selection bias that is associated with it (Tongco, 2007). Generalizability of the data from the student leaders would always be in question since these

data are not necessarily representative of the learning experiences of the whole cohort. In spite of this limitation of generalizability, it was sufficiently important to proceed with obtaining the data from the leaders because of the narrative data it provided. The researcher, being part of the Faculty that organize clinical placements, also introduces a certain level of bias. Even though measures are taken to reduce influence from the researcher, a certain level will exist due to the nature of his role in the Faculty. This would have not been the case if the researcher was not connected to the topic being studied.

4.2.3. Data collection Instrument

A validated MCPI tool was developed by Dornan and colleagues to evaluate clinical placements in both hospitals and communities. This tool has also been shown to be reliable in evaluating training and teaching and learning in hospital and community based environments (Dornan et al., 2012). The tool is in the form of a questionnaire which contains eight items graded with a rating score. The rating scores come in the form of Likert scores which utilized numbers 0, 3 and 6 to indicate if the respondent strongly disagrees, neither agree nor disagree or strongly agree with the statements provided in the tool (see Addendum 4 or 5). As a result of the pragmatic approach mentioned above, the tool was divided into two with section A having statements to be answered through Likert score ratings only whereas section B of the tool had the rating scores followed by open ended questions that required written responses to explain the ratings for each item (see Addendum 5).

The selection of this tool was informed by various reasons. Chief among these was that it fitted into the mixed method design of the study and was well aligned to the research questions (see Table 4.2 below). The following table shows how students' responses to items in the MCPI could potentially provide information which would address the four sub questions of this study.

Table 4.2 Research questions and MCPI

Research sub-questions	The MCPI provides data regarding:
What are the participants' perceptions of teaching and learning in the placements?	Perceptions on: ▪ Teaching/instruction provided to participants when performing clinical skills. ▪ Whether or not the participants are observed when performing the clinical skills. ▪ The feedback they obtain after performing the skills.
What are the participants' views on the organisation of the placements?	Perceptions on: ▪ Leadership taking responsibility for student learning. ▪ The reception accorded to the participants at the start of the placements. ▪ Organization and general execution of the placements.
What are the participants' perceptions of the health care staff working in the clinics?	Perceptions on: ▪ The support participants get from health staff in terms of teaching and learning
How do participants' perceive the primary care clinics as a learning environment?	Perceptions on: ▪ The appropriateness of the facilities to support teaching and learning

The researcher piloted the questionnaires and recorded the average time required by the students to complete them. First year students were approached for this pilot because they had also experienced the new intervention of longitudinal placements. An invitation to complete the pilot questionnaire was extended to a cohort of first year medical students after a lecture in one of the Faculty auditoriums. The purpose of the research and the ethical considerations that were in place especially with regard to the pilot results were thoroughly explained to the students before they were asked to decide if they wanted to participate. A total of 10 students agreed to do the pilot questionnaire in the same auditorium room they had the class in. The students were randomly given either section A or B of the tool to complete. After completing the pilot, the students were asked to provide feedback on the content and structure of the questionnaire they had just completed.

According to the students, items in the questionnaire were understandable. However, they raised a concern that the Likert scores in the tool were potentially confusing if not read carefully. The comments from the students and the estimated time required to complete the questionnaire were noted. After the pilot, the completed scripts were all discarded. The potential confusion of the Likert scores expressed by the students was taken into account by

being included as part of the content to be discussed during the training process of the administrator of the questionnaires.

Some of the words in the tool were not specific to our context of primary care clinics in Botswana (see Table 4.3). For instance, in the original tool words such as matron were non-existent but they were included because some of the clinics in Botswana are headed by matrons. This was to ensure that the questionnaire was relevant to local settings in spite of the potential effect it could have on the validity of the tool. Table 4.3 below shows a list of words that were changed in the original MCPI to their synonyms in the Botswana context.

Table 4.3 MCPI words changed to synonyms in the local context

Original word used in the MCPI	Synonym in local context
Consultant	Specialist
Registrar	Resident
Nil	Matron was added
Nil	Medical officer was added

In addition to this, the tool also has similar theoretical underpinnings to those that informed the overall design of this study. Dornan et al. (2012) highlight that the theoretical and empirical origins of the MCPI are in an experience based learning model and situated learning theory of how students learn in CoP.

Although the contexts in Manchester and UB were different, there were some similarities which are worth noting. Firstly, the Manchester Medical School used the PBL education model (see Section 1.8) just as UB did. The structure of clinical placements in Manchester was congruent with the one adopted by UB. They were similar in terms of time frame for the placement, the use of clinical skills laboratory for training and access to real patient cases. The MCPI is suggested by Dornan et al. (2012, p. 712) as "a simpler, validated, and mixed methods instrument that is worth considering". The MCPI has been used by other researchers since its launch, Kelly, Bennett, Muijtjens, O'Flynn and Dornan (2015) compared it with another evaluation tool (i.e. the Dundee Ready Education Environment Measure (DREEM) and found the MCPI to be comparable to the DREEM in evaluating clinical workplace learning environments.

4.2.4. Data collection

A Faculty member who was not involved in clinical placement programme was selected to administer the questionnaire. The two sections of MCPI were offered to the participants at the UB main campus after a microbiology laboratory session. Individuals present at the time of data collection were the administrator, the microbiology lecturer and the supporting tutors who

left immediately at the end of the laboratory session. The researcher was not in attendance during the data collection process in order to minimise any potential influence (see Section 4.4) on the participants.

This particular class was selected as the setting for the data collection because a satisfactory student attendance was expected as it was compulsory. The administrator was well oriented and trained by the researcher beforehand regarding the details of the study. This was done to equip her with the knowledge and confidence to deal with any related issues or questions that could arise from the participants. According to the report from the administrator, there were 53 students in attendance and none had left the session. The administrator had obtained permission from the microbiology lecturer prior to addressing the students and extend an invitation to participate in the study.

The administrator thoroughly explained the purpose of the study and made it clear that participation was voluntary and that participants could decide to leave before and during the data collection process without any consequences. As a result of adopting this approach, participants felt no form of coercion to take part in this research. Thorough explanations regarding how the sections of the questionnaires were to be completed in the group were given. Interested group leaders were asked to complete section B of the questionnaire while the rest of interested participants were to fill in section A. Although anonymity of the group leaders could not be completely achieved, the approach of labelling the questionnaires into the two sections was done to minimise any undue pressure on group leaders which would have occurred if they had to conspicuously identify themselves before the other participants.

Additional information from the administrators report revealed that a few students raised questions regarding the meaning of some statements. This was addressed by the administrator by requesting the participants to read the definitions carefully as provided and elaborated in the questionnaire. The explanations from the administrator were carefully communicated to avoid any form of coercion which could occur unintentionally when attempting to clarify some issues.

Out of a potential fifty-three (53), participants who completed the questionnaires amounted to thirty-nine (39) and the qualitative scripts were seven (7) in total. This meant that 14 students did not complete the questionnaire and 3 of them were group leaders. All the students who agreed to take part in the study signed informed consent form (see Addendum 6).

4.2.5. Data analysis

The quantitative data was analysed based on the eight items in the tool. The tool provided Likert score ratings on the eight items. The scores were collated for each of the eight items

and the mode was calculated for each item. Additionally the three categories of the Likert score (i.e. strongly agree, neither agree or disagree and strongly disagree) were all expressed as a percentage of the number of students who selected a particular rating over the whole cohort for each item to give an idea of their frequency out of 100 (see Table 5.2).

The analysis of quantitative data was performed to a measured extent since the Likert score did not represent an absolute number but a rank of student perception. Jameson (2004) advises that one should employ the mode or median when dealing with Likert scores and the mean was inappropriate for this kind of data where numbers represented verbal statements. Tavakol and Sandars (2015) discuss how such quantitative data presents a challenge when attempting to make inferences to the different ranks. Jameson (2004) further explains that the intervals between the values of the Likert cannot be presumed equal. An example from the MCPI is that the intensity of the students perception when they "strongly agree", "Neither agree nor disagree" and "strongly disagree" with a statement cannot be measured. In addition, it cannot be seen as equal just because the corresponding quantitative scores (0, 3 and 6) have a linear relationship.

The qualitative data from the leaders was also analysed based on the same eight items in the tool. The written responses under each item were read several times by the researcher. The qualitative data analysis was primarily guided by the predetermined analytical framework in the tool. This was because the MCPI already had subheadings where participants had to write on strengths and weaknesses of each item.

The common and recurring themes on the strengths and weaknesses of each item were identified and compared with the quantitative data scores to further interpret the data as guided by Renner and Taylor-Powell (2003). Bringing together quantitative and qualitative data in order to address the research questions, is referred to as integration (Guetterman, 2015). For example in this study, emerging themes of the qualitative data of one item in the MCPI were integrated with the corresponding quantitative data from of the same item in the MCPI for interpretation (explained in detail in Section 5.3).

4.2.6. Ethical considerations related to data collection

Ethical clearance was sought form Stellenbosch University and University of Botswana (see Addendum 7 and 8 respectively) before the commencement of the data collection.

Furthermore, the following ethical considerations were taken into account when collecting data:

- Informed consent was obtained in writing from all study participants (see Addendum 6).

- Participation in the study was voluntary and the questionnaires did not require students' names or any form of identification.

- Participants were allowed to withdraw from the study at any time they wished to do so. It was reaffirmed to students that withdrawing from the study would not have any unfavourable repercussions.

- The questionnaire did not seek any details of the clinics because the study was not concerned with clinics but rather with placement model. This also protected group leaders' anonymity.

4.3. Trustworthiness of the data

4.3.1 Introduction

Good research is characterized by evidence that is trustworthy and applicable to practical settings regardless of the approach used (Frambach, van der Vleuten, & Durning, 2013). Based on Frambach et al. (2013) quality criteria in qualitative and quantitative research multiple strategies were adopted to ensure quality in this research.

4.3.2 Credibility

This refers to the extent to which the findings of the study are believable and trustworthy. Lincoln and Guba (1985) explain that credibility encompasses the truth value which is subject oriented because it is dependent on human experiences as they are lived and perceived by participants.

Credibility in this study was enhanced since the methodology used was comparable to the ones used in other studies which investigated students' perceptions to learning in clerkships (Prislin et al., 1998; Abdullatif Alnasir & Jaradat, 2013; Salminen et al., 2016). These studies utilized data collection instruments which had Likert scales to determine students' perceptions. Salminen et al. (2016) used a similar approach by having a tool which had narrative text for students to express more information to augment their Likert score ratings.

Krefting (1991) cautions against a prolonged relationship between the researcher and the participants and argues that the contact between the two parties can be a threat to credibility when the researcher finds it difficult to separate their own experiences to that of the participants. In this study, this was safeguarded by the researcher assuming a neutral stance by not incorporating their own perception of clinical placements when analysing the data from

participants and also by cross checking the data analysis process with a colleague experienced in qualitative data analysis.

4.3.3 Transferability

Transferability is defined as the applicability of the study findings in different settings (Kuper et al., 2008). Frambach et al. (2013) recommends thorough description of findings in their context and explaining the sampling strategy as some techniques' which can enhance transferability. As a means of upholding the transferability detailed description of the context in this study (see Chapter three) was provided and the results of this study were linked back to the context described earlier. Although it had its shortcomings, the sampling strategy in this study was also well explained with its fallibility and the decision as to why the strategy was utilized was justified in the methodology section of this report.

4.3.4 Dependability

Dependability refers to the extent to which the findings are consistent in relation to the contexts to which they are generated. Kuper, Reeves and Levinson, (2008) argue that dependability demands that the researcher should continually account for the changing social context in which the research takes place. Although the methodological design selected in this study did not allow for the use of techniques such as iterative data collection, data collection until saturation and flexibility of the data collection processes, an effort was made to enhance dependability. An example is the iterative data analysis process (Frambach et al., 2013) that was used when analysing the data (see Section 5.3).

4.3.5 Confirmability

Confirmability refers to when the findings of the study are reflective of the study participants' and settings and not researchers biases (Guba, 1981; Frambach et al., 2013). In this study, comfirmability was enriched by clarifying the role of the researcher (see Section 4.4). Furthermore, the findings of the research were discussed with peers through a poster presentation at a medical education conference in China (The Network for Health conference, 2016) for expert review. The peers at the presentation were fellow health professionals and educationalists who have similar models of placement structures in their contexts. The knowledge shared was in the form of critiquing the longitudinal placements at UB by having discussions pertaining to the poster and providing recommendations after the discussions on how to improve the longitudinal placements based on available evidence. Additional periodic discussions of the research processes with a supervisor with sound experience in research in medical education also contributed immensely to the confirmability of the study.

4.4. The role of the researcher

The researcher was well known to the participants, as their supervisor and coordinator in the clinical placement and clinical skills programmes respectively. These roles meant that the relationship between the researcher and the participants existed prior to the commencement of the study. Several strategies were deployed to ensure that the quality of the research was not compromised. Initially, the essence and purpose of the research was clearly communicated to the students who were interested in participating and they were notified of the ethical measures in place to support their participation.

In his professional capacity, the researcher also had the opportunity to witness the concerns and challenges faced by students when the previous rotational placements were in use. This could have potentially brought some bias to the data analysis process. Creswell (2014) warns against inaccurate data when the researcher collects data in their workplace and when they are in a superior role to the participants. This potential influence was minimised in this study because the researcher was not involved in the data collection processes.

As mentioned above, the researcher also committed to a neutral position by keeping an objective mind-set which kept his opinion or personal influence away when analysing the data as far as was possible. Neutrality is explained by Krefting (1991) as the degree to which findings are solely from the informants and conditions of the research and not from any biases and other perspectives. Steps in achieving neutrality are explained in the section on confirmability above.

CHAPTER FIVE: FINDINGS

5.1. Introduction

As already mentioned in Chapter One, this study investigated students' perceptions of longitudinal placements in primary care clinics using the MCPI tool. The students scored a set of statements according to a Likert scale and provided written responses to lead-in statements pertaining to the eight items in the tool (see Table 5.1). As described in Chapter Four, the eight items in the MCPI generated quantitative and qualitative data which were analysed separately and then aligned for interpretation. The first phase of data analysis involved summarising the quantitative data from the Likert score results and the second phase was analysing the qualitative data. This phase involved making meaningful connections between the qualitative responses from the leaders by noting recurrent concepts. The table below shows the lead-in statements that respondents read before providing either their ratings or the written responses.

Table 5.1 Definition of MCPI items

MCPI Item	Lead-in statement
Leadership	There is leadership if one or more senior clinical staff (medical officer, nurse, matron, resident) take responsibility for your education.
Reception/Induction	An appropriate reception is a welcome that includes an explanation of how the placement can contribute to your real patient learning.
People	The support to your real patient learning from people (like doctors, health care educators, pharmacists, cleaners, nurses, and others) you met on the placement.
Instruction	Clinical teaching may include instruction in how to perform clinical skills (like history taking, examination, practical procedures etc.) on real patients.
Observation	Clinical teaching may include teachers observing you perform clinical tasks on real patients
Feedback	Clinical teaching may include teachers giving you feedback on how you performed clinical tasks on real patients.
Facilities	Your learning environment may include such things as space for students (to perform clinical tasks and be taught) and resources (books, educational pamphlets or other materials) that support your real patient learning.
Organisation	An appropriately organized placement is one whose teaching and learning activities are organized in a way that supports your real patient learning.

This table provided clarity to the participants regarding the precise description of what each item entailed. This also aided the administrator as the lead-in statements were used as a reference for clarification of the meaning of the items.

5.2. Phase I: Analysis of the quantitative data

The received scripts (39) were collated into a Microsoft Excel spreadsheet. Each script was allocated a number and the Likert scores for each respondent for all the items were entered. Using the Microsoft Excel functions, numbers and the percentages of participant responses for each item were entered, calculated and tabulated as shown in Table 5.2 below.

Table 5.2 Quantitative data analysis

MCPI item	Total responses	Strongly Agree		Neither agree nor disagree		Strongly disagree	
	N	N	%	N	%	N	%
Leadership	39	24	61	12	31	3	8
Reception/induction	39	31	79	3	8	5	13
People	39	26	67	10	25	3	8
Instruction	39	28	72	8	20	3	8
Observation	39	25	64	9	23	5	13
Feedback	39	17	44	13	33	9	23
Facilities	39	13	33	13	33	13	33
Organisation	39	20	51	14	36	5	13

An initial analysis of these results suggests that reception and instruction domains generated the highest numbers of students who strongly agreed that these areas were done well. Although to a lesser extent; People, Leadership and Observation items also had the majority of students also strongly agreeing that they were appropriate. One can infer that most students were satisfied with these items in their respective placements. The Organisation domain generated approximately half of the students strongly agreeing that it was appropriate. A significantly higher number of students neither agreed nor disagreed compared to those who disagreed that the organization was adequate. It is difficult to account for the number of students who neither agreed nor disagreed, but one can comment that the students' indecisiveness should be of concern regarding this domain.

It is clear from the data that feedback and facilities domains were problematic. Less than half of the students strongly agreed that the feedback was appropriate. There were still more students who felt that feedback was appropriate but the fact that the numbers were less than half (44%) of the total number of students is concerning. Facilities domain drew an equal number of students across the ratings. Two points can be deduced from this distribution. Firstly, students who strongly agreed that facilities were adequate for a learning environment were the lowest of all domains and secondly those who disagreed were the highest compared to other domains. If the facilities item was analysed in isolation, it may have seemed that students were undecided about it. However, when comparing it with the rest of the items there

is clear evidence that students were not impressed with the facilities as a learning environment.

5.3. Phase II: Analysis of the qualitative data

Quantitative data analysed for each item provided some useful data but as evidenced by the commentary of the results above, explanations can only be extrapolated to a certain limit, for example the high number of students who neither agreed nor disagreed is difficult to interpret and provide meaning to. The qualitative data augmented the quantitative data by providing possible explanations from group leaders to the quantitative ratings given for each item. However, it should be noted that the qualitative responses are from the group leaders only and although they were interpreted against the background of what had been learnt from quantitative data, these cannot be generalised or taken to be representative of the whole cohort.

The instrument requested group leader participants to comment on the strengths and weaknesses of each item in their placements for their respective clinics. Seven (7) out of ten (10) group leaders agreed to take part in the study. The data were initially entered into a spreadsheet which classified the responses according to predetermined categories of strengths and weaknesses for each item as it appeared in the questionnaire (see Table 5.3 below). The data were then read iteratively. Renner and Taylor-Powell (2003) report that the crux of qualitative data analysis involves reading and re-reading and identifying coherent ideas (see Table 5.4). The following table shows the group leader's codes and how the raw data was entered for each item. The same format was used for the rest of the items.

Table 5.3 Sample of Qualitative data entry

Leadership

Participant code	Strengths	Weaknesses
L1	Tried their best to teach us.	More senior doctors should be involved so that each placement has its own doctor.
L2	Nurses were able to check on our progress in clinical skills learning.	Sometimes not available, could not check how all students were doing.
L3	The doctors and other senior staff tried to involve us in the daily proceedings of the clinic and patient interaction.	I believe it would be best if there could be a medical doctor on each an everyday of the placement.
L4	The nurses helped a lot and also allowed us to interact with patients	Not all supervisors were willing to teach.
L5	The most available leadership was the nurses in the clinics and we really learned a lot from them.	At times it felt like they did not know or understand what is expected of us there. Also they did not feel obliged to help us probably because they are not UB staff.
L6	Nurses took it upon themselves to incorporate all aspects of learning to better the learning experience and were patient with us.	Not answered.
L7	The medical doctors responsible for us in our placement listened to our complaints where there were any.	The nurses did their best despite the circumstances.

The raw data were entered in the spreadsheet and the seven leaders were assigned numerical codes as seen in the left column. The data were entered in verbatim as it appeared in the questionnaire scripts. Each leader's code had two sections to respond to but that was not always the case as some leaders left other parts unanswered as shown in the table above.

The following Table shows how the raw data was analysed for the eight items by noting the recurrent ideas into codes and sub codes generated from the data.

Table 5.4 Qualitative Data coding

LEADERSHIP			
Strengths		**Weaknesses**	
Codes	**Sub-codes**	**Codes**	**Sub-codes**
Roles of the Clinical staff	▪ Nurses taking most responsibility for learning ▪ Doctors taking initiative to involve students	Lack of resources	▪ More doctors need to be involved ▪ Limited availability of supervisors.
Qualities of the supervisors	▪ Patient ▪ Took responsibility for student learning ▪ Listened to student complaints	Lack of Leadership Abilities	▪ Lack of negotiation skills ▪ Sometimes unaware of student expectations

RECEPTION			
Strengths		**Weaknesses**	
Codes	**Sub-codes**	**Codes**	**Sub-codes**
Thorough Explanations provided by staff	▪ Clear objectives provided ▪ Activities to do ▪ Expectations well communicated ▪ Benefits of the placements discussed ▪ Standard operation of the clinic given ▪ Roles of staff	Lack of additional input from staff	▪ Unclear expectations of students ▪ Students left with no idea what to do

PEOPLE			
Strengths		**Weaknesses**	
Codes	**Sub-codes**	**Codes**	**Sub-codes**
Supportive staff from different health professions	▪ Doctors ▪ Nurses ▪ Other health care professionals	Issues affecting relations	▪ Limited time available for interaction ▪ High expectations of students
Desirable Character of staff	▪ Helpful ▪ Kind ▪ Listened ▪ Engaging ▪ Teaching ▪ Explaining difficult concepts	Less desirable character of the staff	▪ Made students less confident ▪ Less excited to work with students ▪ Occasional negative behaviour

INSTRUCTION			
Strengths		**Weaknesses**	
Codes	**Sub-codes**	**Codes**	**Sub-codes**
Clear Explanation of the clinical tasks	▪ Technique needed for the task ▪ Rationale for the task	Less desirable qualities of the teaching staff	▪ Sometimes not willing to teach ▪ They need to allow more time for practice
Clinical skills acquired through the instruction	▪ History taking ▪ Physical examination ▪ Practical procedures		

OBSERVATION			
Strengths		**Weaknesses**	
Codes	**Sub-codes**	**Codes**	**Sub-codes**
Range of health professionals Observing	▪ Doctors ▪ Midwives ▪ Nurses	Improvements needed in structure of observations	▪ Should be based on actual performance ▪ Negative comments should be avoided ▪ Explicit use of guidelines ▪ Adequate time needed
Skills developed through observations	▪ Presentation of patient cases ▪ Clinical skills ▪ Patient case exploration		

FEEDBACK			
Strengths		**Weaknesses**	
Codes	**Sub-codes**	**Codes**	**Sub-codes**
Benefits of the feedback for student learning	▪ Develops presentation skills ▪ Identify weaknesses ▪ Correction skills ▪ Motivating ▪ Leads to improvement of skills	Quality of feedback	▪ Not detailed enough ▪ Not individualised ▪ Time not Adequate

FACILITIES			
Strengths		**Weaknesses**	
Codes	**Sub-codes**	**Codes**	**Sub-codes**
Resources available to support learning	- X rays to review - Availability of clinical equipment for examination	Resources that were lacking	- Study room - Limited space for learning - Lack of protective equipment for students - Lack of information technology support

ORGANISATION			
Strengths		**Weaknesses**	
Codes	**Sub-codes**	**Codes**	**Sub-codes**
Guidance students received	- From logbooks - Expectations well communicated	Structural organisation to be improved	- Activities in the clinics not adequately motivating - Better coordination of student groups
University support	- Transport to clinics - Logbook assessment by preceptors		

These tables show the themes that were generally recurring from the group leaders' data and how they were grouped into coherent ideas for discussion. In addition, during the process of reiterative reading of the data it was noted that some responses indicated for one item overlapped and were applicable to other items. These were additionally added to the items with which they overlapped as well. For instance, some responses for 'instruction' item were also relevant responses for 'facilities' item. As an example, one of the group leaders provided the following response under the instruction item;

"The problem was implementing skills on real patients because there were no extra rooms for us to take patients into and do our history taking" (L3).

Although there is a minor element in this response pertaining to instruction, based on the definitions of the items in Table 5.1 the statement is mostly relevant to the facilities item and was therefore moved under it.

Subsequent to the qualitative analysis of all the items the next step was to find points of alignment within both sets of data analyses (i.e. in qualitative and quantitative) that had

emerged using the MCPI domains as an organising framework. This process was followed for all the eight items as demonstrated in the following section.

5.4 Phase III: Aligning the quantitative and qualitative data findings

5.4.1. Leadership

The majority of the students (61%) strongly agreed that there was leadership and that clinical staff took responsibility for their learning. The group leaders advanced multiple reasons that could explain the rest of the students' quantitative judgement. They identified three groups of clinical staff with one student commenting that: "*The doctors and other senior staff tried to involve us in the daily proceedings of the clinic and they didn't deny us the opportunity to interact with patients"* (L3).

However, most of the group leaders felt the nurses took more of the responsibility for their learning. *"The most available leadership was the nurses in the clinics and we really learned a lot from them"* (L1). Another one reinforced this point by revealing that: *"Nurses took it upon themselves to incorporate all aspects of learning to better the learning experience"* (L6). They also mentioned certain leadership qualities from their supervisors by revealing that: "*They were patient with us"* (L6). Additionally L7 also highlighted one of the desirable leadership qualities in that: "*The medical doctors responsible for us in our placement listened to our complaints where there were any".*

A significant group of students (31%) were ambiguous about the presence of leadership, as supported by the statement from one of their group leaders that: *"At times it felt like they did not know or understand what is expected of us there. Also "they did not feel obliged to help us probably because they are not UB staff"* (L5).

Although a small proportion of students (8%) strongly disagreed that leadership was appropriate, probable reasons for this perception have to be explored. This is because the 8% of students who were in disagreement coupled with those who neither agreed nor disagreed (31%) suggests that leadership could be improved. One of the group leaders remarked that: *"Leadership was sometimes not available, could not check how all students were doing and could not negotiate with other nurses and doctors so students are given a chance to practice taking histories from patients"* (L2).

5.4.2. Reception

A high proportion of students (79%) perceived the reception at the facilities to be appropriate and contributing to their leaning. The high score was reinforced by the following statements about the clinic staff: For example L1 reported that the staff, "*Fully explained the benefits of*

doing the placement, how it was run and what was expected". In addition, L3 noted that: "*It was done well by supervisors trying to explain to us what and how to do things at the clinic".*

The number of students who neither agreed nor disagreed and those who strongly disagreed was considerably lower compared to those who strongly agreed that the reception was appropriate. This was supported in the qualitative data with a notable number of leaders (i.e. three out of seven) filling in not- applicable whilst others left the section on the weaknesses of the reception item unanswered. However, L7 strongly disagreed and argued that: "*The clinic staff did not really have an input in explaining to us during the reception which could have been better because they work at those specific clinics".* The limited input from clinic staff was emphasized by L2 who revealed that: "*We were often idling, went on without a clue of what was expected of us and to what extent".*

5.4.3. People

About two thirds of students (67%) perceived the people at the placements to be helpful to their learning. L1 reported that the staff, especially the nurses and the doctors, were supportive. The students also referred to personal attributes the staff exhibited to support their learning. L5 added that: "*The doctors and other senior staff tried to involve us in the daily proceedings of the clinic and they didn't deny us the opportunity to interact with patients*". Furthermore, the desirable qualities of "*Some staff were helping in explaining grey areas and enabling practical application of the skills"* were underlined by L2. To add on their qualities, it was noticed that the staff "*Had educated individuals who sometimes recommended additional educational resources to study for clinical procedures and examinations"* (L7)

The analysis of the raw data regarding the support students received from people at the placements for their learning showed more strengths than weaknesses. The weaknesses mentioned by the leaders in terms of support from people in the clinics related to workload issues. This was highlighted by L6 that: "*They were all saying they are busy, had limited time and only got to assist after being pursued".* The lack of availability of people was also emphasized after a suggestion that: "*More senior doctors should be involved so that each placement has its own doctor"* (L4).

The level of expectation was deemed a weakness as L1 remarked that: "*Some doctors felt like we lack clinical knowledge so they gave us little chance to talk to patients".* This was contradicted by L7 that: "*They occasionally forgot we were students and expected us to carry out the bulk of the work".*

Another issue that emanated was with regard to the attitude of the people, as a complaint was raised by L3 that: "*There is a certain group of people who were negative towards medical*

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students, mostly nurses. I got the feeling they were intimidated by medical students and that they have a very bad attitude towards medical students and doctors". In addition to the less welcoming attitude L6 advised that: "*Workers need to understand that there is a medical school in Botswana and as students we depend on them to pass on their knowledge to us*". Moreover, this had an effect on students "*Which made us to feel less confident and excited to be at the clinic*" (L2).

5.4.4. Instruction

The perception of students with regard to instruction they obtained on how to perform clinical tasks was markedly positive. A large majority of students (71%) strongly agreed that instruction was appropriate, with only 8% disagreeing. A fifth (20%) of the students were neither in agreement or in disagreement.

A number of reasons were advanced by group leaders when explaining how well the instruction was carried out. L5 stated that: "*There were clear instructions*", this was also expanded by L7 who indicated that: "*Explanations were provided on what to do and why the skills were being carried out*". L2 also indicated the variety of skills they acquired as a result of the instruction: "*I acquired clinical skills like history taking, examination and practical procedures from our weekly clinical skills classes and improved on them when the staff taught us how to perform them on real patients*".

The issue of a lack of desirable characteristics or attitudes of the staff resurfaced from section 5.4.3 even though this time it was in relation to instruction (i.e. teaching). This was reflected by L1 who was of the opinion that *"Some staff were not patient enough or not willing at all to instruct our clinical skills".* This was further elaborated by another comment which read: "*The students would appreciate it if the staff showed more interest and enthusiasm in teaching the students*" (L4). As a result, L5 felt that: *"Most learning was from observation and guessing what was being done".*

In spite of some group leaders having expressed concerns about students having to carry a heavy load (see section 5.4.3) generally the feeling amongst the group leaders was that of a lack of practice opportunities. For instance, L3 reported that: *"There could be a system to communicate with the nurses and patients on allowing students to get more history taking practice from patients"* and also "*The students would have liked more chances to do practical things like wound dressing".* Furthermore L5 revealed that: *"Some procedures were the only ones allowed like drawing blood".*

5.4.5. Observation

A majority (64%) of students strongly agreed that they were observed by clinic staff when performing clinical tasks. A variety of health staff observed the students. L6 noted that: "*Particularly at the ante natal care unit, the midwives would observe as we perform certain skills*". L1 also added that: "*Our doctors were with us in our clinical skills sessions observing us and also at the placements nurses were observing how we do clinical tasks*".

There were 13% of students who strongly disagreed with the statement claim that they were observed when performing clinical skills. The weaknesses raised regarding the observations were related to the evaluation format followed for the observations. One of the group leaders (L1) felt that: "*Students were not evaluated on their performance*" while L5 highlighted that "*Negative comments can be demoralising*" suggesting that while they were being evaluated, the experience was not necessarily positive in terms of their learning. The other weakness revealed were concerned with the structure of the observations with L2 noting that: "*It was not clear to us what they were looking for when they observed us*". An additional remark from L3 revealed that: "*When observing some observers can rush the students and they tend to lose focus*".

5.4.6. Feedback

As noted above, students' experience of being observed in the clinical context was closely linked with the feedback that they received during and after observation. In the feedback item less than half of the students (44%) strongly agreed that teachers gave them feedback on how they performed clinical tasks on real patients. A significant third of the students (33%) were neither in agreement or disagreement, while 23% strongly disagreed that feedback was given.

The reasons put forward by the group leaders to support the students who strongly agreed mostly related to the purpose of the feedback. For example L2 documented that: "*It helped us identify where we lack or we didn't perform well*" and this was also supported by L7 in that "*It helped us correct our skills and sometimes could be motivating for us*". The role of the nurses was mentioned again by L3: "*Yes, nurses were giving feedback on how we performed and where to improve*". In addition to this a desirable characteristic of the feedback was highlighted: "*Feedback was timely*" (L6).

Negative comments about the feedback were primarily focussed on its quality. When the number of students who were neither in agreement or disagreement was added to those in disagreement it makes a significant number which has to be considered. One group leader suggested that: "*Clinic staff, teachers should do one on one sessions with students and let them know how they performed*" (L5). Furthermore complaints were raised on the quality of

the feedback in that: "*They didn't give us detailed feedback, it was too short and too general because sometimes they would just say "good"* (L4). Again, the issue of time (see section 5.4.3) was raised when respondents mentioned that the quality of feedback was compromised by time constraints when L2 suggested that: "*The time was limited since there are many patients at the clinics so I believe feedback sessions could be held at the end of the day".* This was also allied to the argument from L1 concerning opportunities for feedback not being optimized: "*Feedback is essential, often opportunities for feedback were overlooked".*

5.4.7. Facilities

For this item, which looked at the facilities at which the training was taking place, the number of students was the same (33%) across all the ratings of the Likert scales. A third of students who strongly agreed that clinics offered the necessary learning environment to support patient learning.

Some of the group leaders felt that clinics provided an enabling learning environment because they had resources. For instance L3 revealed that: "*Free Wi-Fi to do research and laptops were available".* Other resources were in the form of equipment as discussed by L7 that: "*Posted charts and patient X rays were available to look at and also sometimes we were provided with some of the clinical equipment e.g. stethoscopes".*

In the same breath, the lack of resources was used to describe the weaknesses noticed in some clinics. Some group leaders bewailed the lack of physical infrastructures (L5) noting that clinics "*Should have a library where information can be readily accessed or the study room".* Numerous complaints on the lack of space to support learning was mentioned repeatedly. For example, L1 said: *"There was no space for students", "No free room to study or discuss"* and another student reiterated this and said: *"There were no extra rooms for us to take patients into and do our history taking"* (L6).

Although the availability of equipment was mentioned as a strength, one student disagreed with this and felt that "*The students should be given masks for protection from TB patients".* (L2). Also, L7 complained that "*The books used were our own"* and while L4 observed that: "*Computers were used for work purposes only".*

5.4.8. Organization

About half (51%) of the students perceived the organization of the teaching and learning activities as being supportive to their learning. A third of the students (36%) neither agreed nor disagreed whereas a smaller fraction strongly disagreed.

Group leaders who strongly agreed felt that the guidance during the placement made the organisation adequate. The guidance came from different sources but most students predominantly cited logbooks. L3 indicated that: *"The logbooks clearly guided the students on what they were expected to achieve in the clinics".* Also supporting this claim L1 reported that: *"Our logbooks helped us achieve objectives set to direct our learning".*

The support from the University was also viewed as a strength in the placement. They highlighted support provided was in the form of transport, for example L4 indicated that: *"We arrived early on time at the clinic by the school transport".* They further noted the support from the staff in that: "*The UB staff continuously assessed the logbooks to check our progress"* (L6).

One leader who was neither in agreement or disagreement with the quality of the organization reported that: *"I agree but to a certain degree"* (L2). Another ambiguous statement regarding the organisation indicated that: "*The activities were organised but also limiting to students"* (L5).

Those who were in strong disagreement were mostly concerned about the organisational structure. L7 complained that: "*Some work was done haphazardly*" whilst L4 was more specific and added that: "*Dividing the students during the placement day was sometimes not beneficial".* In view of the inadequate organization it was recommended by L5 that: *"It needed a bit of coordination by our supervisors".*

5.5. Conclusion

The majority of the students' views were in agreement that the reception and instruction they received while on placement enhanced their learning experience. The group leaders advanced possible reasons to support these perceptions. With regard to reception received while on placement, students felt that explicit objectives and explanations that were given enhanced their learning experience. Concerning the instruction, students revealed that clear explanations and acquisition of clinical skills as the reasons for their perception. Although in lesser proportions compared to reception and instruction; leadership, people and observations were viewed by the majority of students as adequate and supportive of their learning experiences. However, a noticeably lower numbers of students were in agreement that facilities, feedback and organisation of the placements enhanced their learning experiences. In the above-mentioned items, there were significant numbers of students who thought they needed to be improved. In these items, the weaknesses brought forward by the leaders included unavailability of space to support learning in clinics as facilities for placements, the lack of quality in the feedback given and the lack of structure in organisation of the placements.

In the following chapter, these findings are explored in greater detail to understand what they might mean for the intervention that has been scrutinised through this study.

CHAPTER SIX: DISCUSSION

6.1. Introduction

Student perception of the longitudinal placements in primary care clinics were studied through the lens of the eight domains in the MCPI. The findings were carefully scrutinized in order to uncover key issues for discussion in this chapter. These issues will be discussed in light of available evidence in the literature and the suppositions from the educational theories related to this study. The process followed to uncover these issues was based on reviewing the patterns and trends in the quantitative data and developing meaningful connections with recurrent themes from the qualitative data from the group leaders.

The stand out themes that emerged from this study are; the nature of the learning experience, the context in which it occurs, the role of the relationships that students engage in while on placement and lastly the students expectations of their placements. Relevant findings from the items in the MCPI are discussed under these broad key themes.

6.2. The nature of the learning experience

The findings of this study seem to suggest that the students were generally satisfied with their learning experience. The nature of learning experiences of students at placements can be related to three items in the MCPI; the instruction students received on how to perform clinical tasks, the degree to which they were being observed when performing these tasks, and the feedback given to them after the performance of the tasks. But then again, it was also important to establish what the students at UB really considered as a learning experience. This was addressed by studying the quantitative and qualitative data of the students' perceptions pertaining to the above-mentioned components in the MCPI relevant to their learning experience. The findings in this study indicated that two of the components (i.e. instruction and observation) were perceived by the majority of the students as satisfactory except for feedback (see Table 5.2). It appears that the students were less impressed by the feedback they obtained on their rotations compared to the instruction and observation components of their learning experience. This discrepancy noted in the students' perceptions of the feedback component of their learning experience requires further evaluation.

From the perspective of the instruction component of the learning experience, the favourable perception by the students is not unique to placements in UB settings only. The optimal teaching of clinical skills in primary care settings similar to the one in UB has been documented in other studies elsewhere. Those studies have concluded that clinical skills acquisition by students was found to be superior in primary care settings (Widyandana et al., 2012; Abdullatif

Alnasir & Jaradat, 2013) compared to other health care centres (e.g. hospitals). Although the instruction was well perceived by the students, one should be wary of some of the concerns raised by some of the leaders in their qualitative statements. The challenges the leaders mentioned in this study concerning the teaching of clinical skills were related to the willingness of the clinic staff to teach. The workload demands of the clinics (described in Chapter Three) could explain the predicament clinic staff found themselves in, such as having to prioritize service provision over academic responsibilities. Prideaux et al. (2007) highlight similar problems where clinic staff are not actively interested in teaching students in their review. They go a step further by proposing and advocating for a symbiotic model of learning to be used in clinical placements (described in detail in Chapter Three) to rectify this problem. The scope of this current study did not include data from the clinic staff but future studies in this area could determine the issue of teaching in clinical placements from a clinical educator's perspective.

The process of observation when performing a task goes hand in hand with the subsequent feedback one receives. From the results, the majority of the students were relatively satisfied with the observations they received (see Table 5.2). One can therefore infer that the observations in the placements had a positive impact on their learning experience. Ende (1983) notes that the commitment of the observer to the observation process makes it valid and this is necessary for effective feedback. Some of the comments from the leaders seem to resonate with this, such as mentioning the different groups of health professionals at the placements who committed to observing them when performing different clinical tasks (see Section 5.4.5).

According to the students, the feedback obtained after completing their clinical tasks appeared to be problematic as evidenced by less than half of the students viewing it as adequate (see Table 5.2). Also, a particularly worrying statistical pattern was that the number of students who were undecided about whether the feedback was appropriate or not added to those who were strongly opinionated that the feedback was inadequate was significantly high (more than 50% of the students, see Table 5.2). This essentially emphasized the concern that feedback was an item that was not executed well enough, at least according to the students. Therefore, one can infer that the students felt that the feedback they received did not have a positive effect on their learning experience. Since feedback forms an important component of students learning experiences, the reasons why students in this study might have felt this way were obtained from the group leaders' responses.

A deeper inquiry into the leaders responses revealed that some of the weaknesses of the feedback they obtained was attributed to how the feedback was structured and its content when it was delivered to the students. A similar study which supported the concerns of the

leaders regarding feedback was conducted by Gil, Heins and Jones (1984). In their study, Gil et al. (1984) supported by work from other researchers (Clynes & Raftery, 2008; Veloski et al., 2003) recommended that for an exceptional learning experience, feedback provided to students during clerkships should be motivational, timely, sufficient and encouraging.

One has to analyse the perceived deficiency of the feedback from this study from another angle in order to understand the shortcomings as reported by the group leaders. The pressure exerted on the clinic staff to balance service provision and academic duties is discussed as a predicament that has been documented previously (Prideaux et al., 2007; Greenstock et al., 2014). Also, one should be cognizant of the academic credentials of the clinic staff who give the feedback. Although it was explained how the clinic staff were oriented on how to assist students academically while on placement in Chapter Three, there is a probability of this orientation not being sufficient to fully capacitate clinic staff into proficient teacher roles such as teaching and giving feedback. Hence, there is a strong move towards Faculty development for supervisors of students to ensure effective longitudinal placements (Gil et al., 1984; Prideaux et al., 2007; Clynes &Raftery, 2008).

6.3. The Context of the Learning Experience

The nature of the learning experience has been described in detail in the preceding section, but the data from the students have highlighted issues which pertained to the context in which the learning took place. The item in the MCPI that was most relevantly to the context in which learning occurred in is the facilities item. When comparing the facilities item with the other items in the tool a different pattern was noted. Most significantly, it recorded the lowest number of students (33%, see Table 5.2) who affirmed that facilities were appropriate as a learning environment for students. The importance of the learning environment has been underlined by Gordon et al. (2000) who acknowledges that despite the pressures of service demands clinical settings should be managed in order to offer students learning opportunities to promote learning.

The other notable trend in the facilities item of the MCPI is that it generated a peculiar distribution that saw the same number of students strongly agreeing, neither agreeing nor disagreeing and strongly disagreeing that the primary care clinics supported learning. When this distribution of students perceptions was further evaluated, it showed that the cumulative number of students that were undecided and strongly disagreed that clinics were suitable as a learning environment was the highest (66%, see Table 5.2) compared to the other items. The implication of this data was that the students' perception of clinics as learning environment is clearly worrisome. Group leaders complained that the physical structures of the clinics did

not support clinical learning, mostly citing the limited space to absorb learning activities in addition to the services offered by clinics. The influence of the physical structures of a clinical setting and its impact on the learning environment was studied by Kaye et al. (2010) who discovered that medical students felt that infrastructure and facilities in clinical settings are factors which would influence their decisions to study in any particular placement.

The quantitative trend and responses from leaders offer useful information to the Faculty and other stakeholders to consider strategies for optimizing learning in the clinics. Earlier on in Chapter Three, clinics were described as centres specifically designed for service delivery. The data from this study suggests that efforts are required to upscale the facilities in the clinics in order to support academic duties. Furthermore, leaders also suggested the need for computers and information technology support to enhance academic activities at placement sites. Gordon et al. (2000) also advocate for access to information technology as a means of communication, logging clinical experience and as an initiative likely to result in promoting a clinical setting to be an ideal learning environment. This can, however, have significant resource implications and less-resourced institutions may find it difficult to support their students in this way.

Even though the study did not focus primarily on students' experiences at different clinics, the effect of clinic sites on students' learning experiences cannot be ignored. There was clear evidence from the quantitative data that students were less impressed with some clinics as a learning environment. The qualitative data from group leaders provided supplemental evidence that the learning experience varied depending on the clinics at which the students were placed; for instance leaders in some clinics complained of lack of equipment whereas a leader in a different clinic would have a different opinion. These differences could also be attributed to differences in the sizes of the ten clinics and the services they offer.

As explained in Chapter Two, the learning context is closely associated with the social environment and the culture within which it occurs. This begs the question of what the culture of primary care clinics in Botswana is and how this could have potentially affected the student's perceptions of their learning experience. The data from the group leaders indicate that time was a limited resource in the clinics and this coupled with the high workload appeared to be an issue. These issues could have possibly created a culture where the clinic staff are prompted to prioritise their duties due to the high hence potentially resulting in an acquired culture that promotes service to patients over academic duties. This could explain the recurrent complaints from the group leaders of clinic staff exhibiting negative attitudes which they perceived as not appropriate to their learning.

The study did not capture details about clinics which would allow conclusions about what constitutes an optimal learning environment for students. Future research is needed to determine what an optimal learning environment should look like, and recommend ways in which this can be facilitated across all sites. Nonetheless, it should be emphasized that although there were varying experiences across placement sites, the ten primary care clinics were able to provide students with exposure to the 'real' context of health care in Botswana.

6.4. Relationships

The role of relationships emerged strongly in this study and the item about people in the tool explored the relationships between the students and clinic staff from the viewpoint of teacher and student dynamics during the instruction process. The item on leadership on the other hand, investigated these relationship from a supervisory perspective.

The quantitative data portrayed the relationship between students and clinic staff from a teacher and learner perspective (i.e. people item) as ideal because most of the students were in agreement that the clinic staff supported their learning. The qualitative data from the student leaders supported this view, by revealing how the different groups of health professionals' found in the placements were indeed supportive of their learning. In addition, the group leaders also mentioned desirable humanistic qualities that the clinic staff exhibited such as listening, involving and interactive and so forth (see Section 5.4.3 for more details) by the clinic staff which could have strengthened the relationship between the two parties. Numerous studies (Hirsh et al., 2012; Greenhill & Walters, 2014; Van Schalkwyk et al., 2014) report on how these relationships develop and their effect on student learning during clinical placements. These studies mostly attribute the development of relationships between students and teachers to the longitudinal placement model which they believe provides an opportunity for students to spend relatively longer periods of time with the staff hence nurturing and strengthening such relationships. The same explanation could also be applicable to the trend depicted by the results of this current study because UB students also spend a relatively longer period of time of 16 weeks (see Section 3.2) with clinic staff in their placements.

Furthermore, when analysing the relationships between students and the clinic staff at a supervisory level, the leadership item in the tool presented this relationship mostly in a positive light. The majority of the students indicated that leadership was adequate at the placements. But, from the statements by the student group leaders it was observed that most of the supervisory role is assumed by the nursing staff of the clinic. The possible reason for this was a due to the shortage of doctors in the public sector in Botswana (Republic of Botswana, 2014). However, the trend of nurses assuming the leadership role during placements for

medical students is not unique to the settings in UB. Greenstock et al. (2014) discovered in their study based in an Australian context that due to the busyness of the doctors, nurses were more willing and had more opportunity to adopt the role of the mentors in clinical placements.

The role of nurses in primary care has been documented, especially that of family nurse practitioners in terms of service provision to patients and support of educational activities in the clinics they serve (Bodenheimer, 2006; Bodenheimer & Pham, 2010). This is also in line with the advancing concepts of inter-professional education and collaborative practice, which encourage practitioners from different health professions to work together in educational activities and in clinical settings to improve patient outcomes (Hammick, Freeth, Koppel, Reeves, & Barr, 2007).

6.5. Student expectations

From the qualitative data, it was evident that students had their own expectations regarding certain aspects of the placements. Analysis of the data from the group leaders revealed that students had some expectations concerning their placements.

For instance, in the previous discussion the relationship between the students and staff at a supervisory level was perceived to be adequate but the data from the group leaders raised concerns which when analysed further reflected the students' expectations. The leadership item established that the supervision of the students was mostly the nurses' responsibility. Also, it appeared from the qualitative responses from the group leaders revealed that students have particular expectations from their supervisors by reporting on some deficiencies they observed. For example one group leader remarked that leadership was sometimes unavailable and could not negotiate on their behalf. Thus, from this data one can deduce that role clarification or expectations from supervisors was an issue that needed to be addressed in the placements at UB.

The importance of leadership and mentorship in longitudinal clinical placements has previously been reported (Voss et al., 2015) and the advantages of developing collaborative roles between students and supervisors is advocated for (Hauer et al., 2012). However, in the context of Botswana, this relationship should be addressed cognizant of the pressures found in the clinics as discussed earlier (see Section 3.2) and the well-researched challenge of balancing service provision with academic duties (Gordon et al., 2000; Prideaux et al., 2007)

Another expectation that emanated from the data related to the organisation of the students and this was one of the three items which were identified as problematic in the placements. From the qualitative data, it seems that students expected better coordination from supervisors and some were not particularly happy with the division of students. The expectations of the

supervisors from a student's perspective was a recurring theme in the longitudinal placements at UB. The data suggests that students have defined a role in their mind which they expect the supervisor to fulfil. Two possible explanations are applicable here; one could be that the students did not understand the role of the supervisors from the beginning of the module when it was explained to them. Another explanation could be that the demands in the clinics could be limiting the supervisors in fulfilling their duties to a more satisfactory level. Nonetheless, a pragmatic solution needs to be identified and implemented to rectify the issue.

6.6. Implications of theoretical underpinnings to the study

Experiential learning theory, is relevant to the findings of this study. It is apparent from the study that students to some extent appreciated the nature of the learning experience while on placement. Yardley et al. (2012) drawing from the work of John Dewey (whose work is contributed significantly to the development of the experiential learning theory) noted that even though students are given opportunities to experience and interact with the environment, the role of educators should not be negated. They continue to mention that the role of educators is not only for knowledge provision only but also to guide and assist leaners in their experiences through reflective thought and learning.

After reviewing Dewey's work, Miettinen (2000) explains that reflective thought and learning comes about as a result of uncertainties that exist in the learning environment (including physical and social factors). Applying this theory to this current study, the guidance and assistance from clinical educators could have contributed to reflective learning in students. The students' perceptions of potential reflective learning in the placements were generated from the domains of; observations during performance of clinical tasks and feedback given after performance of tasks in the MCPI.

Yardley et al's postulations concerning the significant role played by clinical educators are reflected in the findings as the majority of the students strongly agreed that the teaching they obtained in the skills laboratory and clinics contributed significantly to their learning. Furthermore, through their leaders students expressed the need for improvement on the feedback they received. The implication that can be drawn from this is that the students also expected guidance in the form of feedback from their teachers on how to perform clinical tasks to enhance their learning experience. However, there are limitations as to how far the experiential theory and the work of Yardley et al. (2012) can be extrapolated to the findings of this study. In this study, the context of teachers is different because the role of the clinic staff in the placements was primarily patient care instead of teaching which could explain some of

the challenges that they encountered in fully committing to support students learning experience.

Situated learning theory is also applicable to the findings of this study. According to this theory, Lave and Wenger (1990) advance that communities of practice occur when a group of people come together in pursuit of a shared purpose. However, Mann (2011) elaborates on Lave and Wenger's work to explain how newcomers through increasing participation in the CoP acquire knowledge and create personal values (see Section 2.6). When applying this theory to this study, it is evident from the results that students had the opportunity to observe and practice with experienced clinic staff when performing clinical tasks. Thus, through increasing participation of students in teachings, observations and feedback when performing clinical tasks, students become part of the communities of practice in clinics because of the shared common purpose of service provision to patients.

The work of Gordon et al. (2000) further supports the applicability of the CoP to this study by explaining that placing students in primary care or community clinics offers a learning environment that allows for legitimate participation (explained in detail in Section 2.6). They further emphasize that in primary care settings, students are able to identify common conditions and they have more opportunities to discuss these cases with their supervisors. They further compared the availability of such opportunities in primary care to tertiary hospitals where it is relatively busy and where students usually have less opportunities to reflect on the cases they have seen. In this study, as indicated in the findings the interaction with supervisors was there although there were occasional issues of unavailability. Therefore, students' alignment to the CoP in the clinics at UB could be viewed as likely possible due to extensive use of primary care clinics for placements. However, more work needs to be done in terms of availing opportunities for reflection to enhance the process.

According to Greenhill and Walters (2014), transformative learning can occur in clinical contexts when students interact with patients and staff in the clinics which could potentially result in a change in their perceptions and frames of references. They explain that such encounters with patients or health staff can lead to students experiencing a disorientating process that takes them out of their comfort zones. For instance, students in placements have exposure to diverse patients presenting with complex and thought provoking issues that encourage questioning and challenging their personal values. However, for the learning experience to be transformative, students should be supported and encouraged to reflect on these experiences (see Section 2.6). From the students' perspective in this study, it is evident that their interactions with the staff had some effect on how they viewed their learning experience. However, it should be emphasized that this does not necessarily mean that

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transformative learning occurred. The methodological approach used in this study did not provide sufficient data to support such a claim.

6.7. Study limitations

The perceptions of the students may have been significantly influenced by the clinics where they were placed more than by the new model of longitudinal placements used in UB. Although the study did not take into account the varied clinics' influences on the perceptions of the students, the effect on their perceptions cannot be ignored. The tool used was validated to measure the appropriateness of the learning environment according to students' perspective but not specifically the structure of the placement.

This was a small-scale study with a total sample of 39 participants, and because of this, the generalizability of the results to different settings is very limited. Other methodological approaches such as interviews or focus group discussions would have provided a more insightful data of the perceptions of students and could have strengthened the justification of this study adopting a mixed method approach. However it, could potentially serve as a pilot for a larger study that could explore each site's specific issues through multiple case studies.

The data collected are not completely representative of the whole cohort because the qualitative MCPI was completed by the selected few. This introduced a selection bias to the study. Also, the predetermined categories in the qualitative tool limited the responses.

Another limitation of this study is that, although the role of the researcher was clarified and measures were taken to mitigate any potential effect on the results (see sections 4.3.2 and 4.4), possible influence as a result of the researcher's relationship with the students and his professional capacity at the University is acknowledged.

Furthermore, this study sought opinions of second year medical students who were still relatively unsophisticated in terms of 'meta-learning' and could have struggled to identify learning experiences in the placements. This raises the issue of the students' level of engagement with the issue of learning experiences given their level of educational experience.

One of the problems students mentioned in this study, pertained to the previously used placement structure, which is the rotational system at UB and how it limited the understanding of the health system. It would have been useful if the study could have shed light on the problem of students' lack of understanding of the health system, and whether the longitudinal placements led to a greater clarity. However, the results of this study did not address this issue, because the tool did not produce relevant data. A related study could be done in the

future to determine students understanding of the local health system as a result of being placed in primary care clinics.

CHAPTER SEVEN: CONCLUSION

7.1. Recommendations

The findings of this study identified key issues that need to be addressed in the placements. One of the challenges concerned the availability of supervision. To improve this, more staff (not limited to nursing staff only) in the clinics could be recruited and trained to take on leadership roles hence reducing reliance on just a selected few to supervise. Additionally, measures have to be taken to ensure that staff who assume leadership roles are groomed and are made to understand the expectations and outcomes of the programme.

The induction and reception was mostly done well although some concerns about limited staff involvement in the process were at times were expressed. This calls for having the induction as a team consisting of all the stakeholders involved in the organization of the placements. Tighter and more closely-knit relationships between UB, DHMT and staff in the clinics could be developed as an option of improving staff involvement on the induction and reception of medical students during in their placements.

According to the results clinic staff, particularly the nurses appeared to take responsibility for most of the student learning experience in the placements. In view of clinic staff as teachers, there is overwhelming evidence in the literature that health staff need to be developed to take up teaching roles through faculty development programmes (Prideaux et al., 2007; Hirsh et al., 2014; Walters et al., 2014). These efforts could help in resolving the issue of doctors having high expectations of students. Therefore, at all stakeholder levels, this current study results encourage the development of such programmes.

According to the findings, Faculty development should not solely focus on improving teaching roles for health workers and university staff but also at delivering effective feedback. Students at UB have clearly indicated the importance of observation and feedback to their training. Mazotti et al. (2011) clarifies this point by revealing that students depend on the quality of feedback to improve their clinical skills education. Therefore, in developing training programmes the curriculum should be inclusive of issues of feedback and observation.

The findings regarding primary care clinics have unearthed the need to improve them to a satisfactory learning environment. Even though some students were content with resources

available in the PCCs, a significant number thought otherwise. Most complaints from students were mostly directed at the lack of physical infrastructure such as rooms, computers and space to support academic activities on site. The Lancet Commission for for transforming education to strengthen health systems in an interdependent world advocates for a curricular that deviates from a predominant hospital orientation to a more community primary care focus (Frenk et al., 2010). This is also aligned to UB and MoH strategic plans, hence in light of the Lancet Commission recommendations and strategic plans mentioned above, efforts should be made to improve the physical structures in clinics to be more conducive for learning purposes.

In terms of organization of the placements, although the majority of students were impressed there were pockets of leaders who complained of occasional lack of coordination. Since the placements are organized by the UB and DHMT, a close scrutiny of how the programme runs still remains pivotal. This study should be a starting point and it has established the students' perceptions to the placements in PCCs which will contribute to the curriculum review as a form of quality assurance.

7.2. Closing thoughts

The aim of the study was to investigate students' perceptions to their learning experiences in longitudinal placements in primary care settings. The findings of this study have shed some light on the learning experiences of the students in longitudinal placements. Although this study does not explore the entire learning experience, the eight items in the tool that guided the students' perceptions to important aspects of learning to unearth useful information. The study was able to identify key issues relating to the students learning experiences while on placement.

The learning experience of the students in terms of instruction and observation seemed appropriate according to this study. It is the feedback component of the learning experience where students felt that more improvement was needed. The context of the learning experience was another key issue where the students' perceptions suggested that more could be done to develop the primary care clinics to a satisfactory level as a learning environment.

As the student perceptions of their learning experience were investigated in this study, other issues relating to their learning were discovered. The findings were also able to identify the role of relationships between students and staff and how they affect the students learning experience. Firstly, the relationship between the clinic staff and students from a teaching and learning perspective appears to be adequate. Secondly, the other from of the relationship which occurs at a supervisory level is also perceived by the majority of the students to be

satisfactory. Although both of these relationships were relatively perceived in a good light by the students, there were some challenges reported by the leaders which need to be addressed.

It also became apparent from the results of the study that students had certain expectations that they had of the learning experience. These expectations were reflected in the responses from the group leaders and they were pertaining to what students expected in terms of the nature of the learning experience they would encounter and the type of context they expected would be offered by the clinics. Additionally, this study was also able to uncover the students' expectation with regard to the way they expect to relate with the clinic staff at both the teacher and supervisory level.

In a nutshell, the findings of this study have generated findings that will empower the Faculty to make amendments where needed. As a result, student learning can be optimized in primary care clinics and while sustaining their role for patient care as well.

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ADDENDUMS

ADDENDUM 1: University of Botswana Faculty of Medicine Graduate Profile

Our graduates are committed to delivering safe and effective care.

- They are skilled in the vocational sciences and understand the scientific foundation of clinical practice and public health practice.

- They possess sound clinical and patient management skills, are able to recognize and manage common medical conditions and emergencies, and are competent in the performance of core clinical procedures.

- They are committed to improving quality and safety in patient care, are committed to the most effective use of limited resources and are able to identify, appraise and apply best evidence in making health care decisions.

- They will make effective use of all health-related resources and sources of information, including electronic information technology.

Our graduates are committed to patient-centred care

- They respect their patients' values, preferences and expressed needs, and will engage their patients as equal partners in decision-making.

- They are compassionate, empathetic and committed to advocacy on behalf of their patients.

- They understand the importance of personal, socio-economic and cultural factors in determining health and in limiting the effectiveness of their own interventions.

- They are sensitive to their patients' personal, ethnic, social-economic, religious and cultural background, and will seek to overcome the limitations on effective patient-centered care which result from differences in language, social status and cultural background.

Our graduates are committed to life-long learning.

- They are committed to a lifetime of critical self-appraisal and improvement.

- They will continuously seek out, appraise and assimilate new knowledge in order to remain abreast of developments in the health sciences, and will incorporate these developments into their practice.

Our graduates are open-minded, critical thinkers and effective problem-solvers.

- They will prove skilled in problem identification, analysis and management, both in the specific sense of clinical diagnosis and management, and in the broader sense of problem solving in relation to research, practice management, administration and health promotion.

Our graduates demonstrate high standards of professionalism, ethics, honesty & humility.

- They understand the moral and ethical principles on which clinical practice is based as well as the legal responsibilities of the profession.

- They practice in accordance with the highest standards of both ethics and professionalism.

- They will acknowledge their limitations and their need for ongoing professional growth.

- They acknowledge the equal status of their patients and of their colleagues in other health-related professions in both health promotion and health provision.

- They are able and prepared to recognize stress- and health-related problems in themselves and in their colleagues, and seek or offer support as appropriate.

- They appreciate their role in promoting respect for, human rights and incorporate this into their professional practice.

Our graduates are able to communicate and collaborate effectively.

- They possess good written and verbal communication skills.

- They are able to establish professional and caring relationships with patients, patients' families and the communities in which they practice.

- They are able to communicate health-related information effectively to their patients, colleagues and to decision-makers within society

ADDENDUM 2: Learning outcomes in the logbooks

Your learning outcomes and how to achieve them

Outcomes	*Activities to fulfil outcomes*
By the end of the placements the students will be able to: 1. Measure vital signs (pulse, respiratory rate, BP, temperature) accurately and with confidence	1. Work with doctors and nurses at patient admissions area, using own and clinic equipment.
2. Take a complete history from a patient (the Calgary-Cambridge approach) accurately, examine the patient as far as your skills allow, record the findings and competently present them to a doctor or nurse practitioner	2. Work in couples (one takes history and examines, one gives feedback with checklist) in patient admission area; present in consulting rooms
3. Prepare and deliver a health talk to waiting patients, using the UNICEF 'Facts for Life' guidelines	3. Present in pairs in patient waiting area (one delivers, one gives feedback with checklist)
4. Weigh and plot the weights of children under 5 years and administer immunisations under supervision	4. Work in Child Welfare Clinic, with nurses supervising initially
5. Describe how TB and HIV/AIDS are managed in clinics	5. Work with the staff in the TB and IDCC services in the clinic
6. Perform procedures such as injections, venepuncture, dipstick urinalysis	6. Work in the clinic treatment area under close supervision of the staff
7. List ten commonly used drugs used in the clinic, and state their mode of action and common indications for their use	7. Work in the clinic pharmacy carrying out the instructions of the pharmacist
8. List the functions of two other health professional cadres (i.e. not doctors) working in the clinic	8. Observe and interview qualified professionals and students working in the clinic (nurses, midwives, pharmacists etc.)
9. Describe the home situation of a patient who uses the clinic regularly and discuss how these may affect the health of the patient (including compliance with prescribed treatment)	9. Ask permission to go home with a chronic patient living nearby (travel on foot); explain that the purpose of the visit is for you to learn more about how your patients one day will live

ADDENDUM 3: Clinical services provided by the clinics used for placements

Name of clinic	Services offered	Operation times
Mafitlhakgosi Block 9 Extension 2 Old Naledi Lesirane Broadhurst 3	Medical consultations Wound dressing HIV and TB clinics Laboratory Ante natal care Community outreach care Pharmacy Child welfare Social work and counselling Maternity services	All 24 hours
Mogoditshane Phase II Tlokweng Main Gaborone West	Medical consultations Wound dressing HIV and TB clinics Laboratory Community outreach care Pharmacy Child welfare Ante natal care	10 hours

ADDENDUM 4: Section A of the data collection tool

The following statements relate to experiences in your placements. Please rate them appropriately based on the provided scale.

1. Leadership
There is leadership if one or more senior doctors (consultant, GP, resident, matron) take responsibility for your education

There was leadership of this placement

Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement

☐   6 = strongly disagree

2. Reception/induction
An appropriate reception is a welcome that includes an explanation of how the placement can contribute to your real patient learning

There was an appropriate reception to this placement

Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

3. People
The support to your real patient learning from people (like doctors, secretaries, receptionists, nurses, and others) you met on the placement

I was supported by the people I met on this placement

Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

4. Instruction

Clinical teaching may include instruction in how to perform clinical skills (like history taking, examination, practical procedures etc.) on real patients

I was instructed in how to perform clinical skills on real patients

Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

5. Observation

Clinical teaching may include teachers observing you perform clinical tasks on real Patients

I was observed performing clinical tasks on real patients
Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

6. **Feedback**

Clinical teaching may include teachers giving you feedback on how you performed clinical tasks on real patients

I received feedback on how I performed clinical tasks on real patients
Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

7. **Facilities**

Your learning environment may include such things as space for students (to write notes, read, and be taught) and resources (books, computers or other materials) that support your real patient learning

This placement provided appropriate facilities

Please rate your comment

☐ 0 = strongly agree

☐ 3 = neither agree nor disagree with this statement:

☐ 6 = strongly disagree

8. **Organization of the placement**

An appropriately organized placement is one whose teaching and learning activities are organized in a way that supports your real patient learning

This placement was appropriately organized

Please rate your comment

☐ 0 = strongly agree

☐ 3 = neither agree nor disagree with this statement:

☐ 6 = strongly disagree

ADDENDUM 5: Section B of the data collection tool

The following statements relate to experiences in your placements. Please rate them appropriately based on the provided scale. There is also space provided to add comments and elaborate on the rating you have given.

1. Leadership
There is leadership if one or more senior doctors (resident, medical doctor, nurse, faculty supervisor, matron) take responsibility for your education

There was leadership of this placement
Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

Please add comments to either or both of the next two boxes

Strength of the leadership were

Weaknesses or ways leadership could be improved

2. Reception/induction
An appropriate reception is a welcome that includes an explanation of how the placement can contribute to your real patient learning

There was an appropriate reception to this placement
Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

Please add comments to either or both of the next two boxes

Strengths of the reception were

Weaknesses or ways the reception could be improved

3. People

The support to your real patient learning from people (like doctors, secretaries, receptionists, nurses, and others) you met on the placement

I was supported by the people I met on this placement
Please rate your comment

☐ 0 = strongly agree

☐ 3 = neither agree nor disagree with this statement:

☐ 6 = strongly disagree

Please add comments to either or both of the next two boxes

Strengths of any or all of the groups of people listed above were

Weaknesses of any of the groups of people listed above or ways they could contribute more

19740751

4. Instruction
Clinical teaching may include instruction in how to perform clinical skills (like history taking, examination, practical procedures etc.) on real patients

I was instructed in how to perform clinical skills on real patients
Please rate your comment

☐	0 = strongly agree
☐	3 = neither agree nor disagree with this statement:
☐	6 = strongly disagree

Please add comments to either or both of the next two boxes

Strengths of instruction were

Weaknesses or ways instruction could be improved

5. Observation
Clinical teaching may include teachers observing you perform clinical tasks on real patients

I was observed performing clinical tasks on real patients
Please rate your comment

☐	0 = strongly agree
☐	3 = neither agree nor disagree with this statement:
☐	6 = strongly disagree

Please add comments to either or both of the next two boxes

Strengths of observation were

Weaknesses or ways observation could be improved

6. Feedback
Clinical teaching may include teachers giving you feedback on how you performed clinical tasks on real patients

I received feedback on how I performed clinical tasks on real patients
Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

Please add comments to either or both of the next two boxes

Strengths of feedback were

Weaknesses or ways feedback could be improved

7. Facilities
Your learning environment may include such things as space for students (to write notes, read, and be taught) and resources (books, computers or other materials) that support your real patient learning

This placement provided appropriate facilities
Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

Please add comments to either or both of the next two boxes

Strengths of the facilities were

Weaknesses or ways the facilities could be improved

8. Organization of the placement

An appropriately organized placement is one whose teaching and learning activities are organized in a way that supports your real patient learning

This placement was appropriately organized

Please rate your comment

☐   0 = strongly agree

☐   3 = neither agree nor disagree with this statement:

☐   6 = strongly disagree

Please add comments to either or both of the next two boxes

Strengths of organization were

Weaknesses or ways organisation could be improved

ADDENDUM 6: Informed consent form

PARTICIPANT INFORMATION LEAFLET

TITLE OF THE RESEARCH PROJECT:

Medical students' perceptions of their learning during longitudinal primary care clinic placements?

REFERENCE NUMBER:

PRINCIPAL INVESTIGATOR: Dr Mmoloki C. Molwantwa

ADDRESS: Faculty of Medicine,

University of Botswana

cr. Notwane and Mobutu Roads

Gaborone, Botswana

mmoloki.molwantwa@mopipi.ub.bw

CONTACT NUMBER: +267 74 09 6000 (mobile)

+267 72 44 4264 (mobile)

+267 355 5495 (work)

Dear student

My name is Mmoloki Molwantwa and I am currently studying for my Master of Philosophy in Health Professions Education at Stellenbosch University. I would like to invite you to participate in a research project that aims to investigate the perceptions of medical students to their learning in their clinical placements.

 Please take some time to read the information presented here, which will explain the details of this project and contact me if you require further explanation or clarification of any aspect of the study. Also, your participation is *entirely voluntary* and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the *University of Botswana Institutional Review Boards and Health Research Ethics Committee (HREC) at Stellenbosch University, University of Botswana Institutional Review Board* and will be conducted according to accepted and applicable National and International ethical guidelines and principles, including those of the international Declaration of Helsinki October 2008.

The following information summarises important details of the research. Please read it carefully before proceeding to the next step.

Purpose of the Research

Clinical placements have been used at the University of Botswana to expose student to community health needs and real life cases. The arrangements of the placements follows a system where students are placed in the same clinic for the entire academic year. We want to find out the students opinions and perceptions of their clinical learning in this form of arrangement. This information will provide feedback to the faculty on where to improve. Additionally the information generated by this study will feed into the curriculum review process of the undergraduate medical program.

Type of Research Intervention

This study will involve your participation by voluntary completion of a questionnaire that will take thirty to forty-five minutes.

Participant Selection

You are being invited to take part in this research because we feel that your two years' experience in the clinical placements can contribute to our understanding of perception of students. We also believe that your experience with the previous rotational system places you in a better position to comment on the learning experiences in longitudinal placements.

Voluntary Participation

The choice that you make will have no bearing on your academic evaluations or reports. You may change your mind later and stop participating even if you agreed earlier. If you choose not to participate all the assistance/teaching you receive from this Faculty will continue and nothing will change.

Procedures

We are asking you to help us understand the perceptions of students to longitudinal placements in community primary care clinics. If you accept you will be asked to fill in a questionnaire. A number of issues regarding teaching, learning and organization of the placements will be presented to you. You will then be asked to grade the statements in accordance to your experience in your particular clinic.

The group leaders of the clinics will have the same items presented to them and if they agree to complete the questionnaire and in addition to the ratings they will be asked to provide written explanations of why they gave a particular rating.

If you do not wish to answer any of the questions included in the survey, you may skip them and move on to the next question.

Duration

The research is a cross sectional design and you will be asked to complete the questionnaire once should you agree to take part.

Risks

There is a risk of potential identification that especially for those who complete the questionnaire that asks for written explanation of ratings that they might be identified and traced to the clinics they are referring to. Although measures will be taken to ensure this is minimised, you do not have to answer any question if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

Benefits

There will be no direct benefit to you but your participation will help to determine what needs to be done to improve clinical learning in the placements. Additionally the community stands to gain from this study because improving the learning of students also improves their clinical interaction with the community through service learning.

Reimbursements

You will not be provided any incentive to take part in the research.

Confidentiality

The information that we collect from this research project will be kept private. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key.

Sharing the Results

Nothing that you tell us today will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that we get from this research will be shared with you before it is made widely available to the public. Each participant will receive a summary of the results for your review. Following your review, we will publish the results so that other interested people may learn from the research.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact Dr Mmoloki Molwantwa whose contact details are provided above.

If you are willing to participate in this study please sign the attached Declaration of Consent and hand it to the investigator.

Yours sincerely

Dr M. Molwantwa

Declaration by participant

By signing below, I …………………………….…………. agree to take part in a research study entitled **………..**

I declare that:

- I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.

- I have had a chance to ask questions and all my questions have been adequately answered.

- I understand that taking part in this study is *voluntary* and I have not been pressurised to take part.

- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (*place*) ....…......……………... On (*date*) …………..………..
2016.

....

Signature of participant

Declaration by investigator

I *(name)* …………………………………………….……… declare that:

- I explained the information in this document to …………………………………….
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use an interpreter. (*If an interpreter is used then the interpreter must sign the declaration below.*

Signed at (*place*) ....….......……………. on (*date*) …………...... 2016.

....

Signature of investigator   **Signature of witness**

ADDENDUM 7: Ethics approval from Stellenbosch University

UNIVERSITEIT·STELLENBOSCH·UNIVERSITY
jou kennisvennoot • your knowledge partner

Approved with Stipulations
New Application

01-Aug-2016
Molwantwa, Mmoloki MC

Ethics Reference #: S16/07/117
Title: Medical students' perceptions of their learning during longitudinal primary care clinic placements?

Dear Dr Mmoloki Molwantwa,

The **New Application** received on 05-Jul-2016, was reviewed by members of **Health Research Ethics Committee 2** via Expedited review procedures on **01-Aug-2016**.

Please note the following information about your approved research protocol:

Protocol Approval Period: **01-Aug-2016 -31-Jul-2017**

The Stipulations of your ethics approval are as follows:
1. Please insert the version number and date the consent forms.
2. Please provide a list of all abbreviations used in the protocol.
3. Please consider numbering the questions in appendices B and C.
4. Please consider revising your sub-questions. Although the intentions behind sub-questions are more than adequately explained in the table in text, there are a few questions that can be more pointedly represented, for example,
i. What are the students view on the organization of the placements? In view of the fact that you are actually researching a sample, not the population, would it not be more accurate to use the term" student participants" or "participants".
ii. The question, "What are the students' perceptions of the health care staff working in the clinics?" is too general, it needs a more pointed direction, an example would be "How do participants perceive the attitude of the workers in the clinic towards their placements or towards them?
5. Under study population in the protocol, the sample is said to represent first and 2nd year students with research value placed on the experiential learning of the 2nd years, yet the research questions do not reflect the two groups of students and their different expected data input. Please clarify.
6. Under ethical considerations in the protocol, it is said that participation in the study will be voluntary and anonymous, yet the term DE identification is also used in the text. Please clarify this and revise this section accordingly.

Please remember to use your **protocol number** (S16/07/117) on any documents or correspondence with the HREC concerning your research protocol.

Please note that the HREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

After Ethical Review:
Please note a template of the progress report is obtainable on www.sun.ac.za/rds and should be submitted to the Committee before the year has expired.

The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for an external audit.

Translation of the consent document to the language applicable to the study participants should be submitted.

Federal Wide Assurance Number: 00001372
Institutional Review Board (IRB) Number: IRB0005239

The Health Research Ethics Committee complies with the SA National Health Act No.61 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

Provincial and City of Cape Town Approval

Please note that for research at a primary or secondary healthcare facility permission must still be obtained from the relevant authorities (Western Ca Department of Health and/or City Health) to conduct the research as stated in the protocol. Contact persons are Ms Claudette Abrahams at Western Cape Department of Health (healthres@pgwc.gov.za Tel: +27 21 483 9907) and Dr Helene Visser at City Health (Helene.Visser@capetown.gov.za T +27 21 400 3981). Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE approval can be obtained from these health authorities.

We wish you the best as you conduct your research.
For standard HREC forms and documents please visit: www.sun.ac.za/rds

If you have any questions or need further assistance, please contact the HREC office at .

Included Documents:
HREC application_signed formed.pdf
HREC Application Form Mmoloki Molwantwa.doc
Investigators declaration form _Mmoloki .pdf
General Checklist Mmoloki Molwantwa Mphil HPE.doc
Consent Form final.doc
Mmoloki Cornelius Molwantwa CV.pdf
PROTOCOL SYNOPSIS.docx
RESEARCH PROJECT PROPOSAL Molwantwa final ethics_scvs.docx
SvS_abbreviated CV_March2016.pdf
Investigator Declaration Susan van Schalkwyk (Eng)_final.pdf

Sincerely,

Francis Masiye
HREC Coordinator
Health Research Ethics Committee 2

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Investigator Responsibilities

Protection of Human Research Participants

Some of the responsibilities investigators have when conducting research involving human participants are listed below:

1.Conducting the Research. You are responsible for making sure that the research is conducted according to the HREC approved research protocol. You are also responsible for the actions of all your co-investigators and research staff involved with this research.

2.Participant Enrolment. You may not recruit or enrol participants prior to the HREC approval date or after the expiration date of HREC approval. All recruitment materials for any form of media must be approved by the HREC prior to their use. If you need to recruit more participants than was noted in your HREC approval letter, you must submit an amendment requesting an increase in the number of participants.

3.Informed Consent. You are responsible for obtaining and documenting effective informed consent using only the HREC-approved consent documents, and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Please give all participants copies of the signed informed consent documents. Keep the originals in your secured research files for at least fifteen (15) years.

4.Continuing Review. The HREC must review and approve all HREC-approved research protocols at intervals appropriate to the degree of risk but not less than once per year. There is no grace period. Prior to the date on which the HREC approval of the research expires, it is your responsibility to submit the continuing review report in a timely fashion to ensure a lapse in HREC approval does not occur. If HREC approval of your research lapses, you must stop new participant enrolment, and contact the HREC office immediately.

5.Amendments and Changes. If you wish to amend or change any aspect of your research (such as research design, interventions or procedures, number of participants, participant population, informed consent document, instruments, surveys or recruiting material), you must submit the amendment to the HREC for review using the current Amendment Form. You may not initiate any amendments or changes to your research without first obtaining written HREC review and approval. The only exception is when it is necessary to eliminate apparent immediate hazards to participants and the HREC should be immediately informed of this necessity.

6.Adverse or Unanticipated Events. Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research-related injuries, occurring at this institution or at other performance sites must be reported to the HREC within five (5) days of discovery of the incident. You must also report any instances of serious or continuing problems, or non-compliance with the HRECs requirements for protecting human research participants. The only exception to this policy is that the death of a research participant must be reported in accordance with the Stellenbosch Universtiy Health Research Ethics Committee Standard Operating Procedures www.sun025.sun.ac.za/portal /page/portal/Health_Sciences/English/Centres%20and%20Institutions/Research_Development_Support/Ethics/Application_package All reportable events should be submitted to the HREC using the Serious Adverse Event Report Form.

7.Research Record Keeping. You must keep the following research-related records, at a minimum, in a secure location for a minimum of fifteen years: the HREC approved research protocol and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence from the HREC

8.Reports to the MCC and Sponsor. When you submit the required annual report to the MCC or you submit required reports to your sponsor, you must provide a copy of that report to the HREC. You may submit the report at the time of continuing HREC review.

9.Provision of Emergency Medical Care. When a physician provides emergency medical care to a participant without prior HREC review and approval, to the extent permitted by law, such activities will not be recognised as research nor will the data obtained by any such activities should it be used in support of research.

10.Final reports. When you have completed (no further participant enrolment, interactions, interventions or data analysis) or stopped work on your research, you must submit a Final Report to the HREC.

11.On-Site Evaluations, MCC Inspections, or Audits. If you are notified that your research will be reviewed or audited by the MCC, the sponsor, any other external agency or any internal group, you must inform the HREC immediately of the impending audit/evaluation.

ADDENDUM 8: Ethics approval from University of Botswana

Ref: █████████████

31ST October 2016

University of Botswana
Department of Medical Education
P/Bag 0022
Gaborone, Botswana

RE: **PERMISSION TO CONDUCT RESEARCH**

Project Title: **"Medical students' perceptions of their learning during longitudinal primary care clinic placements?"**

Researcher(s): Dr. Mmoloki Molwantwa

Since it is a requirement that everyone undertaking research in Botswana should obtain a Research Permit from the relevant arm of Government. The Office of Research and Development at the University of Botswana has been tasked with the responsibility of overseeing research at UB including facilitating the issuance of Research permits for all UB Researchers inclusive of students and staff.

I am glad to advise that approval has been granted for the above study to be conducted at the University of Botswana. Since the study is to be conducted within the confines of UB, the study has accordingly been exempted from Government Research Permit requirements. In reaching the above decisions, it was noted that the above study involves minimal risk. Before proceeding with the study, the researcher is required to ensure the following:

- **The study will only be conducted within the confines of UB following the approved proposal version.**
- **No investigations will be conducted outside UB as part of the study before permission is sought from UB authorities as necessary.**
- **APPROVAL DATE**   :31st October 2016
- **EXPIRATION DATE**   :30th October 2017
  After this date, this project may only continue upon renewal. For purposes of renewal, a progress report should be submitted to ORD one month before the expiration date.
- **MODIFICATIONS**: Prior approval is required before implementing any significant changes to the protocol.
- **TERMINATION OF STUDY**: On termination of this study, a report has to be submitted to ORD.

www.ub.bw

- **Other:**
  - **The researchers may accordingly proceed with the above study after fulfilling the above requirements.**

If you have any questions about the information in this letter, please contact the IRB Officer Ms. Dimpho Ralefala at Tel: +Copyright , E-mail: Copyright . Contact information is also available at our website: www.ub.bw

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Assistant Director Research Ethics Office of Research and Development