

CLINICAL TEACHING ON AN EXPANDING TRAINING PLATFORM: DESIGNING A FIT-FOR-PURPOSE FACULTY DEVELOPMENT FRAMEWORK FOR EMERGING CLINICAL TEACHERS IN A RESOURCE-CONSTRAINED ENVIRONMENT

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DECLARATION

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This dissertation includes two original papers published in a peer-reviewed journal and one publication under review by a peer-reviewed journal. The development and writing of the papers (published and unpublished) were the principal responsibility of myself.

Julia Blitz

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SUMMARY

The research presented in this dissertation was catalysed by a preliminary phase of research which described the journey undertaken by specialist clinicians as they took on the role of clinical teacher. This gave rise to the question of how other clinicians might be assisted on a similar journey, particularly in the context of an under-resourced environment and an expanding clinical training platform.

Training in the clinical environment forms a crucial part of medical curricula. Particularly in the later years of the curriculum, it is the component in which students may develop their identity as doctor. Clinicians involved in this phase play a crucial role in the training of medical students.

Medical schools are needing to expand their clinical training platforms in order to provide opportunities for greater numbers of students, as well as to offer clinical training that covers the full spectrum of healthcare. In this expansion, medical schools have an obligation to maintain the quality of teaching in the clinical context. Faculty development is a means to strengthen such clinical teaching. In a resource-constrained environment, it is incumbent upon us to consider how best to design faculty development offerings for these emerging clinical teachers.

This research was approached from an interpretivist stance, therefore qualitative methods were used. Based on Kern's six step approach to curriculum development, the targeted needs of emerging clinical teachers were identified by using four different data sets to develop an understanding of current clinical teaching and strategies used to strengthen it. Senior medical students, clinical teachers and staff responsible for faculty development were interviewed and clinical teaching episodes were recorded. Each data set was analysed individually and thereafter all four sets of findings were synthesized and presented as the situational analysis. The findings informed the development of a fit-for-purpose faculty development framework for emerging clinical teachers.

The outcome of the study is a fit-for-purpose faculty development framework that is based on four constituent elements. The first is that faculty development be situated within the network of clinical practice, involving not only individuals, but also their clinical practice community and their academic discipline. The second addresses clinical teaching as supervision; the offering of affordances. The third emphasises clinical learning as student engagement, with an essential interplay between the offering of affordances, and the development and exercising of student

agency for engagement. The fourth is to tailor-make faculty development offerings that are informed by students' evaluations of clinical teaching effectiveness.

Learning in the workplace needs to be mirrored by teaching in the workplace. This fit-for-purpose framework is offered as a means to assist those responsible for faculty development to meaningfully assist clinicians on the journey to becoming confident clinical teachers.

OPSOMMING

Die navorsing vervat in hierdie proefskrif is deur 'n primêre navorsingsfase voorafgegaan wat die pad aangedui het vir kliniese spesialiste wat kliniese onderrig aanbied. Dit het gelei tot die vraag van hoe ander klinici in soortgelyke omstandighede bygestaan kan word, spesifiek binne die konteks van 'n omgewing met beperkte hulpbronne en 'n kliniese opleidingsplatform wat besig is om uit te brei.

Opleiding in die kliniese omgewing is van kardinale belang in mediese kurrikula. Veral in die latere jare van die kurrikulum is dit die deel waartydens studente hul identiteit as dokter kan ontwikkel. Klinici wat in hierdie fase betrokke is, speel 'n kritieke rol in die opleiding van mediese studente.

Mediese skole moet hul kliniese opleidingsplatforms uitbrei om geleenthede vir meer studente te skep, asook kliniese opleiding te kan gee wat die volle spektrum van gesondheidsorg dek. Hierdie uitbreiding verplig egter mediese skole om die standaard van opleiding in die kliniese konteks te behou. Fakulteitsontwikkeling is 'n manier waarop kliniese onderrig verbeter kan word. In 'n omgewing met beperkte hulpbronne is ons verplig om oorweging te skenk aan die wyse waarop fakulteitsontwikkeling moet plaasvind om die beste bydrae te lewer tot die ontwikkelende kliniese fasiliteerders.

Hierdie navorsing was vanuit 'n interpretivistiese perspektief benader; daarom is kwalitatiewe metodes gebruik. Om 'n begrip te ontwikkel van die stand van kliniese onderrig en die strategieë wat gebruik word om dit te versterk, is die geteikende behoeftes van ontwikkelende kliniese fasiliteerders geïdentifiseer. Gebruik is gemaak van vier verskillende data-stelle gebaseer op Kern se ses-stap-benadering tot kurrikulum-ontwikkeling. Onderhoude is met senior mediese studente, kliniese fasiliteerders en personeel verantwoordelik vir fakulteitsontwikkeling gevoer. Daarbenewens is klankopnames van kliniese onderrig-episodes gemaak. Elke data-stel se bevindinge is afsonderlik geanaliseer en daarna is al vier stelle saamgevat en as die omstandighedsanalise aangebied. Die bevindinge het die ontwikkeling van 'n doelmatige fakulteitsontwikkelingsraamwerk vir ontwikkelende kliniese fasiliteerders verskaf.

Die uitkoms van hierdie studie is 'n raamwerk gebaseer op vier saamgestelde elemente wat geskik is vir fakulteitsontwikkeling. Die eerste element is naamlik dat fakulteitsontwikkeling binne die netwerk van kliniese praktyk geleë is, en dit betrek nie alleen individue nie, maar ook hul kliniese praktykgemeenskap en akademiese dissipline. Die tweede spreek kliniese onderrig

as toesighouding aan; die aanbod van geleenthede. Die derde element beklemtoon kliniese leer as student betrokkenheid, met 'n noodsaaklike wisselwerking tussen die aanbod van geleenthede, en die ontwikkeling van studente-onafhanklikheid deur middel van persoonlike betrokkenheid. Die vierde is om gepaste, doelmatige fakulteitsontwikkeling aan te bied wat gerugsteun word deur studente-evaluasies van die doeltreffendheid van hulle kliniese onderrig.

Leer in die werksituasie behoort deur onderrig in die werkplek weerspieël te word. Hierdie raamwerk, ontwerp vir hierdie spesifieke doel, word aangebied om die persone wat verantwoordelik is vir fakulteitsontwikkeling te ondersteun, sodat hulle klinici op 'n betekenisvolle manier kan bystaan om die nodige selfvertroue as kliniese fasiliteerders te ontwikkel.

ACKNOWLEDGEMENTS¹

This has been a journey that has tested my growth mindset and my identity. As I cross this finishing line, I am able to reflect on the persistence and resilience required to keep going on a long and lonely road; that it is less about a competition with others than about the competition with your own confidence and emotions. Reaching the point of “being doctorate” has been an intellectual journey, but it has equally been a profound personal journey, requiring a willingness to watch, participate in and allow a reconstruction of my personal identity. I would like to acknowledge the following people for the varied roles that they played in me reaching this destination:

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“A journey of a thousand miles must begin with a single step.”

Lao Tzu (Chinese philosopher and writer; died 533 BC)

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“Clinical teaching is at the centre of medical education.”

David Prideaux et al. (*Medical Education* 2000; 34:820-826)

*We should look forward to the day when every clinician in the health service
answers the question ‘what do you do?’ with the answer:
‘I look after patients, and I teach others to do so’.*

John Launer (*Postgrad Med J* 2013; 89:430)

CHAPTER 1

OVERVIEW OF THE STUDY

Internationally, responses to the 21st century trend towards transforming health professions education, have been prompted by seminal publications from the Carnegie Foundation report (Cooke, Irby & O'Brien, 2010), the Lancet Commission (Frenk et al., 2010) and the World Health Organization (World Health Organization Collaborating Centre for Health Workforce Policy and Planning, 2013). These all highlight the necessity to support the teaching mission of universities through providing opportunities for those responsible for teaching to enhance their practice, thus faculty development. The Carnegie report calls on both medical schools and hospitals to support the teaching mission by providing faculty development (Cooke M., 2010). The Lancet Commission tasks clinicians with becoming high-quality, competent clinical teachers (Frenk et al., 2010). The World Health Organization recognizes the contribution that faculty development can make to the quality and relevance of the education of future health professionals, particularly in key areas such as clinical teaching. It urges that all categories of teachers and trainers should be targeted (Couper, Sen Gupta, McNerney, Larkins & Evans, 2013). These documents all refer to the necessity to equip health professionals with the skills to be high-quality competent clinical teachers.

Concurrently, there are calls to expand the range of healthcare teaching settings to include those closer to communities (World Health Organization Collaborating Centre for Health Workforce Policy and Planning, 2013). Clearly, this would involve recruiting clinicians who practise outside traditional tertiary care teaching hospitals, to take on clinical teaching roles. In general, however, although clinicians usually have sound clinical competencies, they often lack pedagogical preparation (Seabrook, 2003; Steinert et al., 2005). In order to teach effectively in the complexity of a clinical environment, they need to be familiar with basic learning principles and teaching techniques such as communication, adult learning principles, use of information technology, evidence on effective teaching, the process of reflecting on their own teaching, etc. (Fluit, Bolhuis, Grol, Ham, Feskens, Laan & Wensing, 2010; Irby, 1994; Kilminster, Cottrell, Grant & Jolly, 2007). While many institutions do provide faculty development opportunities for their academic staff, expanding the settings used for clinical training does beg the question of how

faculty development offerings may be designed in order to include these new teachers at a distance from the traditional academic hospital.

1.1 FACULTY DEVELOPMENT

In health professions education, faculty development is credited with beginning in 1955, when a collaboration between Schools of Medicine and Education was brought into being to enable findings from research in the field of education to impact on the design and delivery of teaching in the field of medicine (Hodgson & Wilkerson, 2014 Chapter 2). This collaboration has continued, with faculty development continuing to use progressively increasing understanding of student learning to find ways to strengthen teaching. Although faculty development has grown to include activities that address the academic's newer roles of leader, manager, researcher and scholar; most activities continue to focus on the role of teacher (Leslie, Baker, Egan-Lee, Esdaile & Reeves, 2013).

This has progressed to the point where there are now voices urging that certification of educators becomes the norm (Academy of Medical Educators, 2014; Artino Jr, Cervero, Dezee, Holmboe & Durning, 2018; Eitel, Kanz & Tesche, 2000; Irby, O'Sullivan & Steinert, 2015; McLean, 2010). In 2008, McLean et al. (writing from South Africa) recommended that faculty development be integral to the mission of every medical school, that there should be formal preparation for anyone who teaches and that provision should be made for initial and ongoing professional development of all faculty members (McLean et al., 2008). However, with particular reference to clinical teaching, there are challenges. Clinicians do not always find faculty development activities accessible in terms of their primary obligations to patient care (DaRosa et al., 2011). It is also not clear how emerging clinical teachers² at sites where geographical distance from the faculty would tend to preclude attendance of, for example, the traditional workshop, could learn about and strengthen their skills. Exploring these issues will be the specific focus of this study.

1.1.1 Faculty development for clinical teaching

Teaching in the clinical setting (also referred to as clinical training, or clinical supervision) constitutes an important portion of the medical curriculum, particularly in the senior years when it is seen as the culmination of preparation of the student for internship and a prelude to

² Emerging clinical teachers: this refers to the emergence of the clinician as clinical teacher at a healthcare facility which is becoming, or has recently become, a formal training site for the university's medical programme.

independent practice. It is in the clinical environment that students learn what it means to be a “real” doctor (Ramani & Leinster, 2008). This teaching may occur in discipline-based rotations of varying lengths, or more recently as longitudinal integrated clerkships (Hirsh, Walters & Poncelet, 2012). It is a complex activity, taking place in a variety of environments e.g. in inpatient settings, hospital outpatient settings as well as in community settings, and it has various functions and modes of delivery (Cottrell, Kilminster, Jolly & Grant, 2002). Skills such as history taking, physical examination, patient communication and professionalism are best learned in this setting, together with offering students the opportunity to apply their newly acquired medical knowledge to patient care (Spencer, 2003). Some of the challenges with this form of teaching are time constraints, competing work demands, the clinical area that is unpredictable and the fact that patients are often too sick or unwilling to participate in teaching encounters (Ramani & Leinster, 2008).

Medical literature indicates that internationally, clinical teaching is under extreme pressure from increasing student intake numbers. This is evidenced by reports from clinicians about student groups being too large, as well as from students who complain of the inefficiency of their clinical training time (Van Der Hem-Stokroos, Scherpbier, Vleuten, Vries & Haarman, 2001). For some time there have been publications exploring clinical teaching and instructional effectiveness (Steinert, Mann, Centeno, Dolmans, Spencer, Gelula & Prideaux, 2006). Although the literature is not clear on the magnitude of the contribution that the quality of teaching makes to student performance, it has been shown to be positive (Hill et al., 2012, Roop & Pangaro, 2001). There are suggestions that the way clinical teaching is carried out will have consequences on how students learn and understand and whether the student is fully able to benefit from their clinical training time (Nilsson, Pennbrant, Pilhammar & Wenestam, 2010; Van Schalkwyk, Bezuidenhout, Conradie, Fish, Kok, Van Heerden & De Villiers, 2014; Van Schalkwyk, Bezuidenhout & De Villiers, 2015b; Wimmers, Schmidt & Splinter, 2006). Therefore, appropriate attention needs to be given to the teaching that occurs during clinical rotations. There is an argument to be made that as the role of teacher is a core activity it requires faculties to provide developmental opportunities for clinicians who teach, including those who teach in the clinical context.

Some countries have made specific mention of the need to strengthen clinical teaching as a way of addressing the transformation and scaling up of their health professions workforce. Health Workforce Australia in their recent publication, *A Framework for Effective Clinical Placements in Rural and Remote Primary Care Settings* (Health Workforce Australia, 2013), made

recommendations around embedding clinical teaching in these settings by increasing capacity and skills in supervision, providing adequate support for clinical teachers and ensuring clinical staff have the opportunity to access programmes to improve their teaching skills.

Lessons could be taken from international research on faculty development for effective clinical teaching, but these are not necessarily directly applicable to the situation in South Africa. The circumstances of the South African public healthcare system (where currently the vast majority of clinical training occurs) differ significantly from those of the countries where most of the faculty development research has been conducted (Canada, the United States of America, the Netherlands, the United Kingdom and Australia) (Doja, Horsley & Sampson, 2014; Hodges, Maniate, Martimianakis, Alsuwaidan, & Segouin, 2009). Bleakley cautions against simply importing approaches that work in those countries – suggesting this could be seen as representing a new wave of imperialism (Bleakley, Brice & Bligh, 2008). We could do well to heed Schuwirth’s advice that “Rather than adopting a method that has been successful in a certain situation, one should adopt its underlying concepts and translate them to fit the unique demands of the local situation” (Schuwirth & Van der Vleuten, 2004). As clinical teaching is so contextually bound to the health care system in which it takes place, it seems appropriate to consider the unique demands placed on faculty development for clinical teaching in an environment of resource-constraint. That is the context of this study.

1.2 AN EXPANDING CLINICAL TEACHING PLATFORM

In scaling up its number of medical graduates, South Africa has pursued three strategies – increasing numbers of students, opening new medical schools, and part-training South Africans in the Republic of Cuba who then return for their final period of clinical training. The consequence of these three strategies is that serious consideration needs to be given not only to the faculty infrastructure necessary to accommodate the theoretical component of programmes, but more particularly to the capacity to deliver on the essential component of medical programmes that addresses students’ transition into the authentic workplace – the clinical teaching component. While the quality of South African medical graduates is not being challenged in the medical education literature, a consideration of the above-mentioned pressures suggests that we should anticipate a disruption of the status quo of clinical teaching (Reid & Burch, 2011).

The conjunction of needing to increase numbers of students and to transform medical education by exposing more students to training outside the traditional tertiary urban academic teaching hospital, has resulted in a need to expand the clinical teaching platform to incorporate a more distributed platform, including health facilities that had not previously been used as clinical training sites. The South African National Health Act of 2003 enables this in that it states that “academic health complexes” may consist of one or more health establishments at all levels of the national health system, including peripheral facilities (South African Government, 2004 Section 51). Increasingly, faculties are extending their training platform into these often geographically distant healthcare facilities.

Two departments in the South African government have taken steps to address both the expansion of the clinical teaching platform, and improvements in the quality of clinical training. The Department of Health (DoH) is supporting an expanded clinical training platform. The Minister of Health’s Human Resources for Health South Africa strategy (South African Government, 2011) talks to “revitalizing education and training of health professionals” and “widespread acknowledgement of the need to support education, to create and fill posts, to extend/expand the clinical teaching platform in order to preserve the value of small group clinical teaching and to standardize the quality of clinical training”. The Department of Higher Education and Training (DoHET) recognised clinical teaching as an area requiring financial support in order to make clinical teachers more available to students (in more functional teacher-student ratios) (South African Government, 2010). It now annually makes the Clinical Training Grant (CTG) (R330-mil in 2010/11; R 475-mil in 2017/18) available to faculties of medicine and health sciences. The object of this grant was to appoint additional clinical teaching staff to support the delivery of clinical training. This funding has enabled the appointment of staff on the clinical platform, but there are no indicators required in the CTG reporting that address the standard of training provided by the employed clinicians. The Human Resources for Health Strategy document, in exploring how to provide quality clinical care, recognises the necessity to improve the quality of clinical training, but notes that “there are no standards or requirements set for academic clinicians (sic) trainers” (South African Government, 2011). It is not yet clear how doctors in new training sites, who had been primarily focused on patient care (without additional academic functions), could be helped to adapt and change to become clinician teachers (Blitz, Bezuidenhout, Conradie, De Villiers & Van Schalkwyk, 2014). Neither the Department of Health nor the Department of Higher Education and Training, has attended to what strategies

might deliver strengthened clinical teaching, in either traditional clinical teaching sites or on the expanded platform.

1.2.1 Resource-constrained environment

When developing and testing approaches to faculty development that might be feasible for clinicians working in the South African healthcare system, it would be important to consider context. South Africa has a low doctor-patient ratio, spends less than 5% of GDP on public spending for health of the uninsured (84% of the population of 54 million) and suffers from a high burden of disease (an age-standardized mortality rate in 2012 of 1528 per 100 000 (World Health Organization, 2015). In 2010, 56% of public sector doctor posts were vacant, which then often become unfunded (and therefore unable to be filled) (South African Government, 2011 Annexure A). It is these doctors, coping with this burden of disease, in this under-resourced situation, to whom clinical teaching tasks are being delegated. This situation will be described in more detail in Chapter 3.

1.3 EMERGING CLINICAL TEACHERS

Presented above are a convergence of factors that urge us to consider how clinicians could be strengthened in their clinical teaching role, particularly those who themselves are new to clinical training, or work in health facilities that are new to clinical training – the emerging clinical teachers. Some of these factors are internal to universities such as the increasing numbers of students on the clinical training platform, the expansion of the clinical teaching platform and the increasing realisation that there were not necessarily opportunities for these clinicians to improve their pedagogical skills. Others are external, both nationally with awarding of the DoHET Clinical Training Grant and the release of the Human Resources for Health strategy, and internationally to heed the calls to transform health professions education. An additional consideration is that clinicians at these new public sector training sites are employed by the provincial Department of Health. While there is an overarching agreement binding the Department of Health and the relevant university to the shared endeavour of teaching medical students (Western Cape Government, 2012), universities seldom have contractual obligations directly with these clinicians (other than those employed directly by the university such as through the Clinical Training Grant). This despite the university delegating an important component of its teaching responsibilities to these clinicians.

These factors point to a requirement to explore the training of the emerging clinical teacher. As one of the public higher education institutions tasked with training doctors in South Africa, Stellenbosch University (the site at which this study was undertaken), has accepted the mission to enroll more students and to contribute to reversing the maldistribution of doctors in the country. In order to do so, the faculty continues to extend its training platform. However, in doing that, cognizance needs to be taken of the new teaching role that emerging clinical teachers on that platform are asked to take on. Stellenbosch University has allocated DoHET grant funds to “enhance the quality as well as output of clinical training” (Stellenbosch University, 2012), allowing expenditure to support the “development of staff in terms of clinical teaching and learning” (Stellenbosch University, 2012). It seems appropriate to attempt to answer questions of what training would be most helpful to existing, and particularly emerging, clinical teachers on an expanding clinical training platform; how best to equip and assist them in adding this new dimension to their existing jobs.

Described above are three interesting contextual challenges that play out in terms of supporting the all-important clinical teaching that is being increasingly devolved to these emerging clinical teachers – geographical distance from the university, low doctor-patient ratios at public sector health facilities, and the absence of a contractual obligation between the university and individual clinicians on the expanding teaching platform.

1.4 FIT-FOR-PURPOSE FACULTY DEVELOPMENT

In thinking about how to design faculty development activities that could meet the need to support and strengthen clinicians in their teaching role, Kern’s process of curriculum development in medical education has relevance for developing the “planned educational experience”. The process includes the important step of determining the “needs assessment of targeted learners”, the goal of which is “to focus the curriculum, by defining the deficits in knowledge, attitude, or skills that currently exist and the ideal approach to teaching and learning these objectives” (Kern, Thomas, Howard & Bass, 1998). Figure 1.1 depicts Kern’s curriculum design approach.

Kern's Six Steps Approach to Curriculum Development (Kern DE, 1998)

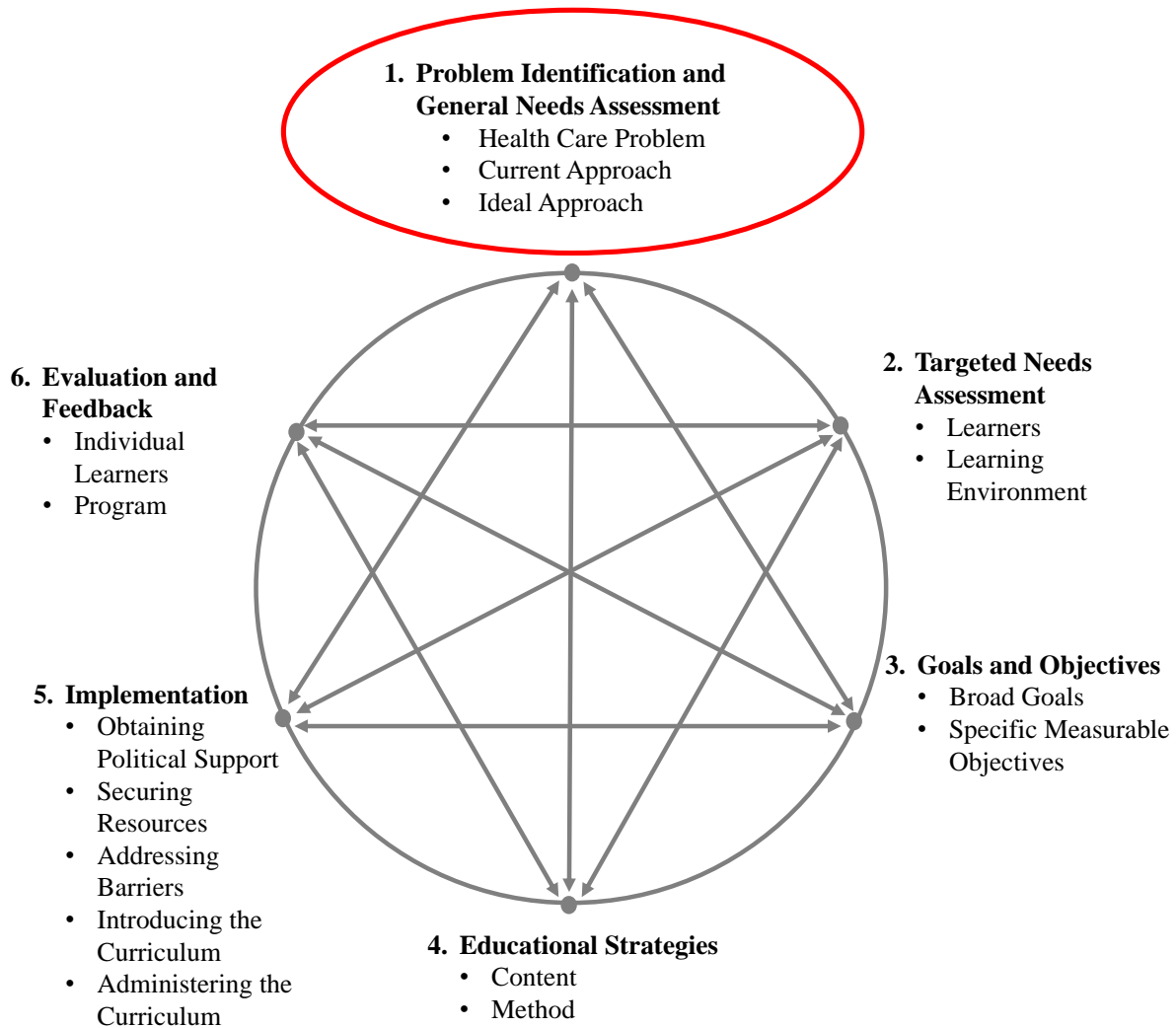


Figure 1.1: Kern's curriculum design approach (Kern et al., 1998)

McLeod (McLeod et al., 2009) has shown that there are significant differences in the opinions held by expert clinical teachers and by medical education research experts as to the knowledge of which core pedagogical concepts might enhance the success of clinical teachers who have not systematically studied the teaching and learning process. This reminds us of the importance of establishing the needs of the emerging clinical teachers when designing appropriate faculty development offerings to assist them in strengthening their teaching role. In a resource-constrained environment, when considering design options there is an even greater imperative to take into account fitness-for-purpose. Harvey and Green (1993), propose that in higher education, institutions should determine fitness-for-purpose by whether the product or service fulfils the stated objectives, or mission it set for itself. Designing with fitness-for-purpose in

mind is then done not by defining criteria (or ideals), but by formulating guidelines, which importantly outline a product attainable within a particular context. In this study, informing the design of faculty development for quality clinical teaching will be viewed through the lens of taking into account the idea that fitness-for-purpose is an important measure of quality of design.

1.5 RESEARCH QUESTION

As outlined above, there is an imperative in South Africa to expand the clinical training platform of medical students. This calls for medical schools to consider, in this context, what could be designed to enable clinicians working on this platform to deliver clinical teaching.

Immediately prior to starting this research, I was tasked with developing an educational capacity building strategy and plan for Stellenbosch University's Faculty of Medicine and Health Sciences. This was a part-time appointment as a faculty developer, while my full-time job was the Postgraduate Programme Coordinator in Family Medicine. As part of this task, I led a piece of research (Blitz et al., 2014 – Addendum A), in which I (and my co-authors) found that the journey which specialists at a newly initiated teaching site underwent as they took on a teaching role enabled the development of constructive relationships between specialists and their students, with a mutual sense of responsibility for learning, patient care and improvement in clinical practice (Figure 1.2).

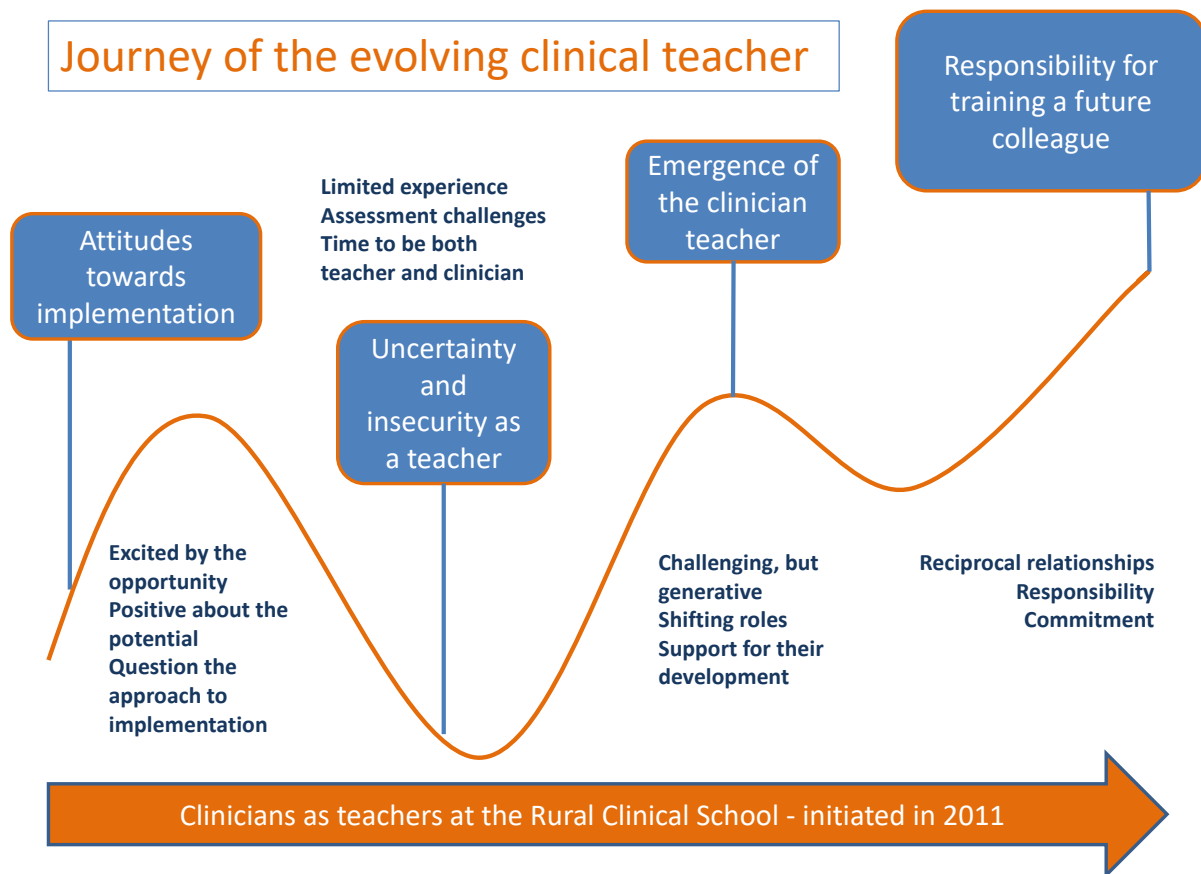


Figure 1.2: Journey of the evolving clinical teacher (Blitz et al., 2014)

This understanding in combination with the realisation that the clinical teaching platform was expanding, provoked my interest in how the Faculty could assist other clinicians in taking on the teaching role that was being asked of them. This led me to ask the question:

What should a fit-for-purpose faculty development framework for emerging clinical teachers comprise in a resource-constrained environment?

As an approach to answering this question, I chose to conduct a situational analysis that could inform the design of faculty development offerings that specifically speak to strengthening clinical teaching.

1.5.1 Aim

The goal of this research was to provide a framework that could inform a faculty development strategy that could be viable for medical faculties in South Africa (a resource-constrained environment), to assist emerging clinical teachers on an expanding clinical teaching platform in embracing the clinical teaching job that is being devolved to them.

1.5.2 Objectives

This was done by addressing the following objectives:

- identifying what was happening during clinical teaching episodes in a resource-constrained environment;
- establishing what strategies were in place for faculty development for clinical teachers outside the tertiary hospitals at all eight South African medical schools;
- determining what senior undergraduate medical students understand clinical teaching to be and their thoughts on how it could be strengthened;
- exploring the views of clinicians working at distant sites on their early experiences of being delegated clinical teaching;
- synthesizing these components to propose a framework for fit-for-purpose faculty development for emerging clinical teachers in a resource-constrained environment might need to comprise.

1.6 RESEARCH DESIGN AND METHODOLOGY

As my aim was to build a detailed picture of how the phenomenon of clinical teaching is understood by those who have personal experience of it, I worked from an interpretivist stance (Bunniss & Kelly, 2010) to explore how knowledge and practice of teaching was constructed, taking into account preconceptions, existing practice and context. Consistent with this, qualitative methods were employed as the strength of findings then lies in understanding the subjective experiences of the participants (Ringsted, Hodges & Scherpbier, 2011). The exploration of clinical teaching in context, from the perspectives of both teachers and students, elucidated the targeted needs (Kern et al., 1998) of emerging clinical teachers, which then enabled suggestions for a fit-for-purpose faculty development framework to strengthen clinical teaching.

Figure 1.3 depicts, in the top left corner, the work (Blitz et al., 2014 – Addendum A) that provoked the research described in this dissertation, namely what a framework of faculty development for emerging clinical teachers in this context might look like. The research design is based on a situational analysis that would help me understand key aspects of these teachers' current needs, which when synthesized would serve as a framework that could be used to inform

the development of a strategy to deliver faculty development to strengthen clinical teaching (see further detail in Chapter 4).

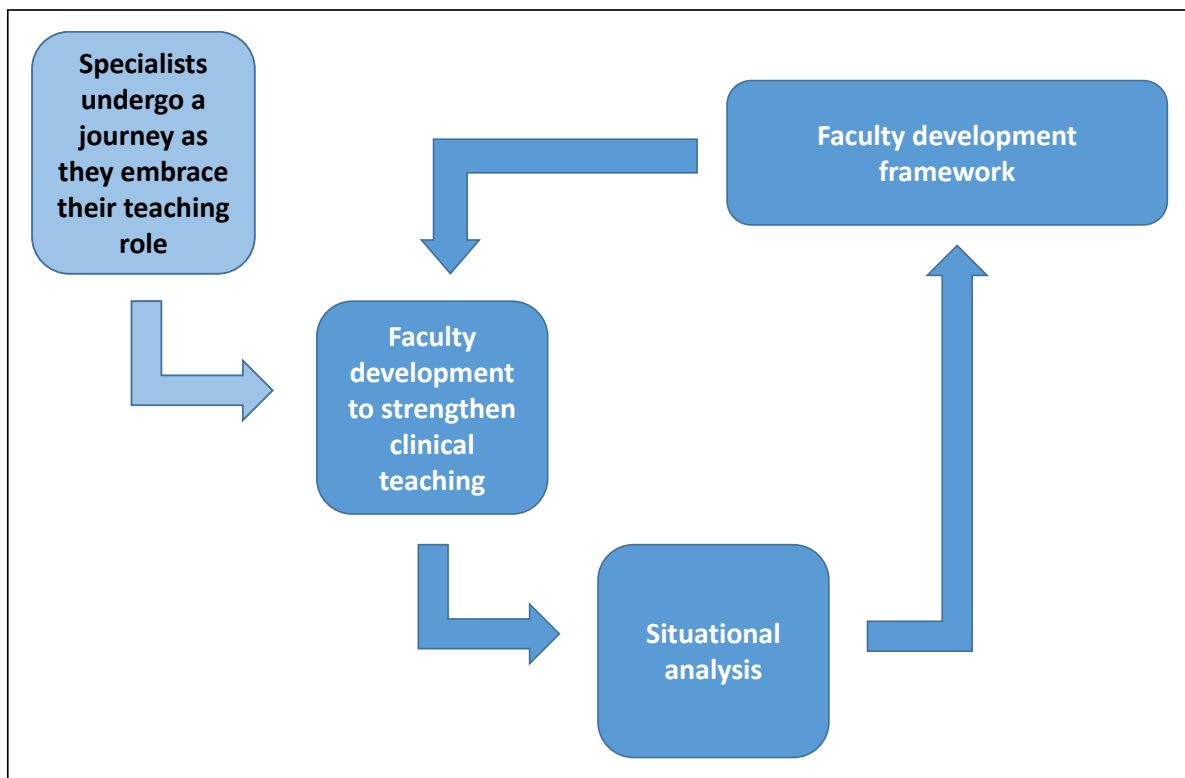


Figure 1.3: *Representation of the research design*

1.7 OUTLINE OF THIS DISSERTATION

While many theses based on empirical work are guided by a traditional structure (Mouton, 2001 Chapter 8), the structure of this dissertation is presented in a more idiosyncratic fashion (Leshem, Bitzer & Trafford, Forthcoming). This enabled a more authentic depiction of the way in which this research evolved over time (as happens if one accepts a developmental approach to qualitative ‘research’) and accommodated the two sub-studies presented as publications. The remaining chapters of this dissertation are as follows:

Chapter 2 presents a synthesis of the literature on faculty development for strengthening clinical teaching.

Chapter 3 is a description of the South African public healthcare context in which clinical teaching of medical students happens and to which any faculty development plans would need to respond.

Chapter 4 describes the research methodology and methods that were chosen.

The empirical work of this dissertation was done as four sub-studies. Chapter 5 presents the findings from two of these sub-studies. One was done to gain some sense of authentic clinical teaching activities; the other, to understand current approaches to faculty development offered to clinical teachers outside of traditional academic teaching hospitals by South African medical schools. Chapter 6 presents the other two as research manuscripts. First, a published article that explored the experience of clinicians as they had recently taken on, or were preparing to take on, new teaching roles (Publication 2 in Figure 1.4 below). Then, a manuscript under review, which deals with students' experiences of clinical teaching (Manuscript 3 in Figure 1.4 below).

Chapter 7 draws together the contribution of this study as a synthesis of the situational analysis, with conclusions and recommendations for a fit-for-purpose framework for faculty development that may be useful as clinicians take on the clinical teaching role in a resource-constrained environment.

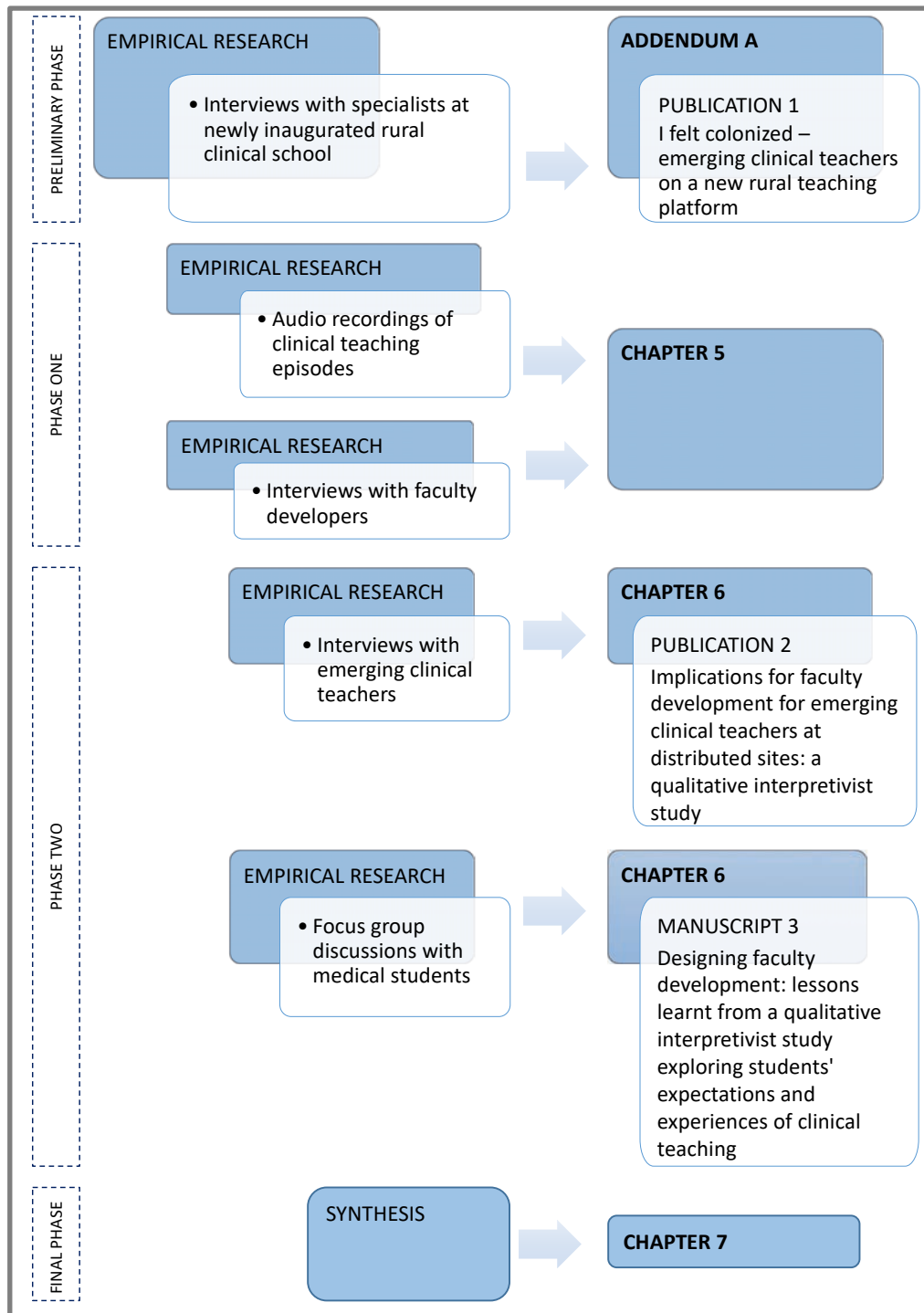


Figure 1.4: Representation of the relationship between research, articles and chapters

CHAPTER 2

EXPLORING THE THEORETICAL TERRAIN

“If we stand tall, it is because we stand on the backs of those who came before us.”

Yoruba proverb (Nigeria-Benin)

This chapter provides an overview of the current literature on faculty development, with a particular focus on strengthening clinical teaching. I have used Maggio’s definition of a literature review as “a synthetic review and summary of what is known and unknown regarding the topic of a scholarly body of work, including the current work’s place within the existing knowledge” (Maggio, Sewell & Artino, 2016). I provide a narrative synthesis (Mertens, 2010) of extant literature with a critical reflection on faculty development, particularly for clinical teaching, and especially in the context of clinicians to whom this important task has been newly delegated as the medical school clinical training platform is expanded. Thus, I make a case that the research presented in this dissertation builds on current knowledge, to evidence the need for a fit-for-purpose faculty development framework for emerging clinical teachers on an expanding training platform. Therefore, it covers three components – faculty development specifically for clinical teachers, “teaching in the workplace” as the type of teaching needed to facilitate clinical learning, and lastly, elements to consider when thinking about designing faculty development. This synthesis of the literature supports that this is a general researchable question worthy of research in a local context (Ringsted et al., 2011). A synthesis of this understanding, combined with my own experience, is presented at the end of this chapter as a conceptual framework that went on to inform the research question and the research design (Cook, Bordage & Schmidt, 2008) which is described in more detail in Chapter 4.

There is great interest in faculty development in medical education, reflected in a multitude of publications (both journal articles and books – 856 results in a Google Scholar search for “medical education” AND “faculty development” for publications between 1 January and 31 May 2018), dedicated international conferences (since 2011) and, more recently, AMEE’s (Association for Medical Education in Europe) decision to constitute a Faculty Development Special Interest Group. Often faculty development takes a broad view that includes, but is not limited to, teacher development. In this dissertation, I use Sheets and Schwenk’s definition of faculty development as “improving an individual’s knowledge and skills in the area of teaching”

(Sheets & Schwenk, 1990), but restrict that to my particular focus on clinical teaching, excluding other forms of teaching and other activities associated with academia such as research and administration. However, I also address areas beyond knowledge and skills, to include behaviours as per Steinert's 2014 definition of faculty development which refers to "all activities health professionals pursue to improve their knowledge, skills, and behaviors [sic] as teachers ... in both individual and group settings" (Steinert, 2014).

2.1 FACULTY DEVELOPMENT

Faculty development, staff development, academic development, and professional learning are all terms used synonymously to describe ways in which lecturers are enabled to advance their teaching and assessment practices in order for quality student learning to take place. These efforts began in higher education as teacher training (Gaff, 1975), but in many institutions has extended beyond that to include training for all the roles of an academic, including leadership and research skills. This is even more complex in the situation of medical education which requires the involvement not only of those traditionally deemed to be academics, but also others with a more tenuous link with academia who are responsible for teaching in clinical areas. Despite decades of work in the areas of faculty development, one of the challenges in both higher education and medical education, remains how to encourage people to access faculty development opportunities (DaRosa et al., 2011; Van Schalkwyk, Leibowitz, Herman & Farmer, 2015a). This is exacerbated in the context of geographically dispersed clinicians whose primary obligation is patient care. In this section, I will expand on the literature that I presented briefly in Chapter 1 by describing the way in which current faculty development literature for strengthening clinical teaching suggests moving towards offerings that embrace ideas from workplace learning and communities of practice through co-creation of activities between educationalists and clinicians, as well as evaluating the impact of these offerings.

As mentioned in Chapter 1, the World Health Organization has called for the transformation and scaling up of health professionals training (Couper et al., 2013) to be able to reshape the health workforce of countries for the benefit and well-being of their citizens. The accompanying guideline (World Health Organization Collaborating Centre for Health Workforce Policy and Planning, 2013) addresses the recommendations of the Lancet Commission report (Frenk et al., 2010) that encouraged a move away from the traditional focus of training being in tertiary care hospitals. It goes on to suggest that this will require health professionals' training institutions to consider innovative expansion of faculty, through the recruitment of community-based clinicians

and health workers as educators, who will require necessary pedagogical preparation i.e. faculty development. In the faculty development policy brief that accompanies the guideline, the World Health Organization (WHO) acknowledges environmental barriers which may discourage faculty development programmes, including time and space constraints, financial barriers and limited resources including instructional, human and technological resources (Couper et al., 2013). While it suggests that strategies should be developed to address these, it does not go on to offer any. Consideration of what strategies to develop would require an understanding of the context in which these would need to be operationalised. In Chapter 3, I provide a description of the particular context in which I am seeking to develop a faculty development framework for clinical teachers, which could inform the development of a suitable strategy.

Education institutions have an obvious responsibility to ensure that their teachers are appropriately supported in their teaching activities. In the context of health professions education, the World Federation for Medical Education in its global standards for quality improvement of basic (as opposed to postgraduate) medical education (World Federation of Medical Education, 2015), advocates for faculty development that includes both shared knowledge of the total curriculum (instructional/learning methods and content) to enable cooperation and integration; and training, development, support and appraisal of not only new teachers, but also teachers employed by hospitals and clinics.

In South Africa, higher education institutions (HEIs) are caught in the maelstrom of being required by the Department of Health to increase the number of medical students that they graduate. Academic teaching hospitals are already struggling to accommodate the current number of undergraduate students into effective teaching activities. The private sector makes up an important component of the country's healthcare, catering largely for the insured, more affluent population (16% of the total), but it is not yet permissible to train medical students to any great extent in private sector facilities. Therefore, it seems that the most obvious way to accommodate this increased number of students is to expand teaching to Department of Health (DoH) sites that have not up until now been used regularly for clinical teaching of medical students. In other words, HEIs need to delegate their responsibility for clinical teaching on this distributed training platform to clinicians who have had little or no development of their teaching practice. This seems to provide a clear need for HEIs to provide faculty development opportunities to these clinicians, whether they be employed by the HEI or the DoH. Due to their distances away from the faculty and the necessity for staff to be available for patient care, it seems opportune to explore ways for faculty development opportunities to be designed and

delivered in ways that are meaningful, accessible and sustainable for this specific group of clinicians, thus fit-for-purpose.

2.1.1 Faculty development for clinical teachers

In 2000, Steinert, writing about faculty development in the new millennium suggested that faculty development programmes needed to be “exported” to outside of the university setting, with attention being paid to clinicians working in underserved communities. She, and others, have posited the idea of creating partnerships between faculty development and continuing medical education (continuing professional development) activities (Curran, Rourke & Snow, 2010, Steinert, 2000). However, by the time Steinert did a Best Evidence Medical Education Collaboration³ review in 2016 (covering publications between 2002 and 2012), there was still little in the literature that reflected progress in these areas (Steinert et al., 2016). The majority of interventions continued to emphasise skill acquisition by teaching, and paid less attention to the identity development of the teacher. There was a focus on developing individuals, as opposed to fostering institutional change. However, some growth had occurred in the number of longitudinal programmes that were intentionally building networks for participants. Additionally, the potential for faculty development to occur in the workplace was starting to be explored. She called for an exploration of the relationship between faculty development and community in the workplace, suggesting that faculty development for clinical teaching would need to take account of workplaces being social systems, as well as providing pedagogical approaches that would be of use in the workplace.

On the other side of the Atlantic, in the United Kingdom, there was a recognition that teaching ability, while a requirement of all medical professionals (Board of Medical Education, 2006), is not inherently present in all health professionals or doctors. In 2009, the General Medical Council published *Tomorrow’s Doctors* as a document which among other things sets out its requirements for undergraduate teaching (General Medical Council, 2009). As part of its role in supporting medical schools to achieve these requirements, it issued advice supplementary to this (General Medical Council, 2011) entitled “Developing teachers and trainers in undergraduate medical education”. This document addresses support, training development and appraisal of teachers and trainers, particularly referring to the “competent teacher”. It outlines key attributes and skills of such a person but also goes on to make suggestions for “teacher development

³ The Best Evidence Medical Education (BEME) Collaboration³ (Harden et al., 1999) is an international group of individuals, universities and professional organisations committed to the development of evidence-informed education in the medical and health professions.

programmes”. It suggests that these programmes should be provided in a variety of ways (both decentralised and web-based) and should include both formal and informal training. They outline the broad themes of such development programmes such as induction to the medical school’s support infrastructure, principles of teaching and learning, expected outcomes of learning, methods of curriculum delivery, assessment and giving feedback and principles of equality and diversity. There is no particular mention of the specific requirements of clinical teachers in this regard and no educational theory that might underpin these programmes. The General Medical Council seems to have taken quite a mechanistic/traditional stance by advising provision of opportunities for improving knowledge, skills and attitudes, without commenting on issues related to the workplace. In the context of the research presented here, the workplace is the clinical environment; in particular, in the setting of an expanding clinical teaching platform, a workplace in which teaching of students has not yet become common practice. Application of strategies to strengthen teaching in such a context could require attending to issues of the content of teaching and training to meet the specific needs of clinical teachers, but also to take account of the clinical workplace as a social system.

McLeod et al. developed an important body of work between 2003 and 2009. This started with their study (McLeod, 2003) on what Dutch and Canadian non-clinician educationalists considered to be the important concepts and pedagogic principles (Table 2.1) that had the potential to benefit the teaching practice of clinicians in all twelve teaching roles described by Harden (Harden & Crosby, 2000). The following year, the researchers used these findings to determine experienced clinical teachers’ knowledge of these same principles (McLeod, Meagher, Steinert, Schuwirth & Mcleod, 2004). They tested both the knowledge and the respondents’ perceptions of their pedagogic knowledge, thus generating a test score and a perception score. They suggest that scores generated on both performance on the knowledge test (scores between 36.5 and 37.8 out of 50 on a specially designed MCQ test) and the participants’ perceptions of their knowledge (scores between 46.3 and 49.8 out of 80) indicated reasonable understanding of the above pedagogical concepts. The authors suggest that in the absence of any formal teaching of pedagogical principles that this reveals tacit knowledge based on the clinicians’ own teaching experiences, reflections and construction of meaning (informal workplace learning). They also point out that the respondents who were recognised as clinician-educator experts (by virtue of an advanced degree or local recognition) had done significantly better on both tests. In 2009, the team (McLeod et al., 2009) duplicated the process of their 2003 work by this time asking clinical teachers, in a Delphi process, to rate the likely benefit to clinical

teachers of knowing and understanding the basic concepts or principles used in their 2003 study. While the rating of the importance of the 30 principles did not differ materially, there were significant differences in the ranking of these principles between this group of clinical teachers and the preceding study's group of clinician-educator experts. This was most notable in the field of assessment, which was ranked low by clinicians. These studies seem to suggest the need for educationalists and clinicians to co-create faculty development offerings in order to more effectively meet the needs of both groups, and to provoke consideration of faculty development activities being designed to utilise clinicians' existing tacit knowledge of teaching, as well as providing its theoretical pedagogical underpinnings. Of importance for this study is that identification of this tacit knowledge would recognise clinicians' existing teaching practices and enable faculty developers to build on these.

Table 2.1: Pedagogical concepts non-clinician educationalists considered important for clinical teachers (McLeod, 2003)

Curriculum:	How adults learn:
goals and objectives; curriculum structure and design.	motivation for learning; transfer of learning; self-regulation of learning; adult learning theory; case-based learning; self-directed, teacher directed instruction; idiosyncratic problem solving.
Helping adults learn:	Assessment:
pedagogical implications of learner differences; knowledge, skills and attitudes; coaching; peer and near peer tutoring; role modelling; supervision of learners, lesson structure and planning; relevance for learning; learning environment; communication skills and concepts; problem solving for learning.	summative versus formative assessment; key concepts for assessment; criterion versus norm-referenced assessment; unintended consequences of assessment; reasons for assessing learners; assessment to drive learning; performance-based assessment.

A further indication of the need for co-creation is Steinert's research on why clinicians do not attend faculty development offerings (Steinert, McLeod, Boillat, Meterissian, Elizov & Me, 2009) and her later comparison with why others do (Steinert et al., 2010). This work found similar barriers in both the attending and non-attending groups, relating to volume of work, lack

of protected time and logistical issues. However, those who choose to attend, overcome the barriers through their positive expectation of faculty development and their internal beliefs (or values) about self-improvement as a teacher. In the higher education environment, an additional correlation amongst those choosing to attend was social relationships, namely that a friend was presenting, or that someone the individual “respected” was presenting, organizing or attending the event, attesting to the importance of the social network in this decision-making (Burdick, Doherty & Schoenfeld, 2015). Across higher education in South Africa, academic staff similarly experience both enablers (particularly a “space to flourish” in their workplace) and constraints (personal agency and institutional undervaluing of teaching) to attendance of faculty development offerings (Van Schalkwyk et al., 2015a). This is also true of clinicians, who do not always access faculty development opportunities available to them at the faculty. When co-creating faculty development activities, faculty developers need to take into account clinicians’ expectations and beliefs about their self-improvement as teachers and their social networks.

For clinicians on the expanding training platform, accessibility of faculty development opportunities is made more difficult by the distances they would need to travel in order to attend opportunities offered at the faculty. Work done on faculty development for similarly geographically distant clinicians, explored the benefit of providing training closer to their places of work that addresses the specific contextualised needs of these clinicians (Langlois & Thach, 2003). Mann interviewed a group of specialist Family Physician community-based preceptors who had consistently rated highly on student evaluations to explore their perceptions of their teaching role (Mann, Holmes, Hayes, Burge & Viscount, 2001). Her recommendations were that as faculty development of teachers’ skills needs to be “contextual”, faculty development that occurs in a decontextualised setting, away from where the clinician practices, may need to attend to whether and how these new teaching skills may transfer to that practice setting. However, she made no suggestion of offering the faculty development in context. Alternative educational outreach approaches are “circuit riders” (suggesting a similarity with clergy in the earliest years of the United States, who were assigned to travel to minister to settlers and organize congregations) (McGrew, Solan, Hoff & Skipper, 2008) and “academic detailing” (suggesting a similarity with pharmaceutical detailing used to educate physicians about a pharmaceutical vendor's products in the hope that the physician will prescribe the company’s products more often) (Moser, Dorsch & Kellerman, 2004). In both cases, staff from the academic institution are tasked with visiting distant sites to meet with clinicians (and the students rotating there) to build relationships and specifically discuss educational issues. The notion of such outreach approaches

makes sense and other research suggests that it may be helpful for faculty developers to take cognisance of existing communities of practice at such distributed sites, such as those that often build around clinical service delivery (Eib & Miller, 2006; Stark & Smith, 2016). Strand (2017) has proposed the “On-Site model” of faculty development which is embedded in the workplace, extending the notion of strengthening teaching as a component of clinicians’ continuing professional development.

This all suggests that while exploring how faculty developers could be more accessible to clinicians, there is potential for a medical school’s faculty development to move beyond merely enhancing teaching ability and towards making a contribution to clinicians’ existing communities of practice, so that they attend to both teaching and clinical practice (Curran et al., 2010). While these approaches may be resource intensive (in both people and time), this may be an especially important contribution for clinicians at a distance from the medical school to feel more generally supported by the academic centre as they take on teaching roles. Emerging teachers in the setting of this research will be described in more detail in Chapter 3.

2.2 CLINICAL TEACHING

The literature on clinical teaching has shifted over the last forty years from opinion-based practice not based on theory, to construction of evidence informed by various social learning theories. This section provides a synopsis of the shift, highlighting current understanding of the vital role of the clinician in *teaching in the workplace* as the necessary complement to learning in the workplace (workplace learning).

It can be argued that while much of higher education research may be generalisable to medical education, a unique component of medical curricula is the clinical teaching component. A significant proportion of undergraduate medical teaching is scheduled to happen in the clinical context. Recent understanding of clinical teaching is that students increase their involvement in clinical care as they become more senior, with the goal of participation in addressing real patient problems in the authentic context of practice, under the supervision of a teacher as they develop the identity of doctor (Cruess, Cruess, Boudreau, Snell & Steinert, 2015; Peters, Clarebout, Van Nuland, Aertgeerts & Roex, 2017; Spencer, 2003). This exposure may occur in any patient care context such as inpatient wards, or ambulatory clinics.

In many ways, not much has changed with regards to clinical teaching since Irby’s landmark 1978 article (Irby, 1978) in which he sought to design an evaluation system for effective clinical

teaching through exploring the perceptions of students, residents and faculty with regards to 61 observable behaviours of clinical teachers grouped into six dimensions (Table 2.2).

Table 2.2: Factors of importance in teaching effectiveness (Irby, 1978)

Group instructional skill	encourages active participation, establishes rapport, demonstrates respect for students, shows personal interest in students, willingly remains accessible, emphasizes problem-solving, listens attentively, answers questions carefully and precisely, and questions students in a non-threatening manner
Clinical competence	objectively defines and synthesizes patient problems; demonstrates skill at data-gathering, use of consultations, and interpreting laboratory data; manages clinical emergencies; works effectively with healthcare team members; and maintains rapport with patients
Clinical supervision	demonstrates clinical procedures, provides practice opportunities, offers professional support and encouragement, observes student performance frequently, identifies strengths and limitations objectively, provides feedback and positive reinforcement, and corrects students without belittling them
Enthusiasm	enthusiastic, is dynamic and energetic, enjoys teaching, has an interesting style of presentation, and stimulates interest in the subject
Organization/clarity	explains clearly, presents material in an organized manner, summarizes, emphasizes what is important, and communicates what is expected to be learned
Knowledge	discusses current developments, reveals broad reading, discusses divergent points of view, relates topics to other disciplines, and directs students to useful literature in the field

The participants characterised the best teachers through descriptions of their instruction, namely enthusiasm, clarity, organization and interaction skills. Descriptive characteristics of the worst clinical teachers tended to be of personal attributes such as arrogance, lack of self-confidence, dogmatism and insensitivity. Irby concludes by stating “clinical teaching is a composite of independent but related skills and personal qualities” (Irby, 1978). Although not mentioned at this point, this seems to portend his later acknowledgement (Irby, 1994) of the social constructivist⁴ aspects of teaching and learning in the clinical environment.

The journal *Medical Teacher* has for the last thirty years published a “twelve tips” series, grounded in the existing literature and evidence and aimed at offering practical advice in particular areas of medical education. In response to a national move in North America to

⁴ Social constructivism – knowledge actively constructed as a collaborative process through social interactions
VYGOTSKY, L. S. 1978. *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press; students learn by doing, supported by a teacher.

increase clinical exposure for medical students, a 1997 publication in the series gave guidance for a “successful clerkship” (Sarkin, Greenberg & Wilking, 1997). Table 2.3 shows these twelve tips.

Table 2.3: Twelve tips for a successful clerkship (Sarkin et al., 1997)

1. Begin with the end in mind	2. Get ready
3. Find some help	4. Create a positive environment for learning
5. Enthusiastically greet the student	6. Train faculty and residents to be effective teachers
7. Ensure that students receive ample feedback	8. Carefully consider how students are being evaluated
9. Acknowledge the importance of the clerkship director	10. Involve the department chair
11. Be present	12. Don't forget to have fun

Amongst these, the authors suggest the need to create a positive learning environment and to ensure that students receive ample feedback. However, they provide almost no evidence for these tips. There are indications of incorporating social aspects of learning, without them necessarily being labelled as such. Using evidence generated by Irby (Irby, 1978) and Skeff (Skeff, Stratos, Berman & Bergen, 1992) to support another tip on the need for training residents and faculty to be effective teachers, the authors offer no tips on how that might be done.

Despite these articles, in 1999, clinical teaching was referred to as a ‘black box’ because so little was known about what, how, and under which conditions (the process of instruction) students learn in this unique context (Shipengrover & James, 1999). For some time, the literature on clinical teaching was recording that instruction is often haphazard and (often due to the nature of clinical work) unplanned, that students are seldom (if ever) observed, that there is a paucity of feedback given to students, that there is very little workplace-based assessment done by teachers, and that relationships between clinical teachers and students have become shortened and fragmented by the nature of curricula which require short rotations through a multitude of different clinical experiences (Howley & Wilson, 2004; Lempp & Seale, 2004; Pulito, Donnelly, Plymale & Mentzer, 2006; Seabrook, 2003). Observation of clinical ward rounds show that much of the teaching that occurs is actually discussions of patient care dominated by the lead clinician, with students largely being silent observers of the process (Walton & Steinert, 2010).

Research to understand clinical teaching has continued. Stenfors-Hayes picks up the difference between teaching and clinical supervision in the eyes of clinicians functioning in both roles. While there were similarities in the roles, clinical supervision was seen more as stimulating students' growth (in the teacher role they would focus on students' learning), sharing what it is like to be a doctor (in the teacher role they would respond to content requests) and showing how things are done in the clinical environment (in the teacher role they would convey knowledge) (Stenfors-Hayes, Hult & Dahlgren, 2011). While it describes conceptions that indicate these are two different forms of teaching, her research does not assist us with understanding why these differences arose, or how to shift clinicians from teaching to supervision, especially with more senior students who need the opportunity to be involved in clinical work.

Dornan et al. in their review of the 2000-2006 literature (Dornan et al., 2014), suggest that this inadequate understanding of clinical teaching still holds true. Despite being able to offer a blueprint for clinical teaching programmes, they found inadequate evidence about the interactional nature of student participation or how it could be assured. As Hodges and Kuper state, "practice in medical education is more often the result of tradition, ritual, culture, and history than of any easily articulated theoretical or conceptual framework. Practices are reproduced and passed down without being anchored to theories that explain why certain approaches lead to effective education" (Hodges & Kuper, 2012). However, research is starting to create an understanding of clinical teaching based on solid theoretical foundations. Much of this work is emerging from considerations of clinical learning as workplace learning, which causes us to consider clinical teaching as teaching in the workplace. This is explored in the next section.

2.2.1 Understanding clinical teaching as "teaching in the workplace"

There has been a significant shift in ideas of clinical learning from students as apprentices, to students as co-participants (with teachers) in communities of clinical practice in the workplace (Egan & Jaye, 2009). The focus of clinical teaching has thus become the relational interaction between the teacher and the student (the social learning environment) with more and more attention being given to making the tacit processes of the expert visible (Stalmeijer, Dolmans, Snellen-Balendong, Van Santen-Hoeufft, Wolfhagen & Scherpbier, 2009), ensuring that the student's participation is supported (Dornan, Boshuizen, King & Scherpbier, 2007), and encouraging students to engage in the work activities to which they are offered affordances⁵

⁵ Affordance:

(Billett, 2002). It is, therefore, important to review some key learning theories applicable to workplace learning.

Sfard has helped us through the complexity of overlapping theories of learning by using metaphors for learning, namely acquisition and participation (Sfard, 1998). The participation metaphor certainly speaks to the democratising of learning, joining and belonging to a community, a constructivist approach; learning as something that happens in a particular context in which there is a mutuality of the student, other students and the teacher(s). In contrast, the acquisition metaphor speaks to the individual construction of knowledge which may then be used and shared; a didactic approach which suggests that learning can be decontextualised. She goes on to suggest that it is not about making a choice between the two metaphors, but that teachers in fact “try to live with both” (Sfard, 1998). Within the greater field of medical education, the value of this seems evident – both acquisition and participation are necessary in the development of the knowledge and the practice of the medical practitioner. However, in the particular context of clinical teaching (and understanding the current thinking on the importance to clinical learning of being a member of a team with the goal of becoming a member of a community), it seems that the metaphor of participation should take precedence.

In terms of participation, it would assist us to look at the historical theories of Vygotsky’s social constructivism (Vygotsky, 1978) and Bandura’s social learning (Bandura, 1977). Vygotsky argued that all learning originates in social interactions, through which the person is assimilated into the new knowledge community; learning is a collaborative process using guidance or co-creation by means of social interactions. Bandura initially suggested that learning occurs through observation – they observe individuals (models), make a choice as to whether to adopt the behaviour (imitation) mediated by thought of whether the consequence is likely to be rewarded or punished (reinforced). However, a decade later, he modified this theory (now known as social cognitive learning theory) in order to acknowledge the cognitive control over our behaviour (Bandura, 1986). This progression of his work added the role of agency to his notion of reciprocal determinism inherent to social learning; the idea that humans have the capacity to exercise control over the nature of their lives. He defines agency as “to intentionally make things happen

Gibson – The affordances of the environment are what it offers the [*person*], what it provides or furnishes, either for good or ill ... I mean by it something that refers to both the environment and the [*person*] in a way that no existing term does, it implies the complementarity of the [*person*] and the environment (GIBSON, J. J. 1979. *The ecological approach to visual perception*. Boston: Houghton Mifflin.)

Billett (referencing Gibson 1979) – how the workplace invites individuals to participate in workplace activities and provides them with access to guidance (BILLETT, S. 2002. Toward a workplace pedagogy: Guidance, participation, and engagement. *Adult Education Quarterly*, 53, 27-43.)

by one's actions" and goes on to describe four components of personal agency (intention, forethought, self-reactiveness and self-reflectiveness) (Bandura, 2001; Bandura, 2006). In addition to the mode of personal agency, he also describes proxy and collective modes. Proxy agency refers to situations in which a person does not have direct control over practices, depending on socially interdependent others who have the competence and power to assist (or impede) the achievement of the person's goals. Collective agency occurs where individuals share a belief that collectively they can produce the desired result. Through agentic action, people find ways to enable their valued outcomes to be reached. The necessary role of the student's agency in learning by participation seems evident.

A number of authors have used different aspects of social and constructivist learning theories in their thinking about clinical teaching. Amongst this thinking is Stalmeijer's work on cognitive apprenticeship, which she uses to suggest that learning occurs through guided experience (Stalmeijer et al., 2009), building on social constructivist notions of apprenticeship (Vygotsky, 1978). Dornan (Dornan et al., 2007) and Billett (Billett, 2002) use social cognitive theory as proposed by Bandura (Bandura, 1986) to assert that the core condition for medical students' workplace learning is supported participation (pedagogic, affective, and organisational) for active engagement in the processes of the workplace. This also builds on Wenger's work on community of practice⁶ (Wenger, 1998) in which it is argued that shared identity promotes learning. It is evident that social learning theory and its modifications of social constructivist and social cognitive theories, along with an understanding of learning in communities of practice, are not new. However, it does appear as though the use of these theories in strengthening clinical teaching is still in evolution.

This collective focus on the social tenets of learning has necessitated a shift in the tasks expected of teachers from initially thinking of teaching as transmission of their knowledge to students, to more recent ideas around facilitating student learning and the construction of their professional identity (Mann, 2001). Strand's work (Strand, Edgren, Borna, Lindgren, Wichmann-Hansen & Stalmeijer, 2015), guided by Sfard's metaphors of acquisition and participation (Sfard, 1998), has shown that clinical teachers conceptualize workplace learning as membership, partnership or ownership which is manifest through reciprocity between contextual factors and teacher and student agency. This seems to lead us to a contemporary understanding that clinical learning is

⁶ Communities of practice are described as "groups of people (community) who share a concern, a set of problems, or a passion for something they do (domain), and who deepen their knowledge and expertise in this area (shared practice) by interacting on a regular basis" (WENGER, E. 2000. Communities of practice and social learning systems. *Organization*, 7, 225-246.)

social learning situated in the workplace, which requires the clinical teacher to be able to offer participation (affordances) in meaningful workplace activities that contribute to patient care (authentic context) with others in the workplace (community) in an environment that provides emotional, pedagogical and organisational support. If we accept this then it seems clear that we need to establish how best faculty development can support clinicians in optimising teaching in the workplace.

2.2.2 Workplace-based tools and strategies

I have made the case for helping clinicians strengthen their understanding of the social aspects of learning as they become teachers. In particular, for clinical teachers, this is an understanding of social aspects of learning in the clinical workplace. While this provides them with an important theoretical understanding of the space within which they practice their craft, it is simultaneously necessary to attend to the practical ‘doing’ of clinical teaching. This is the procedural knowledge of different time-efficient workplace-based methods that can aid them in this task. These assist with the teaching tasks inherent to clinical teaching, namely promotion of critical thinking and self-directed learning, and constructing and delivering meaningful feedback (Hatem, Searle, Gunderman, Krane, Perkowski, Schutze & Steinert, 2011).

Ramani (Ramani, 2015) further developed the work done by Irby and Bowen on time-efficient teaching strategies (Irby & Bowen, 2004) to offer strategies that are underpinned by a student-centred approach. These can assist the clinical teacher to balance supervision with student autonomy. Three key stages of this teaching are: planning, which might involve the clinician setting some teaching goals for the particular student’s session; use of time-efficient teaching methods; and assisting the student to reflect on what they have learnt in the session or might still need to learn afterwards to round off the learning encounter. Table 2.4 below presents methods that can assist this time-efficient teaching in different clinical teaching contexts.

Table 2.4: Workplace-based teaching methods of use in different teaching contexts

Clinical Teaching Context	Clinical Teaching Methods	
A. Student observing a clinical teacher	Think aloud (Collins, Brown, & Holum, 1991)	
B. Student presenting a patient to the clinical teacher	One-Minute Preceptor (Neher et al., 1992) 8-step preceptor (Ottolini, Ozuah, Mirza & Greenberg, 2010) SNAPPS (Wolpaw, Papp & Bordage, 2003) SNAPPS – Plus (Nixon, Wolpaw, Schwartz, Duffy, Menk & Bordage, 2014)	Feedback (Ende, 1983)
C. Clinical teacher demonstrating to student	5-steps (George & Doto, 2001)	
D. Clinical teacher observing a student	Mini-CEX (Norcini, Blank, Arnold & Kimball, 1995) DOPS (Wragg, Wade, Fuller, Cowan, & Mills, 2003) O-Score (Gofton, Dudek, Wood, Balaa & Hamstra, 2012)	

A. Student observing a clinical teacher

Modelling has been an integral component of teaching through apprenticeship. Collins (Collins et al., 1991) introduced cognitive apprenticeship as an instructional prototype for situated learning. In linking modelling with teaching, he highlighted that modelling without elucidation can result in the student unthinkingly imitating, rather than learning. A clinician explicitly explaining why certain actions were undertaken, questions asked, or tasks performed (thinking aloud) provides the opportunity for the student to be more actively involved in the processes of clinical practice.

B. Student presenting a patient to the clinical teacher

The five-step “microskills” model of clinical teaching (now more commonly referred to as the “one-minute preceptor”) was initially presented within the context of Family Medicine teaching (Neher et al., 1992; Neher & Stevens, 2003). It consists of five discrete teaching behaviours for use when a student presents a patient to a teacher – 1) Get a commitment, 2) Probe for supporting evidence, 3) Teach general rules, 4) Reinforce what was done right, and 5) Correct mistakes. It focuses on the teacher being able to impact on the student’s clinical decision-making process, by identifying gaps in the student’s knowledge. Neher recognised that it did not address what might now be referred to as the social aspects of the student-teacher encounter. This tool is now quite commonly included in training of new clinical teachers in a number of clinical environments

other than Family Medicine (Furney, Orsini, Orsetti, Stern, Gruppen & Irby, 2001; Gallagher, Tweed, Hanna, Winter & Hoare, 2012). In 2010, Ottolini responded to the broadening notions of clinical teaching by including components that addressed the creation of a safe learning climate and fostering self-directed learning – this became known as the eight-step preceptor (Ottolini et al., 2010).

In 2003, Wolpaw developed the SNAPPS model as an alternative method to determine the student's clinical reasoning. It gives students the responsibility for expressing their clinical reasoning and uncertainties, rather than teachers the task of eliciting those (Wolpaw et al., 2009; Wolpaw, Wolpaw & Papp, 2003). The steps are 1) Summarize briefly the history and findings; 2) Narrow the differential to two or three relevant possibilities; 3) Analyze the differential by comparing and contrasting the possibilities; 4) Probe the preceptor by asking questions about uncertainties, difficulties, or alternative approaches; 5) Plan management for the patient's medical issues; 6) Select a case-related issue for self study. Responding to the need to foster evidence-based healthcare decisions, SNAPPS-Plus was designed (Nixon et al., 2014). The 'Plus' was using an educational prescription as a modification for how the student would select their further reading. This is a technique used in the teaching of evidence-based medicine as a means of phrasing the student's question in the PICO format in order to facilitate finding the literature to answer the question.

C. Clinical teacher demonstrating to student(s)

The five-step method for teaching clinical skills (George & Doto, 2001) has been used in the Advanced Trauma Life Support course for 30 years. It is based on a taxonomy of the psychomotor domain of learning (Simpson, 1966). While this method is more commonly used in the simulation environment, it can be adapted for use in the clinical teaching environment (Lake & Ryan, 2004). The similar four-step approach used by the Royal College of Surgeons (Peyton, 1998) does not include the initial step of addressing the cognitive elements of the skill.

D. Clinical teacher observing a student in authentic work

Norcini started work on the Mini-Clinical Evaluation Exercise (Mini-CEX) in 1995 in response to the recognition that postgraduate students were not sufficiently often observed conducting real patient encounters because of the onerous nature of the traditional Clinical Evaluation Exercise (Norcini et al., 1995). Since then this instrument has been extensively evaluated. It continues to serve the purpose of increasing educational interactions between student and teachers. There

have been many studies of the validity of its scores and reliability; often these point out the undeniable role of observer training (Hill & Kendall, 2007; Hill, Kendall, Galbraith & Crossley, 2009; Holmboe, Yepes, Williams & Huot, 2004; Kogan, Holmboe & Hauer, 2009).

Instruments designed similarly for observation of skills performance are the Direct Observation of Procedural Skills (DOPS) tool (Wragg et al., 2003) and the Ottawa Surgical Competency Operating Room Evaluation (O-SCORE) (Gofton et al., 2012).

Feedback

To be useful in clinical learning, these workplace-based tools are utterly dependent on the teacher and particularly on their ability to give feedback that can impact learning. This suggests that this remains a fundamental ingredient for faculty development offerings for clinical teachers.

As Ende wrote in 1983, “Feedback occurs when a student or house officer is offered insight into what he or she actually did as well as the consequences of his or her actions. This insight is valuable insofar as it highlights the dissonance between the intended result and the actual result, thereby providing impetus for change” (Ende, 1983). He goes on to comment about the student’s role in receiving any feedback that is offered. It seems astonishing that more than 30 year later there is still so much being written about the giving and receiving of feedback in clinical education. Research indicates that when students receive feedback about points for improvement (negative content), but it is positively framed, it increases not only student satisfaction, but also self-efficacy and subsequent performance in comparison to students where the feedback was negatively framed (Van de Ridder, Stokking, McGaghie & Ten Cate, 2008). Archer offered a critique of the literature on feedback in 2010, in which he suggests that to maximise its effect, feedback needs both to be embedded as a culture, and to move from episodic to continuous (Archer, 2010). Watling’s research confirms that if feedback is to achieve impact, it must be in a culture that shapes what students consider credible and therefore worth attending to (Watling, 2014). Lefroy’s guidelines on formative feedback for clinical education offer useful evidence-based advice, ending with a proposed new definition: “Helpful feedback is a supportive conversation that clarifies the trainee’s awareness of their developing competencies, enhances their self-efficacy for making progress, challenges them to set objectives for improvement, and facilitates their development of strategies to enable that improvement to occur” (Lefroy, Watling, Teunissen & Brand, 2015). The important components of information, motivation and strategies, really only achieve their potential when they occur in a supportive learning environment.

The above literature is suggesting that clinical workplace learning is a social, situated activity. Therefore, teaching in the workplace should be informed by this current understanding. In order to find ways to respond to strengthening clinicians in this form of teaching, faculty development needs to move beyond time-efficient workplace-based tools and strategies (Table 2.4), on which many faculty development programmes are currently based, to provide ways for the clinician to evoke students' active, supported participation in the everyday work of the clinical environment.

Having clinical knowledge (in this case evidenced by holding a medical degree) is necessary, but not sufficient for becoming a clinical teacher. This requires the teacher to be aware of themselves as role-model and guide; it emphasises the need to overtly attend to giving feedback that is direct, clear, and actionable; it speaks to the value of being familiar with and able to apply different workplace-based methods and instruments; and it requires the clinician to enable student's participation. In sum, becoming a clinical teacher requires that the clinician develop a new set of knowledge, skills and behaviours as a supervisor of learning (Steinert, 2014). It is therefore important for medical schools to re-consider initiatives to strengthen the teaching role of clinicians, remembering that clinical teaching consists of both relationship-based and cognitive skills.

2.3 FACULTY DEVELOPMENT DESIGN

As was first noted at the start of this chapter, as medical schools delegate teaching responsibilities to more (and more distant) clinicians, they will need to explore how to support these clinicians in that teaching task – a task that the previous section has identified as having both a social and a cognitive dimension. This is a particularly acute issue for emerging clinical teachers² who were not necessarily trained to teach, who work in environments where teaching is not part of the institutional culture and who are geographically distant from the faculty. The aim of this study is to offer a faculty development framework that will enable strengthening of teaching delivered by clinicians on an expanding training platform. In this section, I will present factors that could be considered when thinking of designing faculty development.

The design of a faculty development initiative has been likened to the process of curriculum development. A curriculum has been defined as “a statement of the intended aims and objectives, content, experiences, outcomes and processes of an educational program, including a description of the training structure and of the expected methods of learning, teaching, feedback and supervision” (Grant, 2010). In terms of guiding the process of curriculum

development, the AMEE guide on faculty development (McLean, Cilliers & Van Wyk, 2008) advocates using Kern's six-step approach (Kern et al., 1998) to ensure that key elements are addressed (see Figure 1.1):

1. Problem identification and general needs assessment
2. Targeted needs assessment
3. Goals and objectives
4. Educational strategies
5. Implementation
6. Evaluation and feedback

Despite being numbered one to six, these steps are not necessarily to be used in a sequential fashion, but rather to be seen as interacting with and informing each other and continuous as any curriculum should evolve in response to evaluation and changes in context, circumstances and needs (Kern et al., 1998).

In the case of a curriculum for faculty development to strengthen clinical teaching, we need to consider its evaluation. It may be appropriate to use instruments that measure clinical teaching effectiveness to both clearly identify the goals of a curriculum for faculty development to strengthen clinical teaching, as well as to provide the means for evaluating whether that faculty development achieved the anticipated changes in clinical teaching. Such instruments were initially based on the observable behaviours outlined in the literature (Irby, 1978), but more recently have been designed based on sound educational theory. Beckman's research between 2000 and 2004, on validity and reliability, determined that evaluations of clinical teaching were reducible to three domains – interpersonal (teacher attributes), clinical teaching, and efficiency (Beckman & Mandrekar, 2005). In their 2010 review to determine content, construction and use of instruments, Fluit et al. were still expressing the concern that no single instrument at that time covered all domains of teaching. They were particularly concerned that domains such as assigning relevant clinical work, assessment and planning were not covered (Fluit, Bolhuis, Grol, Laan & Wensing, 2010). Since then, three instruments designed to be used by undergraduate students to evaluate their clinical teaching have been developed and tested, the Maastricht Clinical Teaching Questionnaire (Stalmeijer, Dolmans, Wolfhagen, Muijtjens & Scherpbier, 2010), the Manchester Clinical Placement Index (Dornan, Muijtjens, Graham, Scherpbier & Boshuizen, 2012) and the Undergraduate Clinical Education Environment Measure (Strand,

Sjoberg, Stalmeijer, Wichmann-Hansen, Jakobsson & Edgren, 2013). These are presented in Table 2.5. While each takes a slightly different perspective, all are based on social learning theories within the constructivist paradigm.

Table 2.5: Features of clinical teaching effectiveness instruments

Instrument	MCTQ⁷ Stalmeijer et al.	MCPI⁸ Dornan et al.	UCEEM⁹ Strand et al.
Date	2010	2012	2013
Educational theory	Cognitive apprenticeship	Experience-based learning	Workplace learning
Context	Teaching hospitals	Entire teaching platform	University hospitals
Origin	Netherlands	UK	Sweden
Constructs	Modelling Coaching Articulation Exploration Safe learning environment	Leadership Reception/induction People Instruction Observation Feedback Facilities Organisation of the placement	Preparedness for student entry Opportunities for learning in and through work Quality of supervision Workplace interactions and student inclusion Student's preparedness and engagement

Evidence-based requirements of clinical teachers, based on sound educational theory make visible what is expected of clinical teachers (objectives – step 3, Figure 2.1). They also offer a mechanism for assessing the impact of a faculty development strategy by monitoring changes in clinical teaching, structuring feedback for clinical teachers and displaying the medical school's accountability for the delegated clinical teaching (evaluation – step 6, Figure 2.1). We know that it is prudent to design for alignment of objectives with how their achievement will be evaluated (Biggs, 1996) – these instruments (or adaptations thereof) seem to offer us an opportunity to do so.

⁷ Maastricht Clinical Teaching Questionnaire (Stalmeijer, Dolmans, Wolhagen, Muijtjens & Scherpbier, 2010).

⁸ Manchester Clinical Placement Index (Dornan, Muijtjens, Graham, Scherpbier & Boshuizen, 2012).

⁹ Undergraduate Clinical Education Environment Measure (Strand, Sjoberg, Stalmeijer, Wichmann-Hansen, Jakobsson & Edgren, 2013).

2.3.1 Fit-for-purpose

While Kern's model is a seminal work in curriculum development process, it does not specifically address the measure of suitability of the offerings so designed, particularly in terms of purpose. Harvey makes the argument that quality can be seen not only as exception, perfection, value-for-money or transformative, but also as fitness-for-purpose (Harvey & Green, 1993). This suggests that in deciding whether a programme fulfils its purpose, three design guidelines assist us: whether it is *necessary*, is of an *appropriate standard* and *meets the requirements of its intended use*.

I have made a case for why faculty development for clinical teaching is *necessary*. I suggest that the *appropriate standard* would be led by descriptions of effective clinical teaching and the tools designed to evaluate that. This leaves me with the challenge to explore the requirements for faculty development's *intended use*. As these are guidelines for determining whether a programme fulfils its purpose, not criteria, their application allows design decisions to be based on specific contextual circumstances and understanding of that purpose. In designing a fit-for-purpose faculty development offering for emerging clinical teachers in a resource-constrained environment, it would therefore be important to consider the perspectives of clinical teaching of the different stakeholders involved, namely, the clinician, the student and those responsible for faculty development, so that an aligned strategy could be developed to optimise effective clinical teaching.

2.4 CONCEPTUAL FRAMEWORK

To ensure congruence with this interpretivist stance (Bunniss & Kelly, 2010), working with the importance of the social in constructing meaning and experience, and responding to calls in the more recent faculty development literature for consideration of communities (O'Sullivan & Irby, 2011; Steinert, 2010), I took into account the work of both Wenger around communities of practice (Wenger, 2000) and Billett's development of this in understanding workplace learning (Billett, 2002).

This research proceeded on the basis of accepting the following premises:

1. Being trained in the clinical environment is a crucial component of becoming a doctor,
 - students learning to become clinicians need to have that learning facilitated by clinicians,

- clinical training of medical students is responding to a set of imperatives that require it to become more distributed across the healthcare system,
 - therefore, there are clinicians being asked to take on the role of teacher,
 - clinicians are not generally trained to become teachers,
 - but, higher education institutions have an obligation to ensure that these clinicians, to whom it delegates teaching have the capability to do so,
 - fostering such capability is known as faculty development.
2. The South African healthcare system is an example of an under-resourced system which currently focuses more on patient care than on learning and teaching,
- it is in this context that clinical teaching needs to be instituted, maintained and sustained.
3. Strengthening the teaching skills of clinicians in this healthcare system needs to be contextualised, customised and targeted,
- therefore, a fit-for-purpose faculty development framework would enable higher education institutions to meet their responsibilities for supporting clinicians in the healthcare system as clinical teachers.

My understanding of the evolving clinical teacher arose from the preliminary phase of this dissertation (Blitz et al., 2014 – Addendum A). The journey begins with the clinician’s tacit knowledge of teaching, but the emergence of the clinical teacher is enabled by faculty development. Therefore, in order to understand faculty development to strengthen clinical teaching in this dissertation, I draw on the notion of this journey, theories of teaching in the workplace based on clinical learning as a socially situated endeavour, and multiple methods to assist clinical teaching practice.

This research therefore set out to answer the question:

What should a fit-for-purpose faculty development framework for emerging clinical teachers comprise in a resource-constrained environment?

This chapter has presented some of the literature on faculty development and clinical teaching, and offered some ideas on how a fit-for-purpose framework might be designed. Reading and reflection on the literature reinforced the need to be acutely aware of context in thinking about what such a framework might look like. Hence, the next chapter (Chapter 3) delves specifically

into the South African healthcare system as a resource-constrained context (in comparison to a selection of other contexts) in which the clinical teaching is conducted and of which a fit-for-purpose faculty development framework would need to take account of.

CHAPTER 3

EXPLORING THE CLINICAL LANDSCAPE

“Life is a journey that must be travelled no matter how bad the roads and accommodations.”

Oliver Goldsmith (Irish novelist, playwright and poet; 1728-1774)

As mentioned earlier in Chapter 1, Bleakley cautions us to be aware of location in medical education, to consider how things in developing countries may differ from those in the West (Bleakley, Bligh & Browne, 2011 Chapter 10). In Chapter 2, I explored clinical teaching as the crucial component of all medical training, where students have opportunities to be taught with the reality of patients being present (Schwenk, 1987), where they have the opportunity to observe, enact and practice the cognitive skills of medicine (Stalmeijer et al., 2013) and where socialisation into the identity of medical professional occurs (Cruess et al., 2015). Understanding clinical teaching and workplace learning as social learning, requires considerations of faculty development for strengthening that clinical teaching to take cognisance of the context in which it occurs. This chapter describes the particular context of the South African public healthcare service in which clinical teaching is located, specifically taking into consideration the clinical teaching platform that is expanding in response to greater numbers of students and curriculum alignment with healthcare across the spectrum of the service. In order to describe where this research was located, I will outline in broad brush-strokes, some of the features of the South African healthcare system, as well as some more localised descriptions of context as they pertain to the setting in which data was collected.

3.1 SOUTH AFRICAN HEALTHCARE INDICATORS

It is not the place for this thesis to comment on the quality of care in the South African healthcare system, or on the burden of disease, but simply to indicate the service load that is carried by the clinicians that are in addition tasked with teaching undergraduate medical students in the clinical environment. This reality gives an indication of the substantially resource-constrained context (in comparison with other countries) in which clinical teaching occurs in South Africa. In order to illustrate differences, I have drawn comparisons between countries in four categories:

- i. those with the highest medical education publication productivity (Doja et al., 2014),
- ii. South Africa,
- iii. its two neighbouring countries with similar Gross National Income (GNI) – Botswana and Namibia,
- iv. the other emerging economy countries – Brazil, Russian Federation, India and China (BRICS countries).

Healthcare spending

South Africa is classified by the World Bank as an upper middle income country, along with its neighbouring countries Botswana and Namibia and the BRICS countries, other than India (classified as lower middle income country). While the difference between upper middle and high income sounds as though it may be contiguous, Figure 3.1 explicitly shows the profound difference in Gross National Income (GNI) between South Africa (and others in the upper middle income group) and those in the high income group. At best, the GNI in these upper middle income countries is one third of those in high income countries.

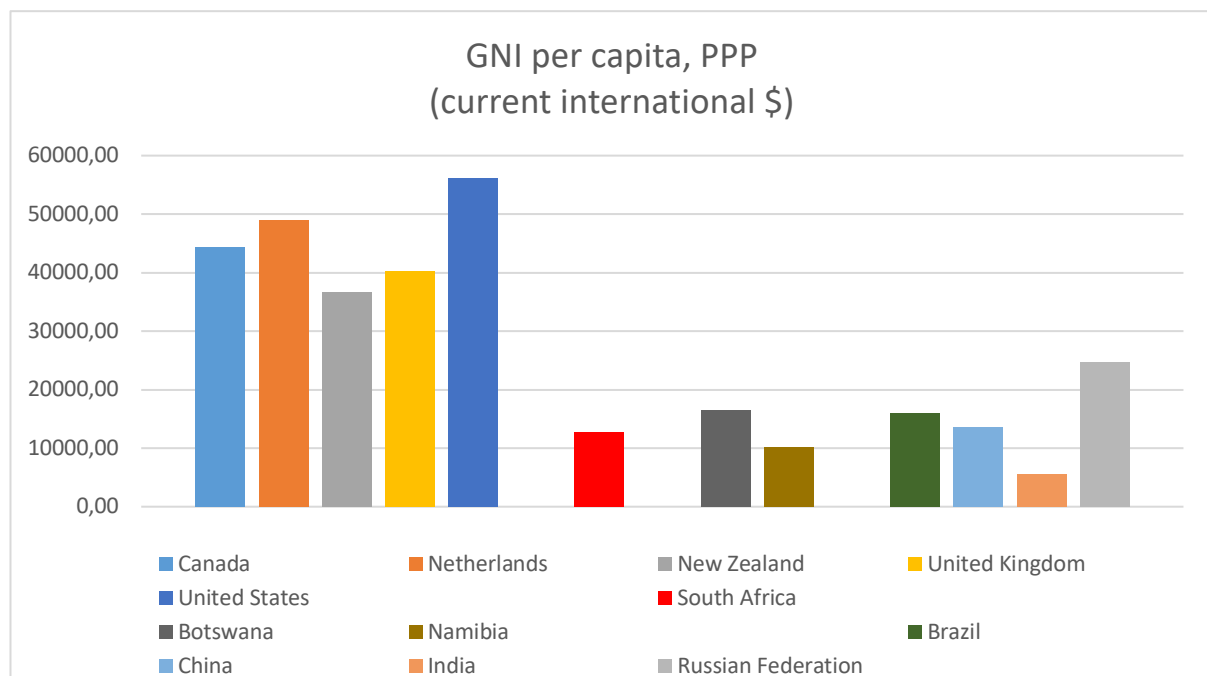
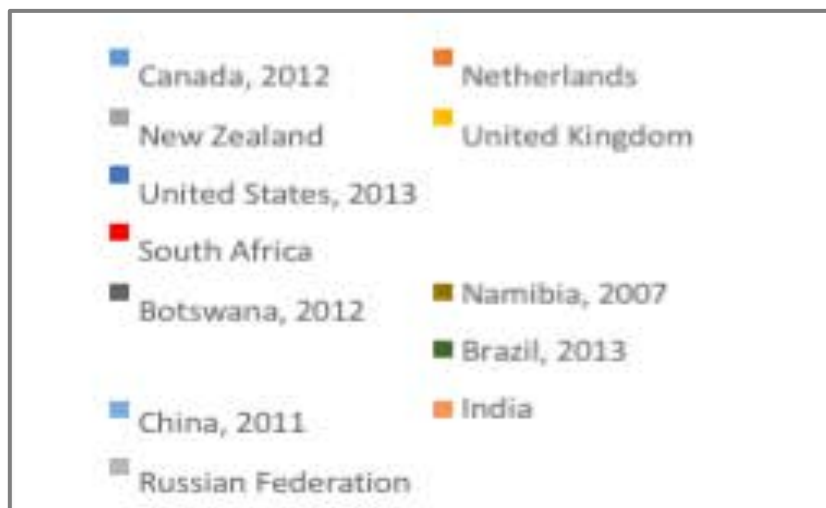
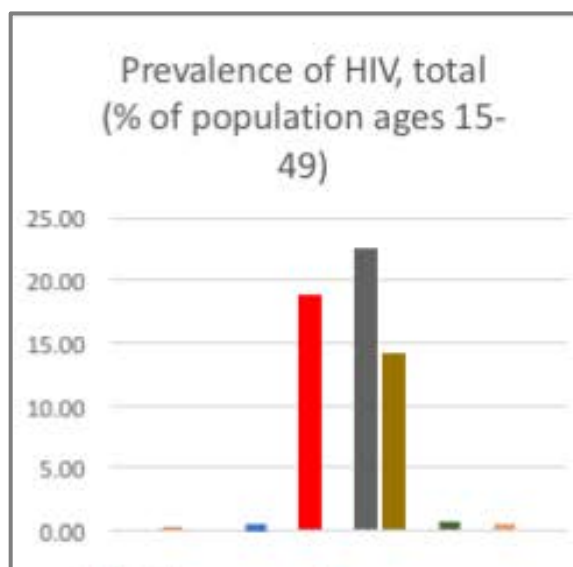
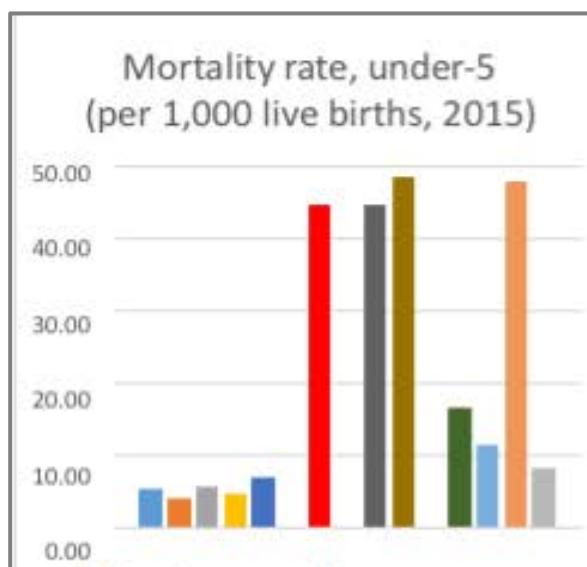
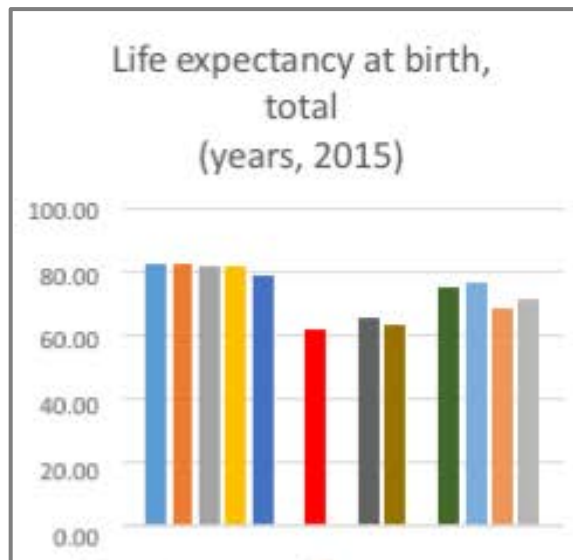
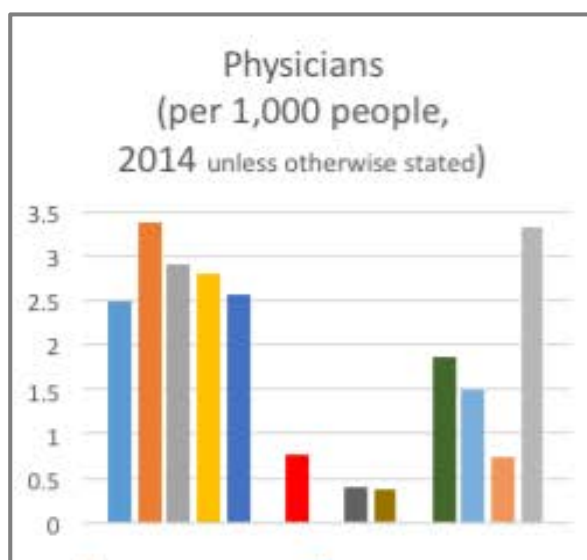
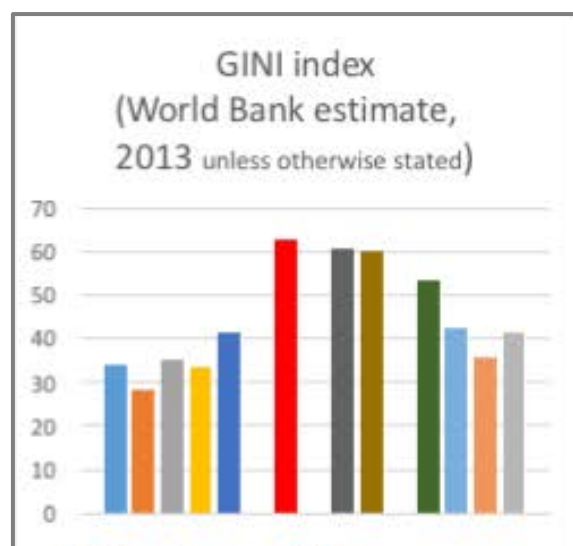
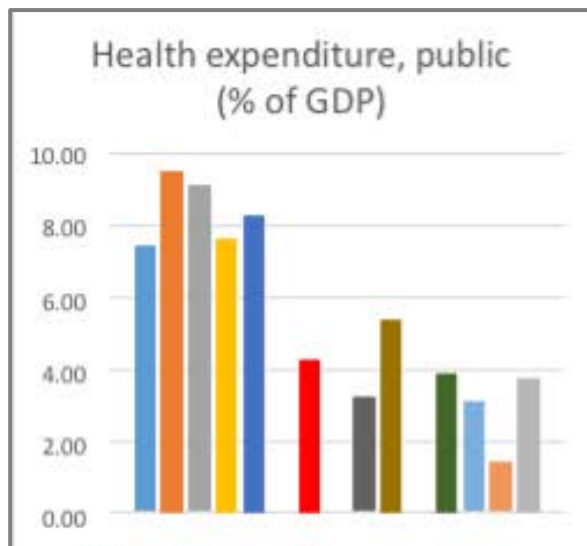


Figure 3.1: *Gross National Income (GNI) per capita, PPP (current international \$, 2015)*
(The World Bank, 2015)

When it comes to healthcare spend as a percentage of Gross Domestic Product (GDP), Figure 3.2 below offers a visual overview of the difference between South Africa and the other countries. While it is not presented for a precise analysis of the health indicators of these countries, it shows that on average, as a percentage of GDP, South Africa allocates less than half as much of its Gross Domestic Product to public health expenditure as high income countries do. In South Africa, a proportion of the Gross Domestic Product is obtained as donations from international agencies and nongovernmental organizations; this is largely ring-fenced for HIV/AIDS work and does not contribute to the broader public healthcare system. It can be seen that there is a well-performing Prevention-of-Mother-To-Child-Transmission of HIV (PMTCT) programme, but somewhat less effective anti-retroviral coverage of people living with HIV. The very high prevalence of HIV is one of the contributing factors to the high under-5 mortality rate seen in South Africa and its neighbouring countries and makes some contribution to the overall life expectancy that is still only 75% that of the high income countries. This is offered as one indication of the complexity of patient care in the public health sector where medical students are placed for their clinical training.

Legend





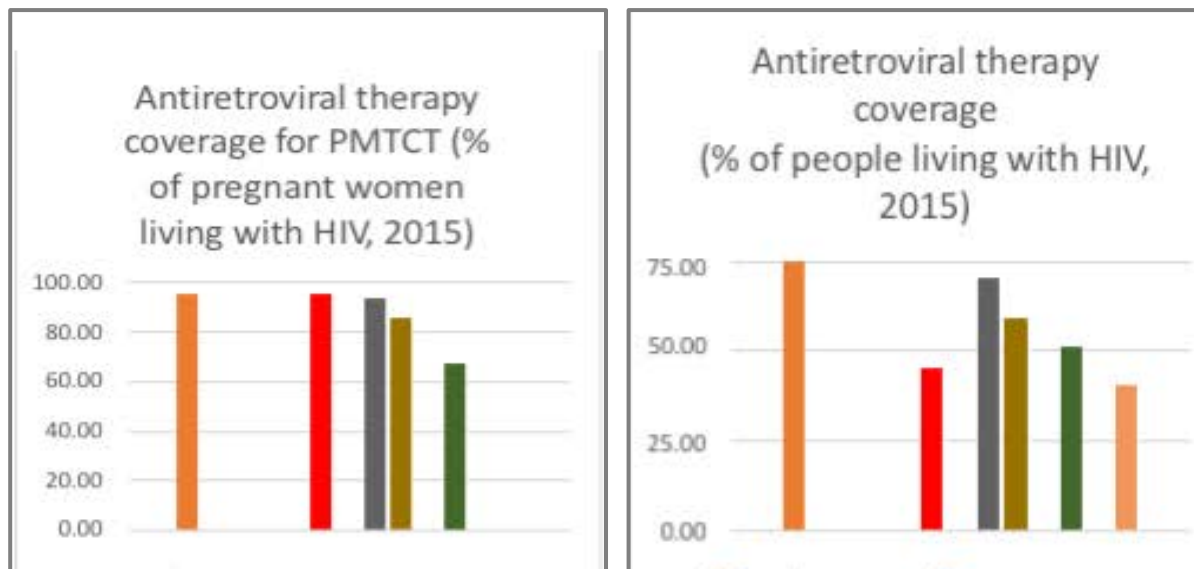


Figure 3.2: Health indicator graphs for South Africa

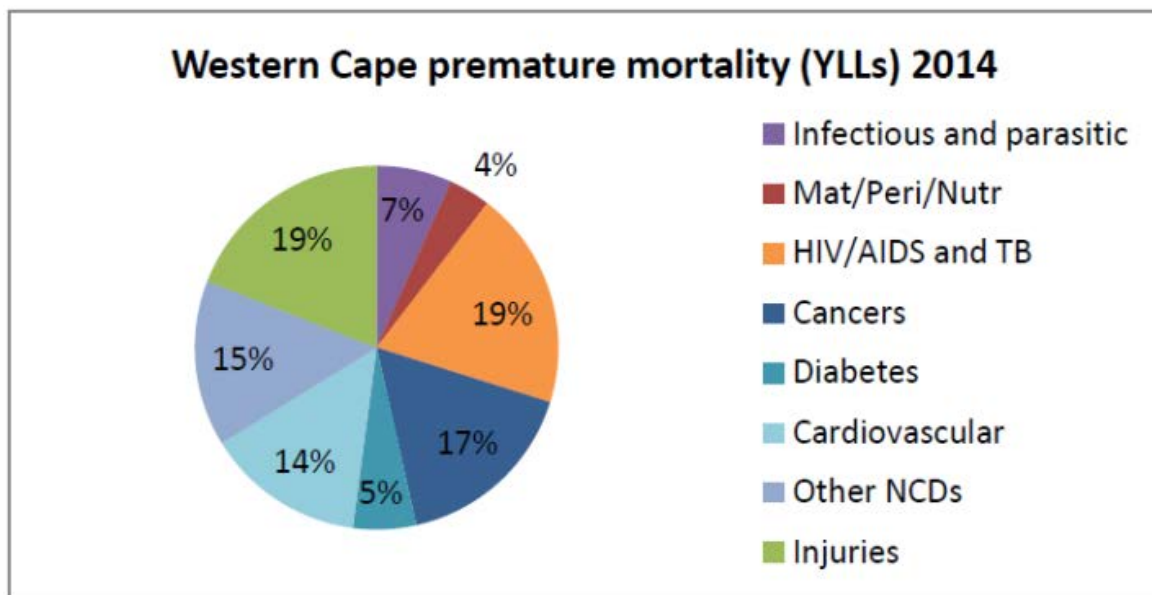
Burden of disease

South Africa is faced with diseases common to both developing and developed nations. This is commonly described as the quadruple burden of disease: an alarmingly high rate of infectious disease; a number of health challenges affecting women and girls, young children, and babies; a growing problem of non-communicable disease; and the high toll of violence and accidents (Mayosi, Lawn, Van Niekerk, Bradshaw, Abdool Karim & Coovadia, 2012).

The specific context of this research was predominantly the Western Cape, the province where Stellenbosch University is located. Table 3.1 and Figure 3.3 present some data from the province to give an overview of the healthcare context of this province and afford comparison with data with which the reader may be more familiar. This offers some insight into the significant burden of disease amongst the population that accesses a service with a low ratio of doctors. It is within this context that clinical training happens.

Table 3.1: A selection of healthcare indicators of the Western Cape province, South Africa (Western Cape Government Health, 2017); (Western Cape Government Health, 2015)

	TOTAL
Uninsured population estimates 2015/6	4 693 543
Medical officers per 10 000 uninsured people (31 03 2016); 2.86% vacancy rate	4.3
Medical specialists per 10 000 uninsured people (31 03 2016); 3.1% vacancy rate	1.4
Number of deaths (2014)	41354
Antenatal services (67% within first 20 weeks)	90554 women
Maternal mortality rate per 100 000 live births	71
2015 neonatal mortality in facility rate per 1000 live births (94342 deliveries)	4.4
2014 <1yr infant mortality rate per 1000 live births	19.1
2014 <5yr mortality rate per 1000 live births	24.1
PHC headcounts (2015/6)	14 150 180 visits
Successful treatment of tuberculosis cases (2014) – 708 new cases notified per 100000	82.3%
Chronic disease patients – stable; receiving monthly prescriptions	260 000
Bed occupancy rate (2013)	91%

**Figure 3.3: Years of life lost due to premature mortality in the Western Cape province, South Africa (Western Cape Government Health, 2017); (Western Cape Government Health, 2015)**

Doctor-patient ratio

South Africa has a shortage of doctors, with one of the lowest doctor-patient ratios (8 per 10000 population in 2015 (Organisation for Economic Co-operation and Development (OECD), 2017), not only in the world, but also in comparison to other emerging economy countries such as Brazil (17.31), China (18) and Russia (40) (Organisation for Economic Co-operation and Development (OECD), 2017, South African Government, 2011). Developed countries, for a variety of reasons (population aging, improved access to care, changing work hours, etc.) also project a shortfall of doctors in the coming decade (IHS Markit, 2015, Kamalakanthan & Jackson, 2006). This speaks to the need to increase the number of medical graduates, but also speaks to limitations in the number of doctors available to supervise clinical training of students.

In addition to the low density of doctors per population in South Africa, there is also an inequitable distribution of those doctors. In 2008, less than half were working in the public sector, which serves approximately 84% of the population that is uninsured and where training of medical students takes place. This inequitable distribution is even more pronounced if one realises that in the public sector this number is distributed as 1.7 per 10000 population in provinces with predominantly rural populations and 3 per 10000 population in provinces with almost entirely urban populations (Blecher & Harrison, 2006). This speaks to further tension between needing to expand the clinical training platform into more rural areas in order to shift the health workforce, and the number of doctors available to supervise the students placed there.

In South African terms, the Western Cape, the setting for this research, has a relatively high proportion of medical officers per 10 000 population (4.3 per 10 000 as per Table 3.1), with few vacant posts. Medical officers are doctors who have not gone on to do postgraduate training in a field of specialisation (in 2010, 70% of the doctors in the public sector were not specialists (Econex, 2010). Some may be completing obligatory community service or waiting to be accepted for specialist training. However, many choose to remain a generalist, often not anticipating any involvement in “academic” activities such as teaching (or research). These doctors are employed by the relevant provincial Department of Health to provide patient care services. They have no contractual link with the university. When expanding the clinical training platform, it is largely to these medical officers that the responsibility of clinical teaching will fall. At some facilities, there might be a single Family Physician specialist who would then tend to lead the clinical team (figures are not certain, but according to Mash and Von Pressentin [2017], it appears as though there may be 200 family physicians employed in the public sector

in South Africa). In contrast, the majority of specialists work in tertiary or regional hospitals and are jointly appointed between the Department of Health and the university with their job description including clearly defined academic (including teaching) obligations.

3.2 HUMAN RESOURCES FOR HEALTH STRATEGY

The government sought to address the inequitable distribution and the overall shortage of doctors in its Human Resources for Health South Africa strategy (South African Government, 2011), in which the Department of Health called for an increase in the annual number of medical graduates from 1394 in 2011 to 2300 by 2025, an 80% increase. Any plans developed to execute this strategy need to simultaneously ensure that they address the healthcare needs of communities. This has given rise to considerations of expanding the clinical teaching platform so that medical graduates are better prepared for clinical practice at all levels of care, including in underserved areas.

Plans to achieve such increases often consist of increasing the number of medical students and opening new medical schools. South Africa has also chosen both these options to achieve the required substantial increase, increasing the number of students at existing South African medical schools and opening two new medical schools. In 2013, additional places for medical students were made available across South Africa, bringing the total number of places available annually to 1900 in 2014 (Van der Merwe et al., 2015). In 2016 a new medical school was opened at the University of Limpopo (initial intake of 60 students annually) while Nelson Mandela University, in the Eastern Cape province, plans to begin its medical student training in 2020 (initial intake of 50 students annually). Regardless of throughput rates, this intake will still fall short of the 2025 annual target for graduates.

A further strategy the South African government initiated in 1996, was to select South Africans (recruited largely from underserved and disadvantaged communities [Bateman, 2013]) to receive their initial medical training at a Cuban university. A bilateral agreement was entered into with the government of the Republic of Cuba to establish the Nelson Mandela Fidel Castro Medical Collaboration Programme (NMFCMCP) (Donda, Hift & Singaram, 2016). As part of this agreement, students receive an initial five years' training in medicine in Cuba (which has a physician density of 67 per 10000 population) and then before qualifying, complete a final 12 to 18 months of clinical training at a South African medical school. Over the last 20 years, approximately 4000 South Africans have been sent to Cuba for this initial medical training, with

590 having graduated by July 2017 (Ngobese, 2017). Up until now, relatively small groups of students have been returning each year, but in 2018, approximately 750 students will return each year for the following five years.

The increased student intake, the new medical schools and the collaboration programme certainly have the potential to increase the pool of doctors working in the public sector in South Africa. However, these students all need access to appropriate clinical teaching to develop the expertise to be able to deal with South Africa's burden of disease. This will require significant expansion of the capacity of the clinical teaching platform and the concomitant recruitment of clinicians on that platform into a substantive teaching role.

The additional issue of inequitable distribution of doctors has been responded to by many universities now both purposefully selecting rural-origin students (Van der Merwe et al., 2015), and also incorporating more clinical teaching in distributed sites. This exacerbates the need to expand the clinical teaching platform to include healthcare facilities that may be at a geographical distance from the faculty. Thus we see a confluence of different factors all contributing to an increasing pressure to increase the number of medical graduates.

3.3 EXPANDING THE CLINICAL TEACHING PLATFORM

Over and above the focus on increasing student numbers, other drivers for expanding the clinical teaching platform have emerged. More than 50 years ago, White published a landmark article, "The Ecology of Medical Care", in which he showed that in a population of 1000 adults, over the period of a month, 750 will report an illness, but only one will be admitted to an academic medical centre hospital (White, Williams & Greenberg, 1961). This work was based on data from both the United Kingdom and the United States of America. Repeat analysis has been done (Green, Fryer, Yawn, Lanier & Dovey, 2001) and similar studies to include children and to ensure rural representation, have shown no substantial change in the ratios as they were originally described (Figure 3.4). This understanding has had some effect on the organisation of medical education in terms of providing evidence for the need to extend training beyond the academic hospital, to ensure that clinical training aligns with the healthcare needs of the population in a way that represents all levels of healthcare.

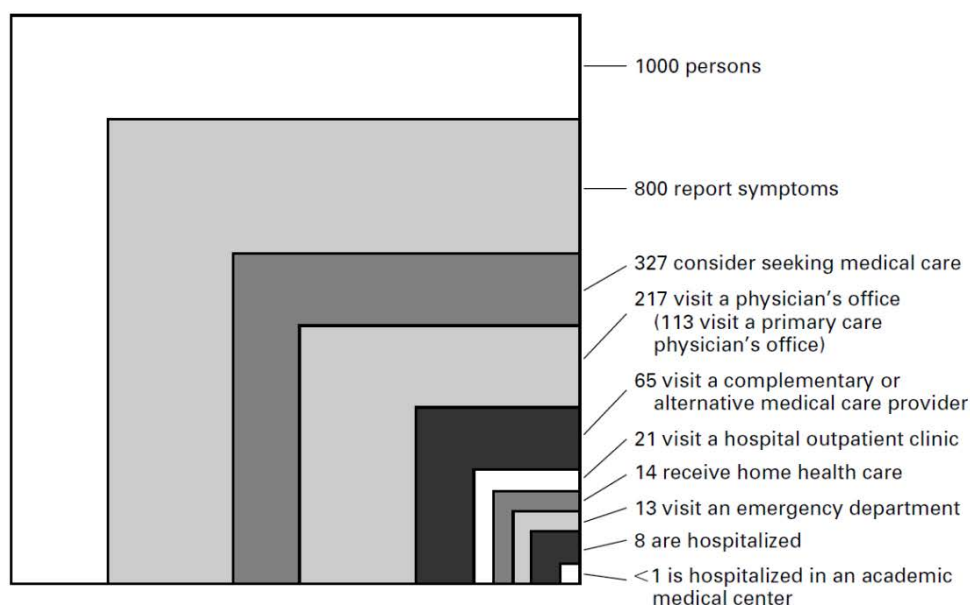


Figure 2. Results of a Reanalysis of the Monthly Prevalence of Illness in the Community and the Roles of Various Sources of Health Care.

Each box represents a subgroup of the largest box, which comprises 1000 persons. Data are for persons of all ages.

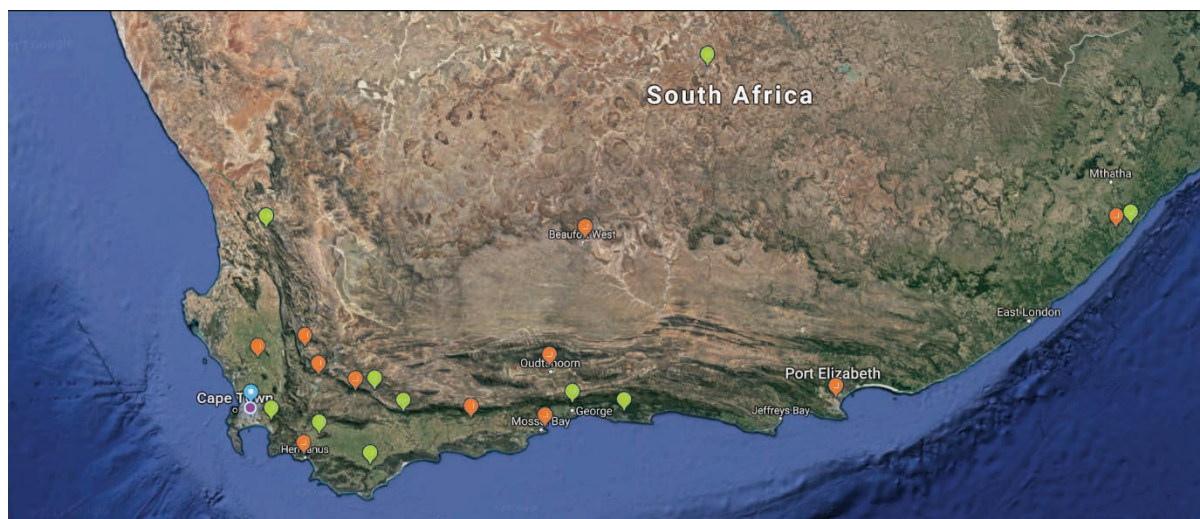
Figure 3.4: *The Ecology of medical care revisited 2001 (Green et al., 2001)*

A second driver has been that of curricula responding to population needs. Internationally, over the last thirty years, as the discipline of Family Medicine became more established, the component(s) of the curriculum for which it was responsible tended to extend teaching to include primary care (previously called community-based) sites. This was driven by a need to find a clinical environment more appropriate than that of a tertiary hospital. More recently however, other disciplines have begun embracing the possibility of including teaching outside of the tertiary hospital in their modules. While this was driven by a realisation that a more relevant scope of disease and disease complexity could be encountered, it was also facilitated by concerns about the groups of students on tertiary hospital teaching rounds being too large for adequate teaching.

Finally, there has also been a drive to address the maldistribution of doctors between urban and rural areas. Research evidence, both international (Farmer, Kenny McKinstry & Huysmans, 2015; Strasser, Lanphear, McCready, Topps, Hunt & Matte, 2009) and from South Africa (De Vries & Reid, 2003; Reid, Couper & Volmink, 2011), shows that two factors contribute to doctors deciding to practice in rural areas; one is that they originally come from a rural area, the other that they have appropriate experiences in rural areas during their studies. This was a further push for medical schools to consider expanding their clinical teaching platform to include rural healthcare facilities.

The above factors (the need to increase the number of graduates, the need to incorporate teaching at all levels of care, and the need to address the maldistribution of the healthcare workforce) all played into a progressive expansion of the clinical teaching platform, which although it still has the tertiary academic teaching hospital as its hub, needs to expand to include regional hospitals and district hospitals and their clinics.

Many South African universities are already expanding their clinical training platforms and in some cases have been doing so for several years. Since its inception in 1985 (as the University of the Transkei), Walter Sisulu University has used an extensive training platform, through creating what it calls ‘district learning complexes’ which include health facilities at all levels of care stretching across the Eastern Cape. All their medical students now spend a 20-week Integrated Longitudinal Clinical Clerkship at a district hospital in their penultimate year of study (Walter Sisulu University, 2017). More recently, the University of KwaZulu-Natal has started distributing students to training centres throughout the province, outside their local teaching hospitals. They are developing a Continuous Clinical and Community Placement as a semester-long immersion experience (University of KwaZulu-Natal College of Health Sciences, 2016) which should be in place by 2019. At the University of the Witwatersrand, students may choose where to be placed for a 6-week primary care block in their final year; this includes sites which could be considered distributed based on the definition provided earlier in this study. In the case of Stellenbosch University, the spread of the teaching platform now covers quite a wide geographical area, with the furthest site being 1200km away from the Faculty (Figure 3.5).



Legend



established training sites



more recent training sites



Faculty of Medicine and Health Sciences, Stellenbosch University

Figure 3.5: *Map of the south-western corner of South Africa indicating the Faculty of Medicine and Health Sciences clinical teaching sites (2015)*

At Stellenbosch University this process of expansion began with Family Medicine moving teaching into district health sites (Mash & De Villiers, 1999). In 2001, bold steps were taken to establish the Ukwanda Centre for Rural Health with the specific remit of extending and supporting (what at that time was referred to as) community-based education in rural areas (De Villiers, Conradie, Snyman, Van Heerden & Van Schalkwyk, 2014). One of the Centre's important initiatives was the development of the first Rural Clinical School (RCS) based at Worcester. This is a particular component of the faculty's clinical training platform which includes the regional hospital at Worcester and district hospitals at Ceres, Robertson, Swellendam and Hermanus. There are other sites on the clinical training platform which fall outside the remit of the RCS and are used by specific disciplines as they seek to expand the platform on which their students do clinical rotations. The success of this initiative has encouraged disciplines to include regional hospitals in short rotations for some groups of undergraduate medical students – so far largely in paediatrics and internal medicine (Stellenbosch University, 2018). Figure 3.6 gives a brief description of two sites on the expanding platform that could be considered typical.

Ceres Hospital (part of the RCS), is a district hospital that serves a population of 130 000, mostly rural, people. A very low income per capita and migrant farm workers coming from the Eastern Cape and Lesotho ensures challenging socio-economic problems and, though our work as doctors tends to focus on illnesses and curative medicine, we are more and more moving out to our communities to work preventatively and solve problems where they occur. We know that as a health team we need to work together with our community, utilizing all the allied health professionals and community-based services, provided by local NGO's, available to us to solve some of the challenges. This makes for exciting work!

Ceres Hospital was recently upgraded with a new casualty. With this, new equipment followed and we are now working in an environment that equals the best in level 1 district hospitals in South Africa. Currently we are a team of 5 permanent medical officers, 3 community service officers, 2 Family Medicine registrars and 1 Family Physician. With us there is a physiotherapist, 2 dieticians, a social worker, 2 psychiatric nurses, occupational therapist, dentist and a dental hygienist. The community care services are very active and work very closely with the hospital teams. There is a good relationship and understanding between the private practitioners in Ceres and the state employed doctors. The private sector general practitioners do some of the after-hours calls at Ceres Hospital and therefore stay involved in the system.

There is an atmosphere of learning in Ceres Hospital (86 beds) mainly fuelled by the dedicated outreach and support programs from Worcester Hospital (our regional referral hospital) and involvement by the University of Stellenbosch through its undergraduate students, as part of the Ukwanda Rural Clinical School (see <http://blogs.sun.ac.za/ukwanda/ukwanda-rural-clinical-school/>). Further learning and courses are promoted and Ceres Hospital is also accredited by the Colleges of Medicine of South Africa as a site to do the Diploma in Primary Emergency Care.

Adapted from

<https://www.sun.ac.za/english/faculty/healthsciences/Family%20Medicine%20and%20Primary%20Care/Pages/Ceres-Hospital.aspx>



Oudtshoorn provincial hospital (not part of the RCS) is a district hospital with 123 beds in the Eden district of the Western Cape, South Africa, serving a population of approximately 60 000 people. It has four wards (adult male, adult female, maternity, paediatric), an emergency centre, outpatient department and an anti-retroviral treatment clinic. The medical staff consists of three community service doctors and seven medical officers. There is an average of 50 admissions per week to the general adult wards.

In addition to general medical admissions, the hospital performs various elective level 1 surgical procedures, including tonsillectomies, circumcisions and caesarean sections. Emergency surgeries performed include laparotomies for ectopic pregnancies and appendicectomies. Visiting specialist disciplines include internal medicine, family medicine, obstetrics and gynaecology, surgery, orthopaedics, ENT and ophthalmology.

Source: (Beutel and Jenkins, 2015)

Figure 3.6: *Description of two typical expanding training platform sites*

A consequence of the expansion of the clinical teaching platform to new sites is the involvement of doctors, who had previously had minimal (if any) involvement with students, becoming responsible for core clinical teaching (as opposed to teaching students spending a brief elective period with them). For the purposes of this research, I have referred to these doctors, who are new to the role of clinical teacher, as “emerging” clinical teachers (Blitz et al., 2014; Van Schalkwyk et al., 2014) (see Chapter 1.3).

3.4 POLICIES GOVERNING THE TEACHING PLATFORM

As mentioned in Chapter 1, the South African health sector is governed by the Department of Health (DoH), and the tertiary education sector by the Department of Higher Education and Training (DoHET). The clinical teaching of health professions students in the Western Cape is governed by the Multi-lateral Agreement (Western Cape Government, 2012) between the provincial Government (through its Department of Health) and the four higher education institutions (HEIs) involved. Stellenbosch University is one of those four. The agreement declares that the parties shall strive towards the delivery of high-quality pre-registration professional teaching and training. It goes on to state that the whole of the service platform is potentially available for clinical teaching and training, but that access is determined by the principles and governance structures of the agreement, particularly equitable access amongst the four HEI's.

There are two national treasury conditional grants which have contributed to this training. The first is the National Tertiary Services Grant (NTSG) which is designed to compensate tertiary facilities for the additional costs associated with provision of additional services that result from requirements for training; the second being the Health Professions Training and Development Grant (HPTDG) which is allocated to public health facilities to defray the additional costs incurred as a result of the clinical teaching of undergraduate and postgraduate health sciences (not only medical) students. These grants have supported appropriate teaching, particularly clinical teaching that occurs in tertiary hospitals. In their 2010/11 annual report, the Western Cape Government stated that 52% of the province's HPTDG allocation for the year had been given to tertiary hospital services (Programme 5). The report goes on to say that as the principle of HPTDG allocation is that funding follows students, it is allocated to facilities where students are trained in keeping with the annual student placement exercise undertaken by the Faculty and the province (Western Cape Government, 2012). This has the potential to assist facilities on the expanded training platform if the allocation is distributed to where the students are.

Despite these grants, there was a growing awareness of the important role that adequate clinical supervision plays in the teaching of health professions students. The high workloads within the public sector were compromising this teaching. Appropriately, the national professional regulatory body (the Health Professions Council of South Africa) had mandated requirements for the number of staff required to undertake clinical supervision in fulfilment of the experiential teaching component of health professions qualifications. In 2009, driven by how to increase the production of health science graduates, the Health Sciences Review Committee (HSRC) of the (then) Department of Education and the DoH, was tasked to develop interventions to strengthen clinical teaching. One of the committee's recommendations was that a Clinical Training Grant (CTG) be made available for this purpose (South African Government, 2010). The HSRC has been replaced by the Joint Health Science Education Strategic Committee (chaired by both DoHET and DoH). It is tasked with creating a collaborative process for determining production needs, demand and supply of health professionals, and ensuring effective financing to increase health professional numbers through the relevant grants. The CTG is a substantial grant which for 2017/8 amounted to R475-million across the country, R39-million being allocated to Stellenbosch University (South African Government, 2016).

3.5 MEDICAL STUDENTS ON THE TRAINING PLATFORM

Stellenbosch University is progressively expanding its clinical training platform for students in all its health professions programmes, but especially so for medical students. From the fourth year of study (in a six-year programme), during the middle or late clinical rotations, students spend anything between a minimum of five weeks and a maximum of a year at a clinical site away from the traditional tertiary academic hospital. This time will commonly be spent learning in a generalist discipline such as Family Medicine or Public Health, but may also be in a specialist discipline such as Paediatrics or Internal Medicine (see Figure 3.7).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47																																																																																																
MB,ChB I	PERSONAL AND PROFESSIONAL LIFE FORMS AND FUNCTIONS OF CHEMISTRY FOR LIFE SCIENCES HEALTH IN CONTEXT 111											DEVELOPMENT 111											CLINICAL IMPORTANCE 111											INTERPROFESSIONAL PHASE											Essentials of Disease Processes 141											Principles of Therapy 141											Introduction to Clinical Medicine 141											Exam																																																																	
MB,ChB II	Respiratory System 271																						Cardiovascular System 271																						Digestive System 271																						Urogenital System 271																						Endocrine System 271											Reproductive System 271											Introduction to Clinical Medicine 271											Exam																					
MB,ChB III	Neurosciences 371											EARLY CLINICAL ROTATIONS 371											Neurosciences 371											EARLY CLINICAL ROTATIONS 371											Musculoskeletal System 371											EARLY CLINICAL ROTATIONS 371											Haematological System 371											Principles of Palliative Care 371											EARLY CLINICAL ROTATIONS 371											Exam																																											
MB,ChB IV	MIDDLE CLINICAL ROTATIONS 471											Infections and Clinical Immunology 471											MIDDLE CLINICAL ROTATIONS 471											The Skin 471											Forensic Medicine 471											MIDDLE CLINICAL ROTATIONS 471											Introduction to Emergency Medicine											Anaesthesiology 471											MIDDLE CLINICAL ROTATIONS 471											Doctor as Change Agent in Communities 511											MIDDLE CLINICAL ROTATIONS 471											Exam											Elective 441										
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Legend


 circumscribes the final 18-month period of student internship which completes the 6-year curriculum

Figure 3.7: Stellenbosch University MB,ChB curriculum outline

At the time that this research was conducted in 2014, the 6th year student cohort (from which student participants in this dissertation were recruited – see sub-studies B and E described in sections 4.5.2.1 and 4.5.3.2) consisted of 170 students with the following demographic profile (Table 3.2):

Table 3.2: Demographic profile of 2014 final year medical students

n=170		Number	Percentage
Gender	Female	115	68%
	Male	55	32%
Home language	Afrikaans	77	45%
	English	76	45%
	Xhosa	3	2%
	Other SA official languages	9	5%
	Other	5	3%

When these students go to a clinical site (other than the Rural Clinical School), there is a “named” clinician who is considered by the home academic department to be the on-site person responsible for the students’ teaching during the rotation. Students are usually at sites in groups of between 2 and 4. The sites are visited annually by the member of Faculty staff who takes academic responsibility for the particular rotation. Up to this point in time, there has not been any formal, required, pedagogic preparation of the site’s named clinician or anyone else who may be involved in facilitating learning at the site.

As can be seen, these are high-level attempts to develop strategy and source the necessary funding to enable training to meet the country’s needs for medical graduates in line with the Human Resources for Health Strategy. Significant sums of money are being allocated to strengthening clinical teaching, both in terms of teacher-student ratios and in terms of expanding the training platform. Yet, nowhere is there mention of the parallel need to ensure that clinicians employed to strengthen clinical teaching and/or tasked with offering clinical teaching, do indeed have the pedagogical capability to do so. It seems particularly important in a resource-constrained context such as that described in this chapter, that consideration is given to how that pedagogical capability of emerging clinical teachers could viably be strengthened through faculty development from the medical school.

The next chapter presents the research design with a rationale for the methodological choices that were made.

CHAPTER 4

METHODOLOGY

It is the theory that decides what we can observe

Albert Einstein (Physicist, 1879–1955)

In chapter 3, I provided an exploration of the clinical landscape in which this research was conducted, but also in which these emerging clinical teachers are found and in which faculty development needs to enable them to teach. I highlighted issues which speak to the resource-constraint of this context and setting. In chapter 2, I provided an exploration of the theoretical terrain pertinent to faculty development and its design, with particular reference to clinical teaching. The chapter ended with my conceptual framework underpinning the research question. In this chapter I present my research approach and the rationale for choosing that approach, as well as outlining how the phases of this study were built and conducted. This is in order to show how the preliminary phase and the four sub-study data sets will be synthesised through a situational analysis of current clinical teaching into the final findings and framework. As a result, limitations of this study will not be presented (as they might more usually be) within this chapter, but will be presented with the synthesis in chapter 7. I do however, end this chapter with some general comments on how trustworthiness was addressed.

4.1 RESEARCH QUESTION

What should a fit-for-purpose faculty development framework for emerging clinical teachers comprise in a resource-constrained environment?

4.1.1 Aim

The goal of this research is to inform fit-for-purpose faculty development that could be viable for medical faculties in South Africa (a resource-constrained environment), to assist emerging clinical teachers on the expanding clinical teaching platform in embracing the clinical teaching job that is being devolved to them.

4.1.2 Objectives

This will be done by addressing the following objectives:

- identifying what was happening during clinical teaching episodes in a resource-constrained environment;
- establishing what strategies were in place for faculty development for clinical teachers outside the tertiary hospitals at all eight (as there were at the time of data collection) South African medical schools;
- determining what senior undergraduate medical students understand clinical teaching to be and their thoughts on how it could be strengthened;
- exploring the views of clinicians working at distant sites on their early experiences of being delegated clinical teaching;
- synthesizing these components to propose what fit-for-purpose faculty development for emerging clinical teachers in a resource constrained environment might need to comprise.

This chapter describes the methodology that informed the study, including the choice of methods used to answer the research question, the way in which the data was analysed, and how trustworthiness and rigour were addressed.

4.2 RATIONALE FOR RESEARCH APPROACH

In the 2014 publication *Faculty Development in the Health Professions: a focus on research and practice*, referring to the promotion of scholarship in faculty development research, O’Sullivan and Irby call for a move away from research carried out in the “overly constraining” positivist paradigm, to research that would encompass broader conceptual frameworks (Steinert, 2014). As the intention of the study was to explore *how* to strengthen the teaching conducted by clinicians, it was appropriate to locate this in the spectrum of the qualitative research paradigm. In particular, this research was conducted from a constructivist epistemology, with an interpretivist stance in which all reality and interpretations are considered to be socially constructed (Giacomini, 2010 Chapter 7). In this process, I was seeking understanding, not explanation. I sought to understand the experiences of participants through the subjective reality collected from their descriptions of clinical teaching. This required me to understand something of the context of their descriptions, and then to interpret their actions and their stories. In this,

my own experience and interests are inextricably linked to the understanding that I reach (Denscombe, 2010; Denzin & Lincoln, 1994).

This study was not about predicting what framework might work; nor was it about testing a framework. It aimed to build a detailed picture of how the phenomenon of clinical teaching is understood by those who have personal experience of it. Working from this interpretivist stance (Bunniss & Kelly, 2010) required me to explore how knowledge and practice of teaching was constructed, thereby considering preconceptions, existing practice and context before attempting to develop offerings designed to strengthen clinical teaching. Consistent with this, qualitative methods were employed as the strength of findings then lie in understanding the subjective experiences of the participants (Ringsted et al., 2011).

In thinking about curriculum design, Kern includes the step of differentiating what the particular target audience may need that is different from a generic group of participants – the targeted needs assessment (Kern et al., 1998) seen in Figure 4.1.

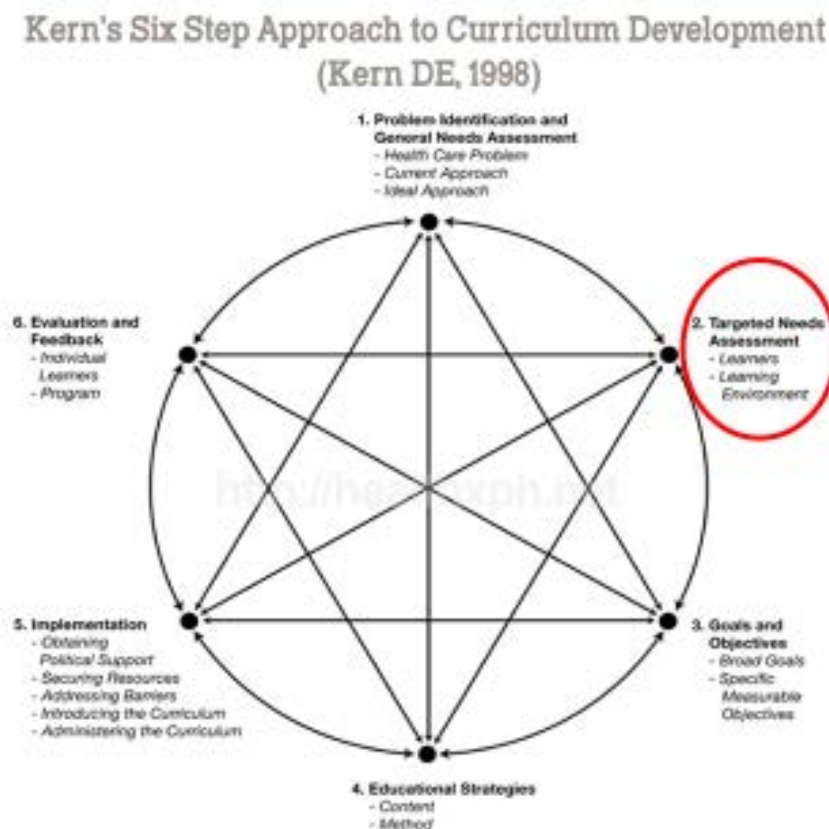


Figure 4.1: Six steps of curriculum development indicating the phase of targeted needs assessment. Adapted from Kern et al. (1998)

Having identified a clear problem (assisting clinicians to emerge as clinical teachers on an expanding training platform), this research sets out to develop a framework for faculty development for emerging clinical teachers through conducting a **targeted needs assessment** (the second of Kern's steps Figure 4.1) as a situational analysis of current practice, including the subjective experiences of the clinicians involved, faculty developers responsible for strengthening teaching, and the students who had experienced clinical teaching. This exploration of the complexity of clinical teaching in the particular context of an expanding teaching platform in a resource-constrained environment, would elucidate the specific needs to be addressed when designing future fit-for-purpose faculty development offerings designed to strengthen clinical teaching for these emerging clinical teachers.

4.3 RESEARCH DESIGN

Prior to registering this PhD study, I had been peripherally involved with a study evaluating the first year of the Stellenbosch University Rural Clinical School (RCS). Data collected for that study had suggested that the influence of the educational intervention had extended beyond effects on the students (Van Schalkwyk et al., 2014, Van Schalkwyk et al., 2015b) to influence the practice and thinking of the specialists who had taken on their teaching. I led the piece of research to explore how these specialists had experienced that transition from full-time practising clinician to clinical teacher (Blitz et al., 2014 – Addendum A). Those findings became the **preliminary phase** of this dissertation (see Figure 4.2), when I realised that an exploration of how to enable all clinicians in that transition to clinical teacher may be of use to medical schools and in particular faculty developers as we grappled with the consequences of an expanding training platform. In turn, this evoked the research question “What should a fit-for-purpose faculty development framework for emerging clinical teachers comprise in a resource-constrained environment?”

I designed a situational analysis that would assist in understanding the particular needs of this group (Kern et al., 1998) (emerging clinical teachers) that would be targeted for future faculty development activities to strengthen clinical teaching. This consisted of four sub-studies, to elucidate preparation for clinical teaching undertaken by medical schools across the country as well as the current state of clinical teaching as experienced by both students and teachers. A synthesis of these data sets would form a framework for how faculty development might be designed in order to best assist emerging clinicians on an expanding training platform. Figure

4.2 depicts this design. The letters in the figure refer to the way in which the sub-studies of this dissertation led to the synthesis.

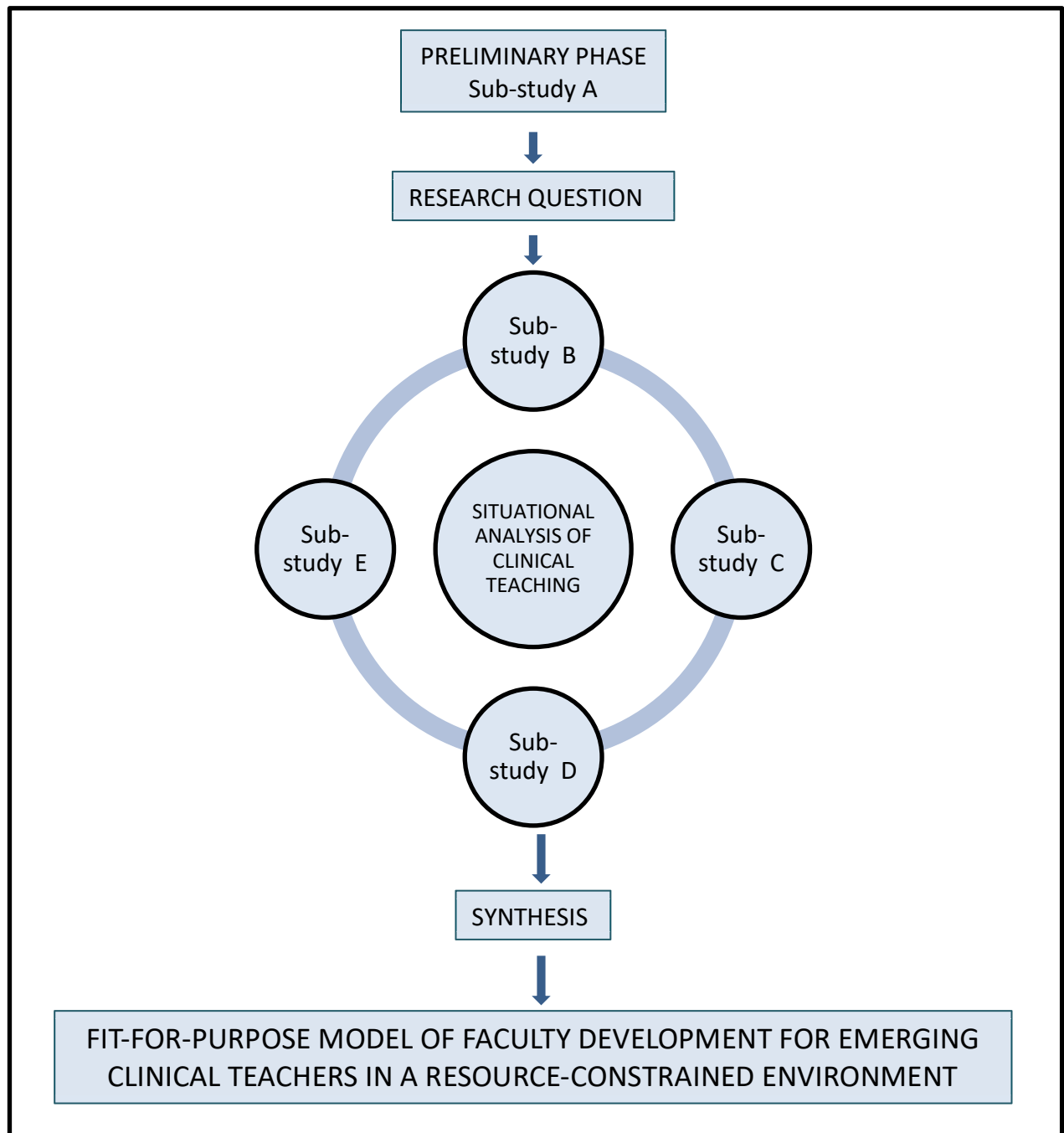


Figure 4.2: *Research design*

Phases one and two of this PhD research were designed as four sub-studies which would constitute a situational analysis of clinical teaching. **Phase one** consisted of two sub-studies that were cross-sectional, exploring and describing (Babbie, 2015) the current context. One component (sub-study B in Figure 4.2 above, the findings of which are presented in Chapter 5)

explored the practice of clinical teaching by clinicians across a selection of clinical teaching sites. It was important to get a sense of how clinical teaching was currently being carried out. While there are reports from students about clinical teaching, both anecdotally and in rotation evaluation reports, I did not have evidence of what was actually happening. It was also necessary, as part of the situational analysis, to audit what was happening elsewhere in the country, so that I could ensure that I built on existing work done in this context. Therefore, the second component (sub-study C in Figure 4.2 above, the findings of which are presented in Chapter 5) focused on capturing the situation with regards to faculty development for clinical teachers on distributed teaching platforms at a national level.

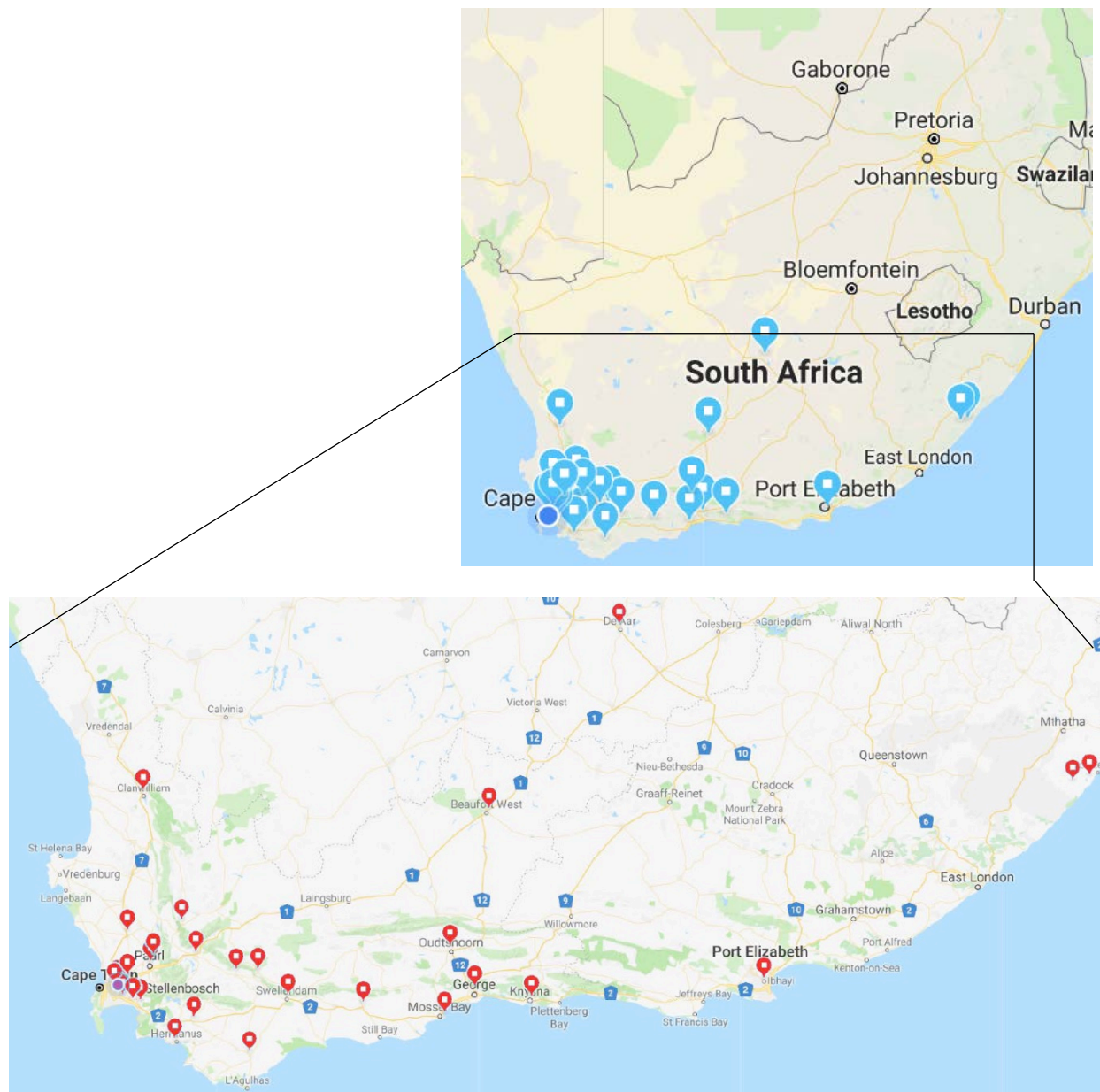
Phase two comprised another two sub-studies which were cross-sectional, exploring and describing (Babbie, 2015) clinical teaching. This incorporated both parties in the teacher-student dyad – the clinical teacher and the undergraduate medical student – and their experiences in the clinical context. One sub-study utilised interviews with clinicians on the expanding teaching platform to whom teaching had recently been delegated (sub-study D in Figure 4.2 above, the findings of which are presented in Chapter 6) with a view to understanding how they were approaching their role as clinical teacher; the other used focus group discussions with senior medical students (sub-study E in Figure 4.2 above, the findings of which are presented in Chapter 6) to provide insight into students' experiences of clinical teaching. These data sets, allowed me to build a complete and complex picture of clinical teaching on the distributed platform. These sub-studies will be presented as a publication and a manuscript under review in Chapter 6.

The **final phase** was the synthesis of the four sub-studies as a proposal of how a fit-for-purpose faculty development framework for emerging clinical teachers might be designed in order to be able to respond to the resource-constrained context in which both faculty developers and clinical teachers function. This will be presented in Chapter 7. Refer Figure 1.3 for the layout.

4.4 RESEARCH SETTING

As presented in Chapter 3, the context of this study was the clinical teaching platform expanding outside the tertiary hospital. Medical schools are being required to accommodate increased numbers of students, to expose students to a broader spectrum of patients and diseases, and to enable students to experience work at all levels of the health service. In this process, teaching is being delegated to clinicians who may have little, or no, experience of being teachers. The setting of this research was Department of Health clinical facilities which have more recently been

included in the expanding clinical teaching platform used by Stellenbosch University Faculty of Medicine and Health Sciences. Most of the facilities are in the Western Cape, but some are in the neighbouring province of the Eastern Cape and are depicted on the map in Figure 4.3.



Legend



-  Tygerberg Hospital, Faculty of Medicine and Health Sciences, Stellenbosch University
-  Clinical teaching sites

Figure 4.3: Map showing all training sites used by Stellenbosch University for senior medical students' clinical rotations in 2015

The same map is used for each sub-study to indicate which of these sites were relevant in each data set. Table 4.1 is the sites used for clinical rotations at the times that this study was conducted in 2015.

Table 4.1: Sites used for clinical rotations for senior medical students of Stellenbosch University

Province	Region	Hospitals	Clinics
Western Cape	Cape Town – East Metro	Helderberg	Elsies River Kraaifontein Macassar Khayelitsha Site B
	Overberg	Hermanus* Caledon Bredasdorp	
	Cape Winelands	Worcester* Paarl Swellendam* Montagu* Robertson* Ceres*	TC Newman Wellington
	West Coast	Malmesbury Clanwilliam	
	Eden	George Knysna Mossel Bay Riversdale	
	Central Karoo	Beaufort West Oudtshoorn	
Eastern Cape	Nelson Mandela Bay	Dora Nginza	
	Amathole	Madwaleni Zithulele	
Northern Cape	Pixley Ka Seme	De Aar	

**denotes Rural Clinical School sites*

4.5 STUDY PHASES

The following table (Table 4.2) outlines the study phases and data sets of the preliminary phase research and then the sub-studies that were undertaken.

Table 4.2: Description of data sets

Sub-study	Section	Objective	Participants	Method	Analysis
	4.5.1	Preliminary phase (2011)			
A		Understand specialists' journey from clinician to clinician teacher	Specialist clinicians teaching outside the tertiary hospital	In-depth interviews x 11 specialists	Thematic content analysis
	4.5.2	Phase one (July 2014 – June 2015)			
B		Establish what teaching strategies are used during clinical teaching encounters	Clinicians teaching in different facilities	Audio recordings x 6 clinicians	Framework analysis
C		Establish what faculty development is in place for clinical teaching outside tertiary hospitals	Directors of Centres for Health Professions Education at all South African medical schools (or equivalent)	Telephonic semi-structured interviews x 9 medical schools	Descriptive analysis
	4.5.3	Phase two (September 2014 – August 2015)			
D		Understand how clinicians view/anticipate their clinical teaching role	Clinicians teaching outside the tertiary hospital	In-depth interviews x 9 clinicians	Thematic content analysis
E		Explore medical students' experience of clinical teaching	Student interns	Focus groups x 3 (24 student interns)	Thematic content analysis

Due to different sub-studies of this research having started at different points in time, ethics approval was obtained from Stellenbosch University's Health Research Ethics Committee for the PhD as a whole (HREC number #N14/08/097, see Addendum B), but also for separate components as indicated where relevant.

4.5.1 Preliminary phase

The preliminary phase is presented as sub-study A (Blitz et al., 2014 – Addendum A) in Figure 4.1. The data set was a series of 11 interviews conducted in 2011, with specialists in the inaugural year of the Rural Clinical School. The interviews had been conducted after the first year during which they had become responsible for teaching a full year of the students' core curriculum, although many had had experience of teaching students on short rotations prior to this. We (my co-authors and I) used an interpretive approach, and open coding, with thematic content analysis to obtain an understanding of the specialists' experience, as they responded to this new teaching requirement. I, and two other researchers, did coding independently before consensus was achieved. Our findings were subsequently checked by a fourth researcher who had knowledge of both the specialists and the context. Ethics approval had been obtained from Stellenbosch University's Health Research Ethics Committee (HREC number #N11/07/245).

4.5.2 Phase one

This phase consisted of two sub-studies, which were intended to contribute two important perspectives on clinical teaching at that point in time. The first (referred to as sub-study B in Figure 4.1) was planned in order to establish what teaching strategies were being used by clinicians during clinical teaching encounters. It was hoped that this data would give a sense of the current situation of actual clinical teaching on our faculty's teaching platform. Collection and analysis of this data will be elucidated further in section 4.5.2.1. The second sub-study (referred to as sub-study C in Figure 4.1) was done in order to establish the status of faculty development for clinical teachers on expanding teaching platforms at a national level across all the medical schools in South Africa. This component was seen to be important so that current good practice nationally could be built on and taken further. Collection and analysis of this data is presented in section 4.5.2.2.

While these two sub-studies revealed important data for the purposes of developing a rich situational analysis for planning the strengthening of clinical teaching, neither were likely to be accepted as stand-alone publications. The first study was a single-centre study with a small

sample size. The second study was an audit of national activities. Hence, the findings of these two data sets will be presented in Chapter 5.

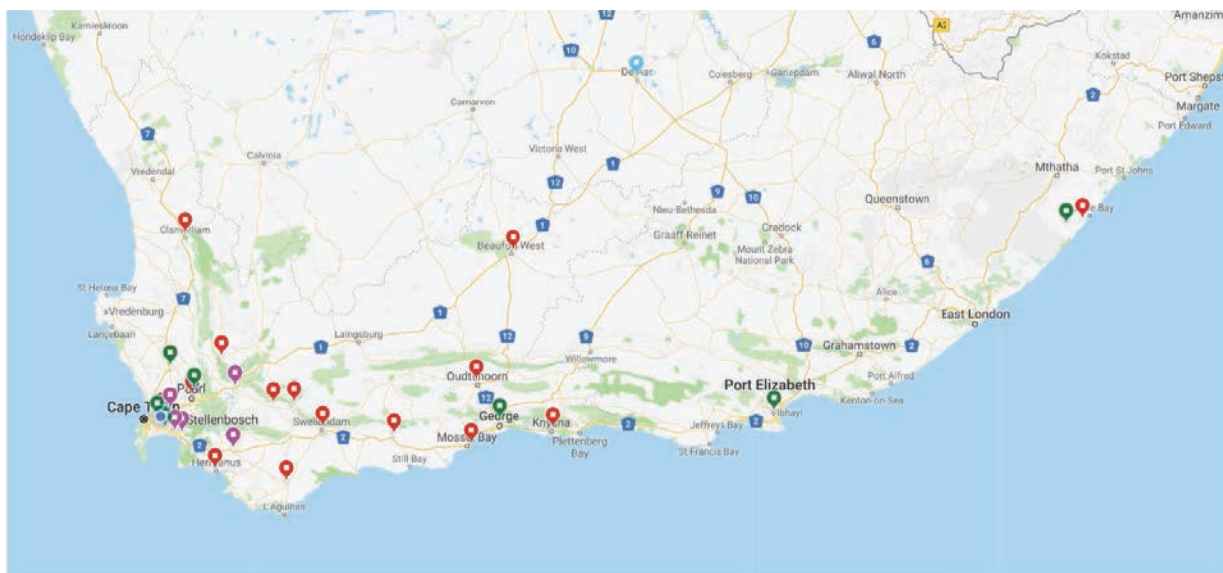
4.5.2.1 *Teaching strategies used during clinical teaching encounters*

In order to gain a sense of what teaching strategies are used during clinical teaching encounters by clinicians on the Stellenbosch University clinical platform, I registered a research proposal in 2013 for a project entitled “*An investigation into the teaching strategies used during clinical supervision of undergraduate medical students in Tygerberg Hospital*”.

In 2014, the original protocol was amended and approved to include all the undergraduate clinical teaching sites of the faculty (Addendum C1). The sub-set of these recordings collected on the platform outside the tertiary teaching hospital constitutes sub-study B of this research. Audio recordings were chosen as being the method we could use to unobtrusively gain insight into real teaching practices of clinicians with student interns. Others have conducted video studies of bedside teaching encounters in general practice (Rizan, Elsey, Lemon, Grant & Monrouxe, 2014) and direct observation of teaching on ward rounds (Liljedahl, Björck, Ponzer & Bolander Laksov, 2017; Regan-Smith, Hirschmann & Iobst, 2007; Stickrath, Aagaard & Anderson, 2013; Young, Orlandi, Galichet & Heussler, 2009) – both approaches might have offered more authentic observations, but such intrusive methods were not considered feasible in the South African public health sector due to there not being a culture of observation of teaching practice and challenges with obtaining informed patient consent. Ethics approval was granted by Stellenbosch University Health Research Ethics Committee (HREC number #N13/03/040) and we were given the necessary permission from Stellenbosch University Institutional Research and Planning and the Western Cape Department of Health (Addendum C2).

Sampling

At the time, twelve sites were being used for clinical teaching of student interns. These sites included both more established teaching sites, as well as newer teaching sites. Two of the sites fell in the Eastern Cape (one of nine provinces in South Africa, adjacent to the Western Cape) where I had not requested permission to conduct this component of the research. This left 10 possible sites (see Figure 4.4).



Legend

- training sites used at the time of data collection – consent given and recordings done
- training sites used at the time of data collection – consent given, but no recordings done
- training sites not used at the time of data collection

Figure 4.4: Map showing sites for recording clinical teaching of senior medical students

I initially approached the “named” teachers (Chapter 3 p. 67) at each of these ten sites. In terms of the faculty’s expectations, the named teacher was the clinician who had been given responsibility for student teaching at the site. This group of clinicians included both experienced and emerging clinical teachers. Each of these clinicians was invited to participate via an e-mail, which contained a summary of the participant information. In an attempt to ensure that we recorded the clinicians’ usual teaching practice, they were specifically told that they would not be informed of when the audio recording of their clinical teaching episode was being done. Some of the “named” teachers proposed other clinicians at their sites who were also involved in teaching. They too were sent the e-mail invitation to participate. In total, more than thirty-three clinicians were invited to participate in this research. The number is imprecise because clinicians at one of the large district hospital decided to opt-in *en masse* after being approached by their Head of Clinical Services. If they agreed to participate, they were sent a consent form (Addendum C3); twenty-two clinicians agreed to participate and returned signed consent forms.

Table 4.3: Distribution of doctors recorded in clinical teaching of student interns

	Number of doctors invited	Number of doctors who gave consent	Number of doctors recorded
Large district hospitals	All	3	1
	2	1	0
District Hospitals	1	1	1
	2	2	0
Clinics	1	1	1
	1	1	0
	2	2	1
	3	2	0
	2	2	2
	2	2	0
	16+	17	6

Data collection

Once we had ascertained the clinicians who had given consent to be recorded, we approached students who were going to be with those clinicians in the rotations of July-August and October-November 2014. Members of the research team (teaching staff at the faculty) approached a total of forty-two students to assist with doing the recordings. The students were assured that the clinicians we were asking them to record had given informed consent to participate in the research and were aware that the recording would not be declared. Students were asked to record routine clinical teaching episodes (teaching involving patients, not other clinical teaching such as tutorials) by carrying the audio recorders discretely. On completion, they were required to return the recorder to the research assistant. They were assured that the research assistant would not disclose to me (as the researcher) any identifying information of either the student doing the recording, or the clinician being recorded. Each student signed informed consent (Addendum C4).

The initial data set of recordings was clinical teaching involving students in all years of study across the full clinical teaching platform (14 clinicians at 6 different sites, 37 teaching episodes). However, as the purpose of this component of the dissertation is a situational analysis of teaching student interns outside the tertiary academic hospital, I present here only that sub-set of all the recordings. In the end, the students managed to record teaching episodes of 6 clinicians, at 5 different sites. All the recordings were transcribed during which all identifying information

pertaining to the teacher, patient and student was removed. The transcriber had signed a confidentiality agreement. I received the anonymised transcriptions for analysis.

We had hoped to be able to gather a far larger number of recordings than we did. This was despite using a number of strategies such as SMS reminders to the students, personal reminders by faculty staff when they visited the teaching sites, and a small cash incentive for each completed recording. Anecdotally, the research assistant was told that despite assurances that clinicians had consented, students were concerned about being “found out” doing the recording. In spite of the small number, I still felt that this added a valuable component of the situational analysis by giving an insight into actual teaching practice.

Analysis

The analysis was initially guided by Nilsson’s seven pedagogical strategies for clinical teaching (Nilsson et al., 2010), namely: 1) Questions and answers; 2) Lecturing; 3) Piloting; 4) Prompting; 5) Supplementing; 6) Demonstrating; and 7) Intervening. This analytical framework was chosen because I was looking for observable clinical teaching behaviours that could be reinforced or improved in future faculty development offerings. Nilsson’s strategies had been developed in a study in which clinicians had been observed teaching medical students in the authentic setting of a surgical ward, an approach that was similar to the method of data collection in this sub-study. Other studies of clinical teaching effectiveness have more commonly been designed to be used by students and therefore tend to elicit their perceptions (Dornan et al., 2012; Irby & Rakestraw, 1981; Stalmeijer et al., 2008), rather than focusing on observable behaviours.

As mentioned above, the findings from this data set will be presented in section 5.1 of Chapter 5.

4.5.2.2 Faculty development in place for clinical teaching outside tertiary hospitals

The third sub-study, C, was designed to gain a sense of what faculty development is in place for clinical teaching outside tertiary hospitals at all the medical schools in South Africa. This was felt to be an important component of the situational analysis that would identify features of good practice from other settings in this context.

Sampling

I requested medical education colleagues at each of South Africa's nine faculties of medicine (or equivalent) to inform me of who they considered responsible for faculty development at their faculty. I sent an e-mail to the person(s), inviting them to participate in a telephonic semi-structured interview on a date and time of their choice. Structured interviews would not have allowed exploration of issues as they were brought up by respondents. Therefore, semi-structured interviews were considered appropriate as in addition to eliciting the specific information in a way that could afford comparison between respondents for the particular issues of interest, they would also allow the interviewee to explore any of the issues more widely if necessary (Denscombe, 2010).

All those approached agreed to participate and signed a consent form (Addendum D). Where an institution had a Centre for Health Professions Education (or similar unit), I interviewed the head of the Centre (4), except in one Centre where I was referred to the person responsible for faculty development for clinical teaching (1); where there was no faculty Centre, I interviewed either the Head of the School of Medicine (2), or the faculty's education adviser (1), or a person in the faculty to whom the task of faculty development had been informally delegated (1). In some cases the person that I contacted suggested additional people that I should speak to. In all cases I either co-interviewed them with that person (at one institution, the head asked the person responsible for faculty development to join the interview), or interviewed them separately (at one institution I interviewed three people – the adviser and two members of academic staff with an interest in medical education).

Data collection

I conducted semi-structured interviews to identify good faculty development practices across the country. The order of the questions was based on my experience of faculty development in South Africa and my anticipation of how difficult the question might be to answer (Kelly, 2010 Chapter 16). I therefore began the interview with two non-threatening questions which were likely to elicit facts, before moving onto what may have been a less comfortable question about evaluation of their own practice. I purposefully left the question on their understanding of clinical teaching to the end as, in line with Kelly, I chose to first build up some trust before asking a question which might elicit some uncertainty. The interview thus progressed through the following questions:

1. What faculty development does your medical school provide for clinical teaching?
2. What is your strategy for reaching clinicians on the expanding teaching platform?
3. What methods of evaluation are you using for those faculty development activities you provide?
4. What do you think clinical teaching is?

Analysis

The interviews were conducted over Skype® (except for Stellenbosch University which was conducted face-to-face) between January and June 2015. All interviews were audio-recorded (using an mp3 skype recorder) and transcribed. Each lasted between 20 and 57 minutes. The data was analysed descriptively looking for both unique practices and similarities. As I was wanting to develop a picture of the national approach to faculty development for clinicians on the expanding training platform, I analysed the data per question. The findings from this data set are presented in section 5.2 of Chapter 5.

4.5.3 Phase two

Phase two was empirical research which was cross-sectional, exploring and describing the experiences of clinical teaching from the perspectives of both the clinical teacher and the undergraduate medical student. This phase also consisted of two sub-studies. The first was interviews with clinicians on the expanding teaching platform to whom teaching had recently been delegated (D in Figure 4.2 above and described in section 4.5.3.1 below) with a view to understanding how they were approaching their role as clinical teacher; the second comprised focus group discussions with senior medical students (E in Figure 4.2 above and described in section 4.5.3.2 below) to provide insight into students' experiences of clinical teaching. The findings of these two sub-studies are presented as manuscripts in Chapter 6.

4.5.3.1 How clinicians view/anticipate their clinical teaching role

As described in Chapter 3, the necessity to expand the clinical teaching platform in order to accommodate the increasing number of students has resulted in new sites taking on clinical teaching of Stellenbosch University undergraduate medical students. In accordance with my interest in exploring ways to assist clinicians who were new to teaching, sites of interest were those that started having students within the last five years, or were due to start having students within the next twelve months. Students are typically sent to these sites for periods of five weeks

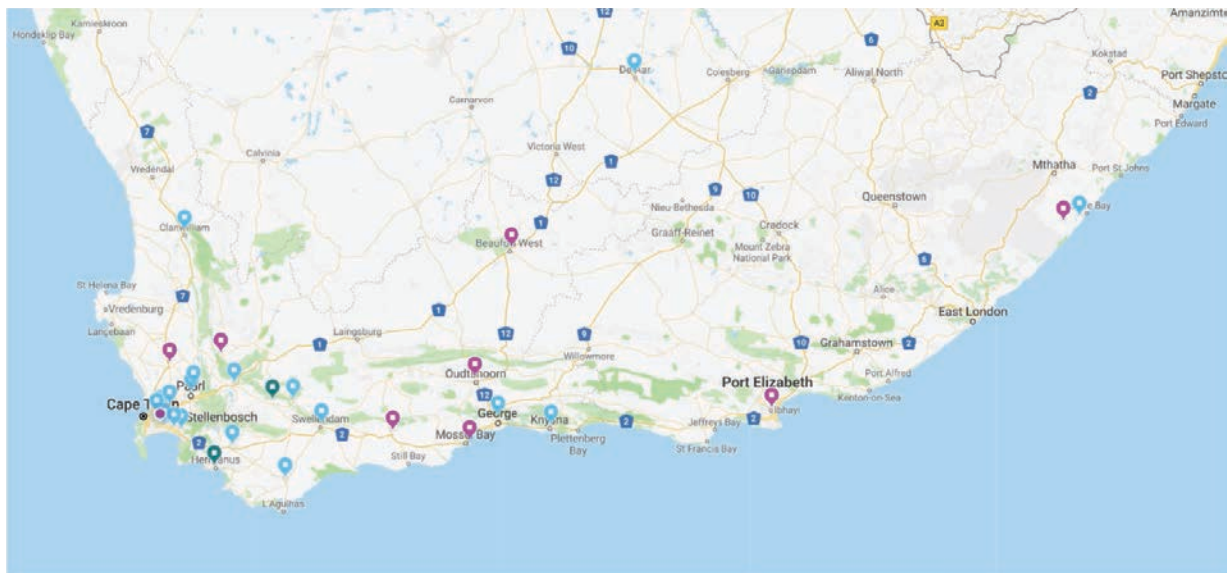
in groups of between two and four. As the third component of the targeted needs assessment for designing faculty development for these clinicians, I had a particular interest in how they viewed the delegated teaching function that they had been asked to take on, or were about to take on. Even those who had not yet had students as part of the formal curriculum, had experience of elective students.

As an understanding of the views and subjective experiences of these clinicians was desired, qualitative research using an interpretive approach was chosen (Denzin & Lincoln, 1994). I was looking not to impose my understandings from my own journey as a clinician who had embraced teaching, or my perspective as a faculty developer of what was needed, but to elicit the richness that different experiences would bring to developing an understanding of the thoughts and practices of these clinicians about their clinical teaching. Approval for this research was granted by the Stellenbosch University Health Research Ethics Committee (#N14/08/097) and the Western Cape Department of Health.

Sampling

The clinicians sampled were those who were (or would be) the “named” teacher (Chapter 3) at each site; in terms of the faculty’s expectations, each was the clinician responsible for student teaching at that site. Of these “named” clinicians, those considered to be emerging (see footnote page 15) had either recently added teaching to their clinician role when their site became part of the training platform, or they had recently started working at a site which was already part of the training platform. At the time these interviews were planned, there were 21 hospitals outside of the traditional tertiary academic teaching hospital being used for teaching senior medical students, of which 10 met the criterion of having an emerging clinical teacher.

The map below (Figure 4.5) shows the sites:



Legend

- training sites used at the time of data collection with emerging clinical teachers – consent given and interview done (8)
- training sites used at the time of data collection with emerging clinical teachers – not interviewed (2)
- other training sites used at the time of data collection – established clinical teachers (11)

Figure 4.5: *Map showing sites for clinician interviews*

Potential participants were approached by me via e-mail to invite participation. In the e-mail, I summarised the participant information, particularly the purpose and nature of the interview. If they agreed, we made an appointment for a mutually acceptable date and time for the interview. I travelled to their place of work, where they then determined the venue in which we would conduct the interview. Clinicians were thus studied in their natural settings, with the aim of making sense of the phenomenon of the emerging clinical teacher by interpreting the descriptions of their experience (Given, 2008). Familiarity with their own setting would assist development of trust, because the participants would literally feel closer to their identity as clinician. In addition, it would assist in diminishing the potential power differential between me (as the investigator) and the participant, reinforcing their “expertness” in their clinical context (Kelly, 2010; Munz, 2017). At one site, two clinicians who shared the teaching responsibility asked to be interviewed together. Ultimately, nine clinicians were interviewed from eight sites. They varied in age from early 30’s to early 70’s, with corresponding clinical seniority. During their specialist training, most of the family physicians had some exposure to training about teaching (although not specifically clinical teaching), but none of the participants had attended faculty development opportunities at the faculty. Details of the participants appear in Table 4.4.

Table 4.4: Biographical details of participants

Clinicians	1	2	3	4	5	6	7	8	9
Rurality	Rural	Remote	Rural	Rural	Remote	Urban		Rural	Rural
Approximate Population served (2011 census)	61000	34000	16000	60000	2200	238000		36000	33000
Geographical distance from faculty	400km	440km	300km	370km	1200km	740km		65km	120km
Present or future teaching site	Present	Future	Present	Present	Future	Present		Present	Present
Gender	M	M	M	M	F	M	F	F	M
Clinical Seniority	Senior	Senior	Senior	Senior	Junior	Senior	Senior	Junior	Junior
Previous exposure to training about teaching*	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes

*A module in their postgraduate specialist training

Data collection

At the time of the interview, I asked each participant to sign the participant information leaflet and informed consent form (Addendum E). I conducted all the interviews between July and August 2015. They lasted between 36 and 95 minutes, with an average of 60 minutes and were audio recorded. It was my intention to generate a narrative account of the clinicians' experiences as educators, so I used in-depth interviews which enable the researcher to follow the individual ideas and to delve more deeply in attempting to reach a clearer understanding of the participant's opinions, feelings, emotions and experiences (Denscombe, 2010). Participants were asked to focus on their role as clinical teacher of undergraduate medical students i.e. when involved in teaching *in* the clinical context (not tutorials or other forms of teaching *about* clinical issues) and when teaching as part of the undergraduate students' curriculum (as opposed to any teaching they may do of other health professionals, postgraduate students or elective students). The exploratory question for each interview was "Can you tell me what it's like for you as a clinical teacher?" This was probed, if necessary, with open-ended questions (based on the findings of our previous studies on teaching strategies used by clinical teachers and the journey of specialists

to becoming clinical teachers), in order to explore their clinical teaching practice and their thoughts on how it could be strengthened.

Analysis

Each interview was anonymised during the verbatim transcription. I coded the data inductively (categories were derived from the data [Elo, 2008]), using *Atlas ti*TM, looking for underlying meanings to obtain a clearer understanding of how clinicians view their clinical teaching. Thematic analysis is a process that allows themes to emerge from the data, requiring reflection on participant meanings and outcomes. Codes were then grouped into themes by familiarizing myself with the data, generating initial codes and then searching for, reviewing and naming themes (Braun & Clarke, 2006). The codebook and categories were discussed with, adapted, and agreed to by my supervisor, co-supervisor and me. After conducting interviews at 8 of the 10 sites, it appeared that data saturation had been reached, as no additional concepts were being elicited (Hennink, Kaiser & Marconi, 2017) and I decided not to pursue interviews at the last two sites.

This component of the research is presented as Publication 2 (Figure 1.3) in section 6.1 of Chapter 6:

Blitz J, De Villiers M, Van Schalkwyk S. **Implications for faculty development for emerging clinical teachers at distributed sites: a qualitative interpretivist study.**

Rural and Remote Health 18:2 (Online) 2018

4.5.3.2 *Medical students' experience of clinical teaching*

Student interns within three months of completing their undergraduate medical degree programme are in an excellent position to provide meaningful comment on the clinical teaching that they have received during their training. By this point in time, they have completed the majority of their clinical rotations (Figure 3.7 Chapter 3). In addition to their exposure to the traditional teaching sites (tertiary and secondary hospitals), all had also spent at least one rotation (five weeks) at a more distributed site. Following on the over-arching paradigm within which this entire study was situated, and as the goal of this study was understanding the lived experiences of students, a qualitative approach was chosen with an interpretivist stance (Henning, 2004; Ringsted et al., 2011). Specifically, focus group discussions were chosen as a

way of exploring the lived experience of the participants. This method was used in order to “explore attitudes and perceptions, feelings and ideas” of the group (Denscombe, 2010; Stalmeijer et al., 2014) about the topic of clinical teaching in the company of fellow students whom they knew and with whom they had been on rotations.

We had been given approval from Stellenbosch University Health Research Ethics Committee (HREC number #N14/08/097) and Stellenbosch University Institutional Research and Planning to conduct this research.

Sampling

During September and October 2014, I selected three student intern rotation groups (Figure 3.7 Chapter 3) for availability and accessibility (to me) during the particular time planned for data collection. To populate rotation groups, each student intern chooses a clinical partner, and each pair of clinical partners is then randomly combined with a number of other pairs by our medical school student administration office. Thus, each student rotation group is constituted by a random selection of students. Therefore, despite using non-probability sampling to choose the three groups, it was likely that they would be representative of the student body. I approached each group at the start of the penultimate clinical rotation of their undergraduate programme, to invite them to participate in a focus group discussion. They were informed that the discussions would cover the following areas which were informed by literature on effective clinical teaching (Alweshahi, Harley & Cook, 2007; Hatem et al., 2011; Kilminster et al., 2007; Young et al., 2009):

- how they experience clinical rotations, in particular what they identify as clinical teaching;
- what clinical teaching practices they consider to have been of the greatest benefit to their learning;
- what criteria they use to evaluate good clinical teaching;
- suggestions that they have for the improvement of clinical teaching.

All students in each group were given informed consent forms (Addendum F1) and requested to return completed forms to the research assistant. Those students who gave consent were then invited to a focus group discussion. As a sufficient number of students in each rotation group had consented to participate (see Table 4.5), each focus group was made up only of members of

their own student rotation group; this meant that they knew each other and had often shared experiences of specific clinical teaching encounters. As a technique of data collection, focus group discussions utilise group dynamics. When the participants are known to each other (as in this case), this can be helpful in having a safe enough environment to voice one's opinions. In homogeneous groups such as this, it is likely that they have already attended to power dynamics as they play out amongst the group members (Bloor, Frankland, Thomas & Robson, 2001; Carey, 2016).

One group of students was on their Family Medicine rotation (8 out of 12 gave consent and attended the discussion), the second group was half of the students spending their year at the Rural Clinical School (7 out of 9 gave consent and attended the discussion) and the third group was doing their Paediatrics rotation (11 out of 12 gave consent and 8 attended the discussion). Table 4.5 depicts this distribution.

Table 4.5: Sampling to constitute focus groups

	Focus Group 1	Focus Group 2	Focus Group 3
Rotation group	Family Medicine	Rural Clinical School	Paediatrics
Number in rotation group	12	9	12
Number who gave consent	8	7	11
Number who participated	8	7	8

The demographics of participants in each focus group is given in Table 4.6. Although there was some difference between the three groups, in total, these 23 student interns seem sufficiently similar to the overall demographics of that year's class (see Table 3.2 Demographic profile of 2014 final year medical students).

Table 4.6: Demographics of students in focus groups

Home language	Gender	Focus Group 1	Focus Group 2	Focus Group 3
Afrikaans	Male	4	1	
	Female	3	1	
English	Male			1
	Female		2	7
Xhosa	Male	1	1	
	Female			
Zulu	Male			
	Female		1	
Sepedi	Male			
	Female		1	
	TOTAL	8	7	8

Data collection

I conducted three focus group discussions with a total of 23 students over their midday break between September and October 2014. Each group discussion lasted between 70 and 80 minutes. Groups 1 and 3 sat with me around a 10-seater round table in a room in the faculty building; group 2 sat with me at a boardroom table at the Rural Clinical School campus. As the moderator of the discussions, I was aware of the need to facilitate the group interaction in a way that ensured that all participants were encouraged to voice their own opinions (Bloor et al., 2001, Stalmeijer et al., 2014). I adopted a non-judgemental stance to whatever was discussed by the participants. In order to promote trust and confidentiality, individuals were not identified by name during the discussion, each having been allocated a letter of the alphabet with which to be addressed by other participants. At the beginning of each discussion, participants were specifically asked to maintain the confidentiality of the discussions. The discussions were audio recorded and then transcribed. The transcriber signed a confidentiality agreement. After each focus group discussion a light lunch with refreshments was provided.

Analysis

Following an interpretive approach, the transcripts were coded inductively (with the assistance of *Atlas.ti*TM) looking for underlying meanings and then grouped into themes (Braun & Clarke, 2006), with a view to obtaining a clearer understanding of student interns' experience of clinical teaching and their perspectives on how clinical teaching could be strengthened. My codebook

and categories were developed through iterative checking, questioning and interpreting the findings with my supervisor and co-supervisor until agreement was reached. I continually referred to how the findings would impact on faculty development initiatives to strengthen the teaching role of clinicians.

This component of the research is presented as a publication-ready Manuscript 3 (Figure 1.3) in section 6.2 of Chapter 6 submitted to BMC Medical Education in December 2017 and currently under review:

Blitz J, De Villiers M, Van Schalkwyk S. **Designing faculty development: Lessons learnt from a qualitative interpretivist study exploring students' expectations and experiences of clinical teaching.**

4.5.4 Final phase

The findings obtained from the preliminary phase with phases one and two of this research, will be used in this final phase to synthesise a framework to be considered when designing faculty development for emerging clinical teachers in a resource-constrained environment. This synthesis (Figure 4.1) will be presented in Chapter 7.

4.6 RESEARCHER AS CO-CREATOR OF MEANING

At the time that this data was collected I was working in educational capacity development in the faculty at Stellenbosch University. Prior to that I had been working as an academic family physician responsible for postgraduate programmes. My supervisor was Deputy-Director of the Centre for Health Professions Education, contributing to the professionalisation of health professions education, and my co-supervisor (also a family physician) was responsible as Deputy-Dean: Education, for the quality assurance of undergraduate and postgraduate programmes in the faculty. All of us were familiar with both this research context and some of the participants. We all had some responsibilities for contributing to the quality of clinical teaching provided by the faculty, but at the time of these sub-studies, none of us were clinical teachers. We had all played some role in the development of the Rural Clinical School and were aware of the results of the longitudinal research that was being done during its first five years (2011-2015) (Van Schalkwyk, Blitz, Couper & De Villiers, 2017). This knowledge of the setting of this research (both the faculty and the clinical training platform) enabled a deep exploration

of the attitudes and perceptions, feelings and ideas expressed by participants as we co-created meaning with the participants (Bergmark & Westman, 2015).

4.7 TRUSTWORTHINESS

Trustworthiness in qualitative research is judged by the extent to which it meets five criteria, namely credibility, dependability, transferability, conformability and authenticity (Denzin & Lincoln, 2011; Schwandt, Lincoln & Guba, 2007). These criteria need to be applied in the phases of preparation (collecting suitable data, with an overt unit of analysis and making sense of the data), organization (coding and abstraction) and reporting (the content of the themes or categories) (Elo, Kaariainen, Kanste, Polkki, Utriainen & Kyngas, 2014).

Credibility was addressed by suitably detailed description of the research participants; by reflecting on the data, using my (and my supervisor's and co-supervisor's) familiarity with much of the research setting and some of the research participants; by presenting rich quotes which illustrate how the data was mapped to the themes and codes; by synthesising the sub-studies to triangulate on the phenomenon of clinical teaching (Chapter 7); and by detailed and iterative analysis of the data over a fairly extended period of time.

Dependability has been addressed by making visible the connection between the research question and the research design, declaring how that impacted on the choice and use of data collection methods, and the means of analysis (this chapter). I maintained focus on the unit of analysis as the teaching practice of clinicians teaching undergraduate medical students outside the tertiary teaching hospital.

As is common with qualitative research, the number of participants is small in each sub-study, however **transferability** is addressed by providing substantial descriptions of the research context (Chapter 3), participants (in each sub-study) and settings (of each sub-study) to enable identification of similarities with other settings or participants. It is likely that the particularities of the South African healthcare system might make transferability appear challenging, but there may well be similarities with other settings of final year medical student clinical training in contexts that have similar resource-constraints. Similarities with literature emanating from research done in more well-resourced environments is discussed.

Conformability in an interpretivist study presents a challenge in that the researcher's persona is inextricably involved in the interpretation of the data. This was addressed by being open with

the participants about my understanding of this context and setting, my familiarity with the field of clinical practice as well as my role in faculty development. I believe that these enabled connections with the clinician participants and faculty developers which might otherwise have been difficult to achieve. I have included reflexive comments throughout the dissertation in an attempt to declare the involvement of myself. In addition I have tried to keep an open mind, ably assisted by my supervisor and co-supervisor who assisted with checking that I was not missing aspects of the data in my analysis.

Authenticity was addressed through making a case for the necessity for this research (Chapter 1), the design specifically included that a number of different participants' voices would be heard across the different data sets. The research findings were specifically intended to have an impact on the teaching role of clinicians – a form of tactical authenticity (Given, 2008). Good alignment between the four elements of the research process, namely epistemology (constructivist), theoretical perspective (interpretivist), methodology (qualitative) and methods (interviews and recordings), added rigour to the overall study design (Rees & Monrouxe, 2010).

4.8 CHAPTER SUMMARY

This chapter has described the methodology, design and methods of the four sub-studies that were undertaken as components of a situational analysis of current clinical teaching. I presented the rationale behind the research question and outlined the four phases of the study with their data sets designed to respond to the research question. I described the setting of each piece of research and how sampling of participants was done for each data set. Thereafter I delineated the methods chosen to collect and analyse each data set. The chapter closed with a description of how trustworthiness was accounted for.

The next chapter presents the findings and conclusions of the two sub-studies of phase one conducted to establish what teaching strategies were used during clinical teaching encounters (described in 4.5.2.1 above and presented as 5.1 in the next chapter) and to establish what faculty development initiatives are in place at South African medical schools for clinical teaching outside tertiary hospitals (described in 4.5.2.2 above and presented as 5.2 in the next chapter).

CHAPTER 5

SITUATIONAL ANALYSIS – PHASE ONE

As outlined in Chapter 1, this dissertation presents four sub-studies of a situational analysis of clinical teaching of medical students outside the traditional tertiary teaching hospital. The findings from the two sub-studies of phase one are described in this chapter, namely exploring the teaching strategies clinicians used during clinical teaching encounters, and a national survey of the faculty development in place for clinical teaching outside tertiary hospitals. The methods used for these sub-studies were described in the previous chapter in sections 4.5.2.1 and 4.5.2.2 respectively. Their findings informed and directed the collection and analysis of phase two of the situational analysis that is presented in Chapter 6.

This chapter presents sub-studies B and C of the situational analysis of clinical teaching that constitutes the targeted needs assessment of clinicians for faculty development that strengthens their clinical teaching (Figure 5.1).

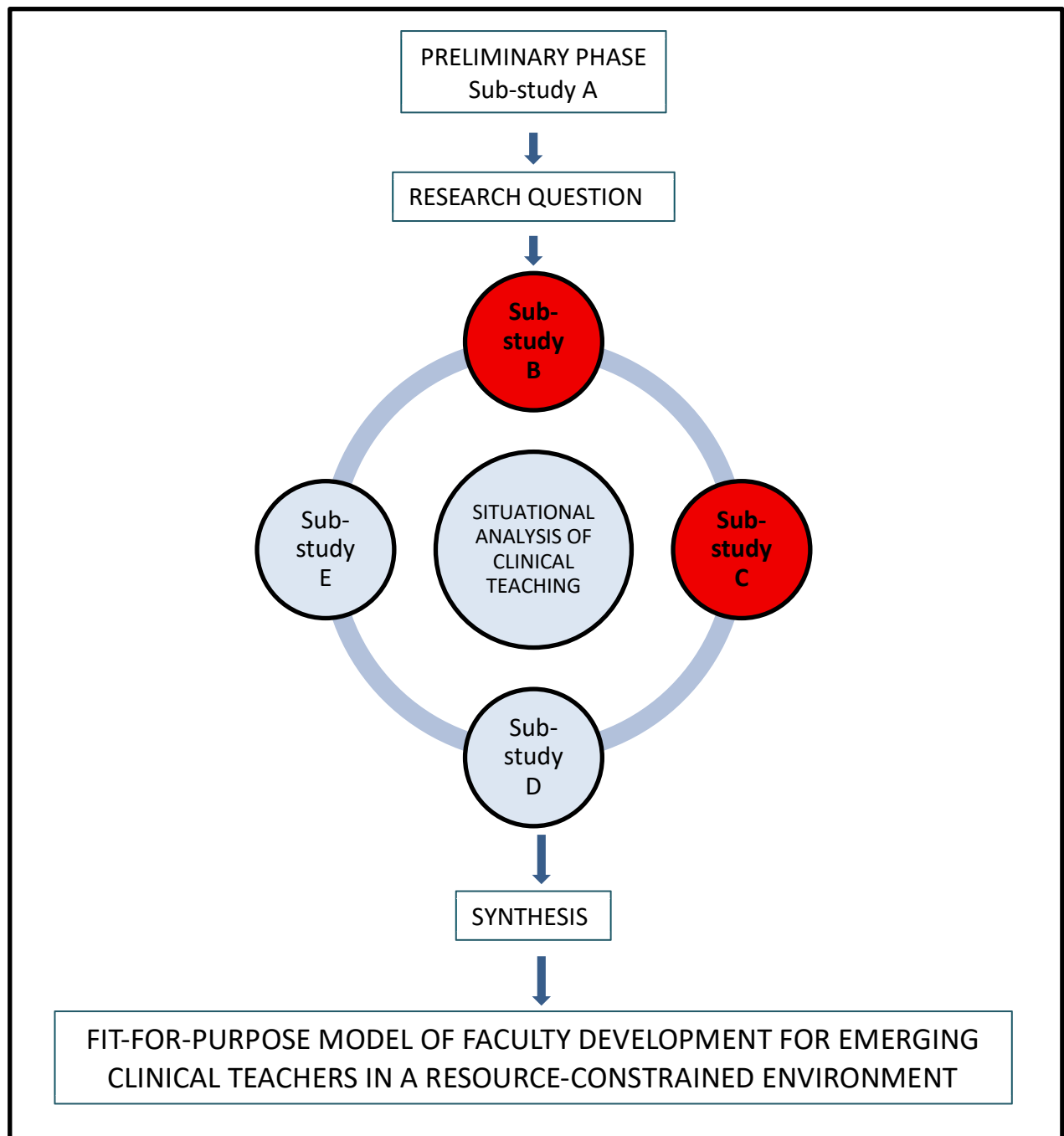


Figure 5.1: Research design

5.1 HOW CLINICIANS DO CLINICAL TEACHING¹⁰

The aim of this sub-study was to identify current pedagogical strategies used by clinical teachers in the clinical teaching environment. Understanding the status quo would enable us to identify strengths in their teaching and areas for development, informing the design of future faculty

¹⁰ I presented this research as a short communication at the AMEE (An International Association for Medical Education) conference held in Glasgow, Scotland in September 2015, as “Clinical teaching of undergraduate medical students: how do clinicians do it?” [#4N7 (25526)].

development opportunities. Data was obtained from audio recordings of clinical bedside teaching encounters (section 4.5.2.1 presented the sampling, data collection and analysis).

5.1.1 Findings

Of the initial data set of recordings of clinical teaching involving students in all years of study across the full clinical teaching platform (14 clinicians at 6 different sites, 37 teaching episodes), the sub-set involving student interns outside the tertiary academic hospital is presented as sub-study B in this dissertation. This is the report of recordings of 6 clinicians at 5 different sites, over 14 teaching episodes lasting a total of 231 minutes (almost 4 hours of recording). The longest recording was 98 minutes and the shortest was 14 minutes, with an average of 38.5 minutes. Table 5.1 presents the details of each clinician's recordings.

Table 5.1: Recordings of clinical teaching

Clinician*	Site of teaching	Teaching episodes	Clinical activity	Length of recording (minutes)	Student involvement
1M	Clinic	2	HIV out-patients	98	Observed clinician
2M	Clinic	2	Ambulatory care	32	Presented clerked patients
3M	Clinic	1	Ambulatory care	15	Observed clinician
4F	District Hospital	4	Dermatology out-patients	14	Observed clinician
5F	Clinic	2	Ambulatory care	28	Observed clinician
6M	District Hospital	3	Ward round	44	Presented clerked patients

**Indicating gender of each clinician*

The audio recordings were initially analysed deductively, looking for the pedagogical strategies recognised by Nilsson (Nilsson et al., 2010), presented in Table 5.2. These pedagogical strategies were developed from teacher actions that they had identified in their study using non-participant observation of consultants and senior medical students during teaching ward rounds in surgery. We chose this framework because we thought it was based on teaching that was similar to what we were recording and that would offer a way of analysing which could identify strategies that should be addressed when designing future faculty development offerings.

Table 5.2: Nilsson's strategies and their respective teacher's actions

	Teacher's actions	Nilsson's strategies
1	asks questions of student	questions and answers
2	explains	lecturing
3	directs students to the answer	piloting
4	illustrates what the student should do	demonstration
5	directly asks the patient questions	supplementing
6	takes over from the student	intervening
7	supports the student in their task	prompting

With the assistance of two colleagues who had experience of clinical teaching, I searched the data for evidence of those teacher actions described by Nilsson. Below are some excerpts from the teaching episodes (■ is used to indicate different episodes) where these actions were observed.

1) Asks questions of student

■ **Teacher:** *You understand now this whole story about two thirds and a third of Actraphane?*[6M] (Student does not answer as teacher goes on consulting with patient).

■ **Teacher:** *What do you think of that dosage of Ritalin?* [5F]

2) Explains

■ **Student:** *What is the side effect of Abacavir™?* ... **Teacher:** *It is generally pretty well tolerated, apart from the small minority of people who get an Abacavir™ hypersensitivity reaction. Student: Oh ja, the hypersensitivity. I remember now. Teacher: What is the key thing about the hypersensitivity? Student: Don't they get a rash or something? Like a very severe ...? Teacher: Okay, so they can get a number of very non-specific features. So maybe a fever, maybe a rash, maybe a bit of GI upset, or a bit of abdominal pain, but nothing that would sort of say oh, that's nasty. But cumulatively, you know, it's ringing alarm bells, and the key thing is that the symptoms get worse every time you dose them, okay? So in the first two weeks or so, starting Abacavir™, if they notice that there is a progressive deterioration, because lots of, you know, kids get viral infections all the time, a lot of them get a little bit of a cough, a bit of a fever and sometimes a rash. Is it*

significant or not, where if every time you dose them it gets worse, then it probably is. You must stop the Abacavir™ ... [1M]

3) Directs student to the answer

- **Teacher:** *What is her blood pressure today?* **Student:** *Today it's 153/84.* **Teacher:** *153? So what are you going to do now? Are you just going to leave it there?* [6M]
- **Teacher:** *Okay, so what antibiotic would you like to use for this sort of skin infection?* **Student 1:** *Maybe Co-Trimoxazole again.* **Student 2:** *Tetracycline?* **Teacher:** *Okay, what is the most common sort of bacterial skin infection? What bug are we likely to be ...?* **Student 2:** *Staph* **Teacher:** *Okay, so what antibiotic would be best for a staph?* **Student 2:** *A topical. Are we talking topical or oral? Oh, oral, oral.* **Student 1:** *Maybe Clox?* **Teacher:** *Yes, something like that.* [1M]

4) Illustrates what the student should do

- **Teacher** in a dermatology clinic: *Right, so now you can find all the rest. You're going to carry on with this and do all this. This one ... where is that one on the hand? And often you feel it, the roughness of it is actually the ... indication.* **Student:** *So like this one is also, is that also one?* **Teacher:** *Yes, definitely.* **Student:** *Okay.* [4F]

5) Directly asks the patient questions

- **Teacher:** *Yes, what type of questions will you ask him?* **Student:** *Ask him if it's itchy, how long has he had it, is it painful, like does it get red, I didn't ask specifically about pimples and nodules, or if it like blisters.* **Teacher:** *What about agents, something that he uses, rubs on his hands, cream or perfume or maybe a washing soap or something? You haven't asked about that yet?* **Student:** *Mm-mm.* **Teacher to mother:** *Okay. So has he used something new that he rubbed on his hands, washes with, or something?* **Patient's mother:** *Not really* [5F]

6) Takes over from the student

- **Teacher:** *Then we have that as well. I wonder if you could just quickly just, let's get a BP machine let me just check something.* **Teacher:** *Can you quickly come and sit here Sir?*

- **Patient:** *Yes doctor. Is it high doctor?* **Teacher:** *Like I said, it's a little bit high but, so just take it easy. (Takes blood pressure) It is a bit high, yes. It is about 145 over 95. Alright, so what would you like to do about that? What are your options?* **Student:** *Okay. Options, you can increase the medication. I'm still not sure about the dosages and things of the medication. So that's one option. So, his lifestyle, I'd like to hear about, maybe ask about diet, maybe a bit more about that, like cutting out salt a bit or something.* **Teacher:** *Okay let's talk about the ...* [2M]

While we found evidence of most of Nilsson's strategies being used to a greater or lesser extent, we did not find any illustration of *supporting the student in their task*. Further immersion in the data led to the realisation of two significant differences from the setting in which Nilsson's research had been conducted. Firstly, in our situation, teaching time was not scheduled as separate from the patient care time of the clinician teacher, while this appeared to be the case in Nilsson's research, and secondly, in our setting there did not appear to be an expectation that the student would have the task of managing the patient.

1. This led us to go back to the data. Looking inductively to see what emerged from the data, we noticed other features of this clinical teaching. These included that 1) recognition of teaching opportunities by the teachers, 2) exploration of clinical reasoning (including management choices) and 3) sometimes there was teaching focused on preparing the student for the forthcoming assessment. **Recognition of teaching opportunities**

There are often teaching opportunities that arise from patient interactions. Not all clinicians recognize these and so teachable moments slip by unnoticed.

Recognised opportunity to introduce approach to management of non-communicable diseases

- **Teacher:** *Alright. Let's just talk quickly about an approach to a patient with chronic diseases. I'd like to talk about the four C's [laughs], just as sort of something to remember. So has the patient got any complaints today? You say he's fine.* **Student:** *Ja, no complaining of anything.* **Teacher:** *Okay, so the next question is, is the patient controlled or not? ...* [2M]

Unrecognised opportunity to discuss prescribing practice

- **Teacher:** *There you go, then we must just quickly write your chronic prescription. Is it everything you usually, Disprin, nystatin, enalapril, and [unclear 00:03:22] with glipizide, the insulin. Okay and then the [unclear 00:03:29] ointment, do you still need it for the fungus?* **Patient:** *No, no, no, it's gone. It has cleared beautifully.* **Teacher:** *Great. You still need Losec for the heartburn.* **Patient:** *Yes.* **Teacher:** *Panado and Tramadol?* **Patient:** *Yes for the arthritis.* **Teacher:** *Okay. So are you going to quickly write her chronic prescription, remember three pages* **Student:** *Yes.* [5F]
- This interaction potentially offered a multitude of opportunities to discuss rational prescribing, prescribing cascade, evidence-based therapies, discontinuation of drugs, etc. However, the clinician has not picked up on any of these aspects and the student seems simply to have been used as an assistant.

Unrecognised opportunity to discuss approach to dementia

- **Student:** *According to social services he was able to look after himself quite well, but the past three weeks his condition deteriorated. He didn't look after himself properly, and also family, not the family, the friends weren't sure if he is eating properly, and home-based care also saw him at the hotel. One day they saw his feet were swollen, so that's why social services [unclear 00:08:52] because he refused to go to any clinic to get checked.* **Teacher:** *What is his baseline?* **Patient:** *Can I go?* **Teacher:** *What is his baseline? His baseline, his general level of function?* **Student:** *They said he was okay up until about three weeks ago.* **Teacher:** *So there is mental retardation. He isn't with a family, he's been living on his own for years.* **Student:** *There is no family, but there are friends. There is a lady from [unclear 00:09:34] and she usually pops in. As soon as we calmed him down, they never came back, and he was [unclear 00:09:44]. But social services are also looking for a placement for him, because he is [unclear 00:10:00].* **Teacher:** *See what the bloods say. Okay, if you feel an LP is indicated, then you've got to sedate him and do the LP for medical purposes. You've got to do it. As you say, I mean he has been, for the past two weeks, he hasn't been caring for himself. Urine, have you got a urine, anything in the urine? You have only done the Hb and the urine, nothing else. You can see, I mean you can see, he is very confused. Look at the faeces under his fingertips.* **Patient:** *I need to go.* **Teacher:** *I mean, he is delirious. You've got*

to do an LP. You've got to do it. You don't need consent. You need it for medical purposes.[6M]

- This interaction/event/engagement offered the opportunity to discuss home care, interprofessional collaborative care, ethical issues, an approach to a confused adult, etc.

The example below is different from those above in that the teacher recognized that the student did not have an approach and reminded them of the areas that need to be considered in a follow-up consultation for a patient with chronic disease.

2. Exploration of clinical reasoning

When students present patients to them, it offers the teacher an opportunity to identify the student's clinical reasoning ability (Bordage, 1994; Neher et al., 1992). However, in these encounters the teachers did not necessarily take the opportunity to do so.

Clinical reasoning explored

- **Teacher:** *Which complications would you look for in a hypertension patient.* **Student:** *Okay, for hypertension I would think maybe for – how can I build it up? Ja, so migraine, I think that can be one of the complications, but also maybe eye symptoms.* **Teacher:** *Eye symptoms?* **Student:** *Ja.* **Teacher:** *Which ... another way of looking at it is target organ damage.* **Student:** *Okay.* **Teacher:** *So which organs would you specifically look at for hypertension?* **Student:** *Okay, the eyes, is one.* [2M]

- In this case, by asking the student questions, the teacher can soon see that the student does not have a system by which to remember the complications of hypertension and can be assisted by being offered a general approach.

No exploration of clinical reasoning

- **Student:** *Mrs Smith came in at 12 o'clock this morning, she is 71 years old, came in with chest pain on the left hand side, not radiating anywhere, she said the pain is just there. They did an ECG, the ECG didn't show anything significant.* **Teacher:** *What is her history?* **Student:** *She came in here, she came with her husband, round about 12 o'clock this morning. She said she was coughing for three weeks, non-productive, she had left sided chest pain that started on Sunday, two days ago, loss of appetite, loss of weight, no night sweats. She is known diabetic. She is taking metformin, she is taking Pharmapress*

and also aspirin. No surgical history. She is still active. She helps her daughter out with her catering business in [town], and then she also works in the fish factory. Teacher:

That's very important, hey? She is active. Catering is tough work. That's very important.

Student: *So when she came here she was okay, she was lying in bed, not complaining of anything. Her blood pressure was 143/82. Pulse rate of 82. Sugar was up 9.8 sats 95 and Hb of 9.8. ECG was normal and they did bloods, and she is going for a chest x-ray today.*

Teacher: *Is there weight loss? [6M]*

- The teacher interjects with their own questions and comments but does not lead the student through a process of reasoning about the clinical presentation of chest pain in elderly women.

3. Teaching focused on preparing the student for the forthcoming assessment

■ **Student:** *And then there is the PACK (Practical Approach to Care Kit) stuff also.*

Teacher: *Yes, so that PACK stuff basically covers what I told you; someone comes in with dizziness and then there was someone about menstruation, menorrhagia. And there's a headache, dizziness, but the person is sitting there, so just go through the systems. What are all the causes of dizziness? Understand? But there is also stuff like vertigo, for example what are the causes of dizziness then it's of course now an ear and then you just go through the system. And then comes the role play, so then I just had to adapt and sit there with the – but I think you should – because all that you do is “Good morning”. When you go out you greet again. That's already out of ten, work it out of ten, it's two marks each. Student: So you almost pass if you just say hello. [Student: laughs]*

Teacher: *Yes, in other words, you just say Good morning I am Dr Roos, how are you and tell me why you are here today, then thank you ma'am. That's what they want. Respect and things like that, and then there is the in-between, you know that you naturally will ask, just for the effort that you – why are you here today, what is the problem, tell me. But you go through your systems like this. Understand? Don't forget you must go through like subjective story, objective, medical allergies, occupation, etcetera. And then individual. That's where they emphasise. Individual, that means your LIFE, you know what that is, it's function, ideas. I was surprised to find that they'd gone back to that but then I realised that they want these PACK things. So remember to go through those systems. Quickly. Just for your structure you get a point there. [3M]*

- The focus of this teaching appears to be what will happen in the assessment, not how to approach an actual patient.

5.1.2 Discussion

Prior to conducting this research, we had anticipated that student interns would be more involved in patient care; that as stated in the study guide for these senior students (Stellenbosch University), there would be more “facilitation of clinical learning” (enabling students to be participants). However, the student often remained an observer, or at best an assistant who wrote prescriptions or searched the patient’s record for results. In these cases, there tended to be (mini)lecturing in response to students’ questions. In the instances when the student was allowed to participate more by being given responsibility for clerking and presenting the patient, it seemed that the clinician’s interactions would often elicit the student’s input and explore the student’s thinking and clinical reasoning, seeming to indicate an inclination to shift towards a more student-focussed approach. It is of concern that there was not more participation by the student in the clinical environment, with students seldom being observed *doing*. This aligns with findings described by, amongst others Howley and Wilson (2004), Lempp and Seale (2004), Nilsson et al. (2010), Pulito et al. (2006), Ramani (2015), Seabrook (2003), and Walton and Steinert (2010).

In Chapter 2, I set out how current thinking about clinical learning is that it happens through supported participation (Dornan et al., 2012) and guided experience (Stalmeijer et al., 2010), therefore requiring clinical teachers to offer affordances and responsibility. Without observing the student *doing*, there is no opportunity to assess their capability and give feedback that can guide their further learning (Lefroy et al., 2015).

Teaching often seemed to be opportunistic; there was no evidence from the recordings that the clinician had the rotation objectives in mind, or had a purpose for the teaching session, remaining in the role of clinician, rather than extending to the role of teacher. They seemed not to recognise “teachable moments” (a specific occurrence, situation or experience that can be used to teach people about something more general; an unplanned opportunity) arising in the patient encounters (Branch, 1996). Clinicians were not using any workplace-based tools or strategies such as those presented in Chapter 2 (One-minute preceptor / SNAPPS; Thinking-out-loud; Workplace based assessment; Feedback), although one teacher did offer the student a clear clinical approach (the 4C’s model for follow-up of patients with non-communicable diseases)

(Couper, 2007). There was no evidence that they ended the session with an exploration of what had been learnt.

Some things seemed to be noticeable by their absence, namely clinicians seldom explored for evidence of understanding (establishing why the student had offered that answer, or probing for explanations), there was no overt teaching of evidence-based practice (with no reference made to guidelines and no formulation of clinical questions), and no evidence found that they ended the session with an exploration of what had been learnt or still needed to be learnt (Irby et al., 2004; Neher et al., 1992; Stickrath et al., 2013; Wolpaw et al., 2003).

5.1.3 Conclusions

This sub-study gave us some insight into clinical teaching as it was happening on part of the Stellenbosch University training platform. Our findings suggest that there are many learning opportunities, but with a wide variation in teaching skills and approaches. Clinical teaching has been described as the form of teaching focused on, and usually involving, patients and their problems (Spencer, 2003). But, it is complex, requiring that clinicians combine teaching activities with their clinical commitments, and that they are able to contextualise that teaching to individual learner's needs. The clinicians in this sub-study seemed largely to remain focussed on fulfilling their own obligations to clinical practice and patient care, with few occurrences of the student being offered an opportunity to learn by participation (Sfard, 1998). While there were recordings of students presenting clerked patients to the clinician and getting feedback, there were no recordings of clinicians observing or listening to students in the authentic setting of the workplace. Clinical teaching cannot simply be teaching that takes place in a clinical context, it needs to be teaching that enables the student to safely and progressively perform clinical work under supervision so that their competence and confidence develop as they prepare for post-graduation employment (internship) (Dornan et al., 2012; Mann, 2001; Stalmeijer et al., 2010). The findings show that planned curricular clinical learning opportunities for students do not always live up to the expectation that includes the student taking on an active participatory role.

It may be that these clinicians were in a similar space to the specialists described in our previous research (Blitz et al., 2014 – Addendum A), which showed that the start of their journey to becoming clinical teachers was characterized by an initial phase of uncertainty as a teacher. In that research, we found three facilitators of that journey. The first was external, namely very clear expectations set by the medical school about what was expected of them (with provision of opportunities for the necessary skill development). The second was the structure provided by

the continuity and longitudinality of the students' presence that encouraged the clinicians to incorporate the students in clinical teams. The third may be particular to sites more rural than where these recording were done, and that was a commitment to the students' success because of the realisation that they may, in the future, return as colleagues.

The findings of this component of the situational analysis of clinical teaching have very clear implications for faculty development for clinical teachers. Sound clinical teaching is aimed at facilitating opportunities for students entering the workforce to develop the competencies they need to make an immediate impact (Johnson et al., 2013), as well as socialising them into the practice of the profession (Cruess et al., 2015; Spencer, 2003). However, as clinical training is the essential stage of transition to becoming an effective professional practitioner, having only workplace experiences is insufficient – the experiences need to be augmented (Billett, 2016). This augmentation requires clinicians to support students as they join in authentic, everyday clinical work with the opportunity that this affords for observing the student's performance and offering feedback to improve (Dornan et al., 2014). This is what enables the student to generate the knowledge and skills necessary for practice.

5.2 HOW FACULTY DEVELOPERS ASSIST CLINICIANS TO DO CLINICAL TEACHING¹¹

The next step in the situational analysis of clinical teaching (sub-study C in Figure 5.1) was to identify the ways in which those responsible for faculty development were responding to the expansion of the clinical teaching platform, with the consequent need to support clinicians at peripheral sites in their task of teaching.

Contractual agreements between the Department of Higher Education and Training, higher education institutions (HEIs), and provincial Departments of Health, declare that clinical teaching is a “responsibility of the HEI offering and accountable for the course” (Western Cape Government, 2012) – in this case the medical school's responsibility. The aim of this second sub-study was to explore in what way faculty developers at South African medical schools were responding in terms of this responsibility and accountability for clinical teaching in new settings and how this was being implemented and evaluated. The justification for this step of the situational analysis was that in a resource-constrained context, it would be appropriate to learn

¹¹ I presented this research as an oral presentation at the combined The Network: Towards Unity for Health and the South African Association of Health Educationalists (SAAHE) conference 2015, which was held in Johannesburg, South Africa [A-90].

from existing good practice in taking faculty development forward. It would also provide data of current practice that could be reviewed in light of the existing literature while acknowledging any differences in context.

Data was obtained from eleven semi-structured interviews with at least one person representing faculty development at each of South Africa's nine medical schools (section 4.5.2.2 expanded on the methods). The interview addressed the following questions:

1. What faculty development does your medical school provide for clinical teaching?
2. What is your strategy for reaching clinicians on the expanding teaching platform?
3. What methods of evaluation are you using for those faculty development activities?
4. What do you think clinical teaching is?

Of the interviews with the main faculty development representatives, two lasted less than 35 minutes (20 and 33 minutes), the other seven were between 41 and 57 minutes each. The two supplementary interviews held at one institution were 22 and 34 minutes long. As described in Chapter 4, the audio recordings were transcribed and analysed descriptively looking for both unique practices and similarities.

5.2.1 Findings

Some interesting approaches to faculty development, although not necessarily specific to clinical teaching, were elicited. One medical school was specifically developing e-learning modules that could be used by clinicians on the distributed platform in their own time; another was offering modules from its higher degrees in health professions education as faculty development opportunities; three of the medical schools had made deliberate attempts to target registrars (postgraduates in specialist training based largely in tertiary academic hospitals) for brief interventions to strengthen their clinical teaching; one medical school had made funding available for clinicians to create time to pursue higher education qualifications. While each of these approaches spoke to a recognition of the need to offer faculty development opportunities for the strengthening of teaching, none seemed to address an over-arching strategy of how to shift teaching practice.

As the interviews were semi-structured around the four questions mentioned above, the findings are reported per question. Table 5.3 presents a summary of the themes that arose from the faculty developer interviews, with a more extensive exploration of the themes thereafter.

Table 5.3: Themes from faculty developer interviews

Areas	Themes
Faculty development for clinical teaching	<ul style="list-style-type: none"> • Barriers to clinicians' attendance of events • Designed around workplace teaching tools
Strategy for reaching clinicians on the expanding teaching platform	<ul style="list-style-type: none"> • Relocating existing faculty development offerings at new sites • Rarely observing clinical teaching in the workplace
Evaluation of faculty development activities	<ul style="list-style-type: none"> • Eliciting level of satisfaction with the offering • No evaluation of impact or results
Conceptions of clinical teaching	<ul style="list-style-type: none"> • Focussed on learning in a particular workplace context; role of the learning environment; opportunity to explore clinical (diagnostic) reasoning

Faculty development for clinical teaching

Across all medical schools, clinicians make up a small proportion of those who attend faculty development opportunities (not usually more than a handful, despite being the largest professional group in all the medicine and health science faculties that participated). While geographical distance presents an obvious constraint for clinicians on a distributed training platform, respondents were unclear about why the on-site clinicians choose not to avail themselves of these opportunities, although this is not uncommon for teachers across all higher education environments in South Africa (Van Schalkwyk et al., 2015a). Although four of the medical schools had orientation or induction programmes for newly appointed staff, there was some despondency about attendance at faculty development offerings by clinicians in particular:

... it's probably least well attended by the medical people. When I think of their numbers in comparison to the numbers of the others, then it's out of proportion. [F6]

... the pressure of working with the hospital is so much, that so many, many times they cannot come. [F7]

But our experience exactly is our new clinical appointees seldom find the time to attend. [F9e]

... the other ones that have predominantly clinical responsibilities wouldn't necessarily come. ... We are looking at specific people to attend, and they are not coming. [F4]

Responses to these barriers included reflecting on possible enablers, such as making faculty development offerings more attractive to and useful for clinicians:

At which point do you swap out the carrot for the stick? We don't want to have a stick approach, we want to have the carrot approach, but then we've got to make it interesting or useful. [F1b];

and faculty developers purposefully reaching out to clinicians:

... hoping if they see us more visible and willing to engage ... [F4].

One of the challenges may be an inadequate exploration of the division of responsibilities for clinical teaching, amongst the clinicians on the peripheral platform and the university, and their attitudes towards this division:

... my perception that the fundamental difficulty is an attitudinal problem. If they have taken up the attitude that the university owes them nothing, is doing nothing for them, they are busy, you know, that kind of line of reasoning, it's very difficult, if not impossible, to get through to them. [F1a]

with one participant seemingly critical of clinicians being hesitant to take on what they appeared to see as the authority that should be inherent in the teacher role:

... teachers do not realise that they are in charge of the situation. There seems to have been something crept in over time where they almost see themselves as almost slaves to the students. Maybe that's putting it a little bit strongly, but almost being slaves to the students ... So, we try to point that out, that you are in control. ... Somehow they see that they must bow to the students' demands and wishes. [F6]

In addition, it was felt that the rapid turnover of clinical staff may have be detrimental to the potential for being a “teaching apprentice”

... people don't stay long enough to kind of be apprenticed into teaching people by seeing the older clinicians as role models perhaps. [F1a]

Content of faculty development activities tended to be focussed on practical teaching. While some addressed a small component of learning theory, the main feature was enhancing teaching skills and in the case of clinical teaching, particular tools that would be useful to clinicians (e.g. the one-minute preceptor; workplace-based assessment; feedback):

... when we look at clinical teaching, I look at workplace-based teaching ... I use things

like the preceptor, you know, the one minute preceptor, those types of things. ... Most of the things that are required in workplace based assessment we cover there, ... the portfolios, the Mini-CEX type of thing, we do peer and self-assessment. ... it becomes more 'how would you apply it, what do you foresee as the problem, could you transfer this into your own practice, how do you see it being transferred into your own practice'. So, that is the way of making it applicable to people's work environment, so it's actually usable information ... [F4]

Some had shifted the emphasis of their faculty development offerings to incorporate ways of creating safe learning environments and the need to respond to an individual student's learning trajectory:

I discovered, you know, that it was quite common to pay more attention to the cognitive part of learning and not the social part. ... forced me to work with the mind of the student from the beginning, and the inquisitive mind and things, to start showing the future teachers how important it is to create an environment that [makes] people feel comfortable to express what they think when they are thinking about learning. [F7]

... being kind of understanding where the student is and helpful as to how to move on, and that is the thing I find hard to teach people to do, is how do I teach them to not be expecting to observe a student's performance as the way I would perform it now. That to me is the art. [F6]

Activities spanned the spectrum from presentations to workshops to short courses, which may have been face-to-face or online and activities varied from using didactic to interactive techniques. Most faculty development consisted of one-off events. One medical school used informal conversations with clinicians to inform the focus of its faculty development activity each year. No medical school had a formal mechanism to provide ongoing support after an intervention. Only one medical school alluded to moving towards supporting the creation of a "community of practice":

It's not just peer observation of teaching, but it's peer support of teaching. So we emphasise that you can ask people to help you with your study guides, you can ask people to help you with your assessment questions, etc., etc., although the easiest is sort of the way to enter into a peer support environment to become part of the community of practice of peer support practice. [F1b]

Strategy for reaching clinicians on the expanding teaching platform

Three medical schools had taken their faculty development activities to the distributed teaching platform, thereby making the activities potentially more accessible to clinicians. However, only one had taken faculty developers into the actual clinical environment to observe clinical teaching, which would allow focused activities to be designed, based on authentic teaching encounters of the clinical environment (Morris & Swanwick, 2018).

... on a rotational basis go to them and then they sit in when they are teaching the students, and afterwards they have an informal discussion and feedback. [F9b]

In most cases, thinking was at the level of transferring the venue for activities from a venue in the central medical school building to a room in a peripheral hospital:

Then the next step would be to go and visit them again and visit an on-site workshop where these people are, but also they have issued a direct challenge at us to actually come and see their workload. So basically go around with them in their departments and see what they are doing on a day to day basis. I want to use that and infuse more realistic workplace-based approaches into the workshop. [F4]

but also included the potential of video recording the centrally conducted session for clinicians on the expanding platform to watch prior to their contact session:

We are going to record our sessions to make it available in video format to clinical people, because it is sometimes difficult for them to get to [the medical school] to attend the training. So in that session, it's like flipping the class, we would like to give them a range of sessions, and then once they have been here, we will go to the clinical platforms, which will be in [town], and then we will do a facilitated session after all the clinicians watch the videos on, let's say, assessment and formulating learning outcomes. Then we will have discussions to discuss what they saw in the video, to make it a little bit interactive as well, and we will give them a range of videos to look at. [F5]

There was no evidence of faculty development offerings being tailored to meet the unique context that is found on the distributed platform.

Evaluation of faculty development activities

While it is not unusual, most evaluation remained at the level of the participants' satisfaction with the activity, seldom moving to include assessing the impact, or results (Kirkpatrick, 1994). There have been a few attempts in South Africa to use instruments to measure health professions students' perceptions of the instructional quality of their clinical training, particularly outside the traditional teaching hospitals, e.g. Med Ed IQ (James P & J., 1999) used by Van Huyssteen (2006) (Van Huyssteen & Blitz-Lindeque, 2006) and Memon (2016) (Memon, Louw, Bac, Hugo, Rauf & Sandars, 2016); DREEM (Roff et al., 1997) used by Dreyer (2015) (Dreyer, Gibbs, Smalley, Mlambo & Pandya, 2015), but it seems no medical school is routinely using such instruments as a means of evaluating the impact on clinical teaching of its faculty development activities. One notable exception was a medical school that evaluated a programme targeted at registrars by subsequently observing them in the wards during clinical teaching (Smit, Blitz & Archer, 2016).

Faculty developers expressed concerns about whether their offerings were indeed translating into practice, but had also not taken steps to investigate this:

So although we are doing it, if it is happening, if it is being transferred into reality in their work environment is another issue. ... So to facilitate transfer of the stuff that we do in the workshops, because that has been consistently the problem that people struggle, or not struggle, but for whichever reason ... Unfortunately the limitations of what we do, even last year, has been that it's obviously all – what can I say – it is all theoretical. So it's not like I am seeing that they can apply it within a setting and then saying okay ... [F4]

Conceptions of clinical teaching

Conceptions of clinical teaching are the thoughts or ideas teachers have about teaching. An important feature is that conceptions are “partly unconscious and that they influence teachers' intentions for teaching” (Jacobs, Van Lwijk, Van der Vleuten, Kusurkar, Croiset & Scheele, 2016). In this case, I was exploring the thoughts and ideas that the people responsible for faculty development had about clinical teaching as a measure of what their intentions might be with planning faculty development for clinical teaching.

Their conceptions included various aspects of situated learning:

... teach the student as close as possible to the context where they will have to survive and work one day ... the holistic approach. [F9b].

It's experiential learning, it's workplace-based learning and teaching, so the example that you as a teacher set in a busy [ward] where you are swamped with patients, in approaching a patient, in approaching the diagnostic process. [F3]

... for them to get a chance to practice it in front of the clinicians as well. [F5]

Comments were made about the role of the learning environment:

... student needs to be made comfortable in the environment ... the clinician needs to make sure that when he does this thing, the student can see and the student can ask questions ... pose questions to the student as they go along, to seek clarity, whether the student understands what is actually going on. [F2].

Importance was given to teaching of diagnostic reasoning:

So a lot of that teaching is by example. I think a very important part of that teaching is to teach clinical reasoning skills, and making that explicit. [F3].

... transferring or demonstrating or teaching students around the patient, ... it's using the right methodology to get the students to learn a particular, you know, thing or diagnosis ... realising that it's key to explaining your thought processes around something so the student can actually see how you think ... You know how you diagnose a patient? It's also the same thing when you diagnose a student, like what stage is the student at, or where can I pitch my stuff at. [F4].

As with sub-study B, while there were a lot of encouraging signs of faculty development for clinical teaching, particularly on the expanding teaching platform across the country, there seemed to be some notable absences from what participants said. One of these is the theoretical underpinnings for an approach to faculty development. McKeachie in 1991 had predicted that the future would require faculty members to be assisted with developing strategies for students to be more active, mindful learners and that the social-psychology of cooperative learning groups might therefore play a greater role in faculty development (McKeachie, 1991). He also foresaw the need for cultivating intrinsic motivation for learning in students, and the way in which organisational culture affects teaching and learning as important areas for attention.

Acknowledging that these really referred to theories that had to do with conditions affecting teaching and learning in general, he proposed that these same theories may help faculty members develop. In a report based on lessons learnt from the First International Conference on Faculty Development in the Health Professions held in Toronto in 2011, Steinert (Steinert, 2012b) called, amongst other things, for faculty development to be grounded in a theoretical framework. Based on what emerged from this study, it seems that much faculty development in South Africa remains in the mode of training the trainer by equipping clinicians with the “tricks of the trade” rather than embracing steps that might be required if faculty development was seen as a step in the journey to embracing teaching alongside being a clinician.

5.2.2 Discussion

The Department of Health’s call for numbers of medical students to be increased has consistently been foregrounded as a catalyst for this research as it has implications for faculty development in providing opportunities for clinicians on the consequently expanding training platform to strengthen their teaching practice. Contextual issues (clinicians involved in teaching as an unpaid add-on to their prime service delivery role in a context of low doctor-patient ratios and unfilled posts) as described in Chapter 3, seem to have been recognised by DoHET when it made the Clinical Training Grant available in 2009 (referred to in 3.4). This was earmarked for funding additional clinicians to be employed for “clinical training”, defined as “instruction and supervision in procedural skills, patient care, and health service delivery” (South African Government, 2010). South African medical schools and faculty developers should consider what is required to optimise the clinical teaching which medical students will receive on the distributed platform. While historically there has not been a formal culture of teaching and learning at these sites, the doctors’ tacit knowledge of teaching may be an as yet unidentified resource, which faculty developers need to factor in as they consider effective ways of assisting them to emerge as clinical teachers. Researchers are urging a move of faculty development into the clinical teacher’s workplace. Cilliers and Tekian urge us to consider the principles of transfer of training when designing faculty development programs (Cilliers & Tekian, 2016). While Schreurs reports on the effect of a programme in Maastricht that includes appointing formal coaches for the clinicians in their workplaces, this is not a feasible option in a resource-constrained setting (Schreurs, Huveneers & Dolmans, 2016). Strand proposes an “On-site” model based on research done in Swedish secondary care hospitals (a different context from the distributed platform context in which this dissertation is set), which suggests that faculty development for clinical teachers should be embedded in their workplace (Strand, 2017). Morris, relating experiences in

postgraduate education in the United Kingdom, suggest that faculty development needs to include responding to needs identified through observation of authentic teaching encounters in clinical environments (Morris & Swanwick, 2018).

This sub-study showed that most South African medical schools provide faculty development opportunities for clinicians to strengthen their clinical teaching with a strong focus on practical techniques and strategies. However, the next stretch for South African faculty development for clinical teaching seems to be to look at its own practice in terms of impact assessment and a consideration of what education and learning theory it espouses in designing its strategy. A crucial part of the teaching process (after planning and implementing) is evaluation (Kern et al., 1998). Kirkpatrick advises that evaluation needs to move beyond satisfaction (of the participants) and learning (a recognition of new knowledge and skills), to whether there was any impact on the participants behaviour (application of the new knowledge and skills), or at an even higher level, whether there was any result of this (was there any measurable outcome of the application) (Kirkpatrick, 1994). It seems that across South African medical schools there has not yet been a move to evaluating anything more than satisfaction, and in the case of more formal courses, learning. In the case of faculty development to strengthen clinical teaching, it could be argued that demonstrated improvement in clinical teaching effectiveness could serve as an adequate measure of results. As described in Chapter 2, there are descriptions of what the sought-after attributes of effective clinical teachers are, as well as a multitude of tools that can be used by students to evaluate clinical teaching effectiveness.

While Irby recognised the need for reliable, valid and useful evaluation instruments of clinical instruction in reward and promotion decisions, he also recognised the potential of these instruments to impact on content of faculty development activities (Irby & Rakestraw, 1981). Current understanding of clinical learning has been used to design validated instruments for students to measure the effectiveness of their clinical teaching (Dornan et al., 2012; Stalmeijer et al., 2010; Strand et al., 2013) and recently calls have been made for these instruments to be used in a way that informs faculty development activities, in particular the provision of feedback to individual teachers (Arah, Hoekstra, Bos & Lombarts, 2011; Fluit et al., 2012; Haider, Johnson, Thistlethwaite, Fagan & Bari, 2015; Mintz, Southern, Ghali & Ma, 2015). Despite the constraints of an under-resourced setting (see Chapter 3), there is no reason why these clinical teaching effectiveness instruments should not also be applicable in South Africa. In fact, one could argue that because this is an under-resourced setting, we should make every effort to ensure

that resources used for faculty development do indeed have the impact they were designed to achieve.

Thoughts on how faculty development might be presented have shifted from an initial predominance of group activities such as formal workshops to more informal approaches which embrace the value of workplace learning and the role of communities of practice, as well as a shift to include a recognition of the work that individuals can do to improve their teaching practice (Steinert, 2010). She goes on to propose that mentoring should “be considered an explicit approach in faculty development”. Although there is experience in South Africa with faculty development programmes based on mentorship (Frantz et al., 2015), the findings from this sub-study seem to indicate that medical schools have yet to include this as a strategy for faculty development.

5.2.3 Conclusion

While there are a variety of faculty development initiatives being made available by medical schools to strengthen clinical teaching, at the time this research was conducted, fewer clinicians than hoped for accessed these activities. Medical schools will need to consider how to respond to the need to take faculty development to clinicians, especially those at newly created distributed learning sites with the added challenge of geographical distance.

Evaluation of faculty development activities that moves beyond participants’ reactions, to looking for evidence of a change in teaching behaviour and even impact on student learning (Cilliers & Tekian, 2016; Kirkpatrick, 1994) may give faculty developers much needed information regarding whether their offerings are meeting the needs of both clinicians and their students. Instruments that measure clinical teaching effectiveness (Fluit et al., 2012), may provide a means to evaluate the impact of faculty development that sets out to strengthen clinical teaching, thus giving direction to design of the developmental activities.

Conceptions of clinical teaching largely centred around the *doing* of teaching. While there was also value placed on the importance of the social learning environment, how to influence its development was not really addressed. There was a focus on clinical reasoning, with less attention paid to the student being and becoming a doctor through participation. It is open to question whether a clearer engagement with current theories and practice of both clinical teaching and faculty development may result in the design of faculty development activities that could be more useful and accessible to clinical teachers.

5.3 CHAPTER SUMMARY

This chapter presented two sub-studies of a situational analysis of clinical teaching, namely establishing what teaching strategies are used during clinical teaching encounters and what faculty development is in place for clinical teaching outside tertiary hospitals.

This chapter has presented empirical research that found evidence of both an absence of clinical teaching that has progressed to embrace modern understanding of clinical teaching that enables student participation, and an absence of a concerted response by faculty developers to engage with the necessary development of an expanding clinical teaching platform. It may be questioned whether research conducted differently would have been able to come to other conclusions. Nevertheless, I think that the evidence that has been provided does give us food for thought in terms of parts of a picture that is building to a situational analysis of clinical teaching.

From the audio recordings it seems as though current clinical teaching practice often consists of the student as a silent observer of, or assistant to, the clinician's activities. While they do not enable a deep understanding of the interaction between the student and the clinical teacher, they do suggest that clinicians may benefit from finding ways to give senior students supervised responsibilities in patient care activities.

In terms of faculty development, there may be room for faculty developers to address strengthening clinical teaching by engaging with the challenges of providing accessible and useful opportunities to clinicians who are neither contractually obligated to the university, nor easily geographically accessible. Simultaneously, it would be worthwhile to build in evaluation of the impact and outcomes of those opportunities on the effectiveness of clinical teaching. Increasing student numbers requires clinical teaching to extend to sites where clinicians are not used to having a teaching responsibility and this in turn requires medical schools to take up the gauntlet of ensuring that the learning opportunities that are available for students in this expanded context are effective.

The next chapter presents two manuscripts that address sub-studies D and E of this situational analysis of clinical teaching, namely understanding how clinicians view or anticipate their clinical teaching role, and an exploration of medical students' experience of clinical teaching.

CHAPTER 6

SITUATIONAL ANALYSIS – PHASE TWO

In this chapter, I present findings from the two sub-studies (D and E) of phase two that were conducted to explore the current state of clinical teaching as experienced by both students and teachers. These constitute the final components of the situational analysis of current clinical teaching that comprises the targeted needs assessment of clinicians for faculty development that strengthens their clinical teaching (see Figure 6.1). The methods used for these sub-studies were described in Chapter 4 in sections 4.5.3.1 and 4.5.3.2 respectively.

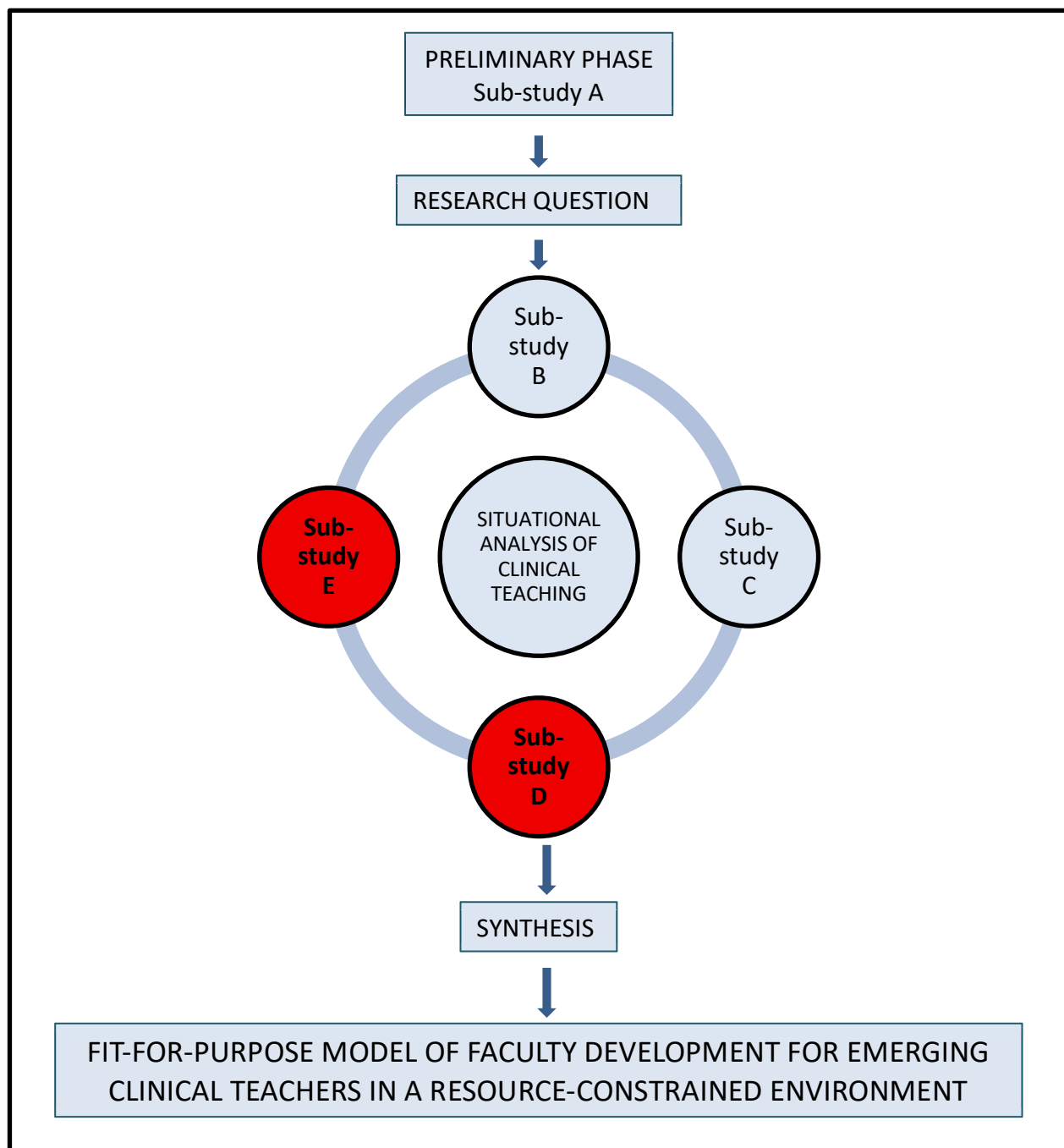


Figure 6.1: *Research design*

6.1 HOW CLINICIANS ANTICIPATE THEIR CLINICAL TEACHING ROLE

This component of the research was conducted in order to understand how emerging clinical teachers understand their teaching role.

An iteration of this research was presented as a short communication at the AMEE (An International Association for Medical Education) conference held in Barcelona, Spain in September 2016, as “From colonized to naturalized citizen – faculty’s responsibility to clinician-educators on a decentralised platform” [#9J3 (135343)].

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ORIGINAL RESEARCH

Implications for faculty development for emerging clinical teachers at distributed sites: a qualitative interpretivist study

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ABSTRACT:

Introduction: Medical faculties have the responsibility to graduate competent health professionals and a consequent obligation to assure the quality and effectiveness of their students' clinical teaching. Many institutions are responding to rural workforce needs by extending clinical training from the traditional academic teaching hospital to include rural and remote sites distributed away from the central training institution. It is incumbent upon medical schools to consider how this might

impact on the faculty development of these clinicians as teachers. The research reported here sought to develop an understanding of how clinicians working at distant resource-constrained and new training sites view their early experiences of having been delegated the task of clinical teaching. This was with a view to informing the development of initiatives that could strengthen their role as teachers.

Methods: Qualitative research using an interpretive approach was used to reach an understanding of the views and subjective experiences of clinicians taking on the role of clinical teaching. Participants were emerging clinical teachers at distant peri-urban, rural and remote sites in South Africa. They were deemed to be emerging by virtue of either having recently taken on the role of clinical teacher, or working at sites newly used for clinical teaching. In-depth interviews were conducted with all nine clinicians meeting these criteria. The interviews were coded inductively looking for underlying meanings, which were then grouped into categories.

Results: The findings clustered into three inter-related themes: relationships, responsibilities and resources. The clinicians take pleasure in developing learning relationships that enable students to have a good experience by participating actively in the clinical environment, value what students bring from the medical school in terms of clinical advances and different perspectives, and in the contribution that they feel they are making to creating a more appropriately trained future healthcare workforce. However, they yearn for a closer relationship with the medical school, which they think could acknowledge the contributions they make, while also offering opportunities for them to become more effective clinical teachers. They also feel that they have a role to play in both curriculum re-alignment and student evaluation. These clinicians felt that the medical school has a responsibility to let them know if they are doing 'the right thing' as clinical teachers. Interestingly, these participants see trusted clinical colleagues and mentors as a resource when needing advice or mentorship concerning clinical teaching.

Conclusion: This study adds to an understanding around designing faculty development initiatives that meet the needs of clinicians at distant sites that take on the role of clinical teaching. There remains the need to impart particular strategies to support the learning of particular kinds of knowledge that is commonly dealt with in faculty development. However, there may be an additional need for faculty developers to embrace what is known about rural doctor social learning systems by overtly designing for incorporation of the foundational three Rs: relationships, responsibilities and resources.

KEYWORDS:

clinical teacher, faculty development, medical student, relationships, responsibilities, resources.

FULL ARTICLE:

Introduction

In South Africa, national health policy mandates a strong district healthcare system¹, recognises the human resources for health requirements to graduate an increasing number of medical students² and acknowledges that graduates' training also needs to prepare them for practice in contexts of primary and secondary care. These create an imperative for medical student training to include exposure to a distributed clinical platform. Medical schools in the country are responding by extending their clinical training platform to include district hospitals and their surrounding clinics.

Many of these new sites are geographically distant from the education institutions they serve. While students may have spent time at these sites for elective components of their curriculum, they have not traditionally been used for core components of it. Typically, high level agreements govern the relationship between the education institution and the provincial Department of Health³, but individual clinicians at distributed sites do not necessarily have any formal link with the medical school. In addition, the selection of distributed training sites is often opportunistic, based on the willingness of the district and facility managers to accept students at the site. Clinicians working at these sites seldom view themselves as academics; they may never have had the intention to be anything other than practising clinicians and would have had few opportunities to include teaching in their professional activities. A site is not necessarily selected because the clinician is deemed to be a good teacher.

Billett's research on workplace learning⁴, the domain in which clinical training falls, suggests that appropriate selection and preparation of the person guiding the learning (in this case the clinician teacher) is fundamental in enabling them to offer

affordances to the student so that quality learning occurs. Research conducted previously by the research team working on this article, with clinical specialists working and teaching in the contained and well supported rural clinical school of the authors' faculty, described their journey to becoming clinician teachers⁵. It began with concerns around incorporating teaching into their clinical practice, but moved through initial uncertainty about their role to an emerging identity as a clinical teacher and finally embracing responsibility for teaching future colleagues. The context of that research was a new educational initiative (the first in the country) designed to address the health workforce needs of the country, and located only 100 km from the medical school, where there was strong and visible support (including educational support to the clinicians) enabling this journey. Wanting to take that research further, the authors chose to explore the clinical teaching experience of clinicians who were even more distant and not part of the rural clinical school.

All medical faculties have the responsibility to graduate competent health professionals into professional practice and therefore an obligation to assure the quality and effectiveness of their students' clinical teaching. As a result, there is a growing focus on how clinical teachers can be supported in this task. Prior to this empirical work, it was thought that to strengthen clinical teaching on the expanding training platform, it would be necessary to take traditional forms of faculty development activities (workshops and short courses held in the medical school covering aspects of clinical teaching and assessment) to the workplaces of these newly involved clinicians. Frenk et al's⁶ challenge, that there is a need to support the health professions education subsystem through faculty development, was recognised. There was acknowledgement of the incongruence of providing opportunities to strengthen clinical teaching in formal workshops at the central medical school (away from the context of the clinical workplace), leaving the clinician with the challenge of implementation when they return to the decentralised clinical environment. Steinert's 2012 call for 'a framework for faculty development, with a particular focus on experiential and work-based learning, role modelling and mentorship' was considered⁷. However, little was found on how these constructs should be translated into developmental opportunities that will enable clinicians to deliver effective clinical teaching, and particularly how these could be delivered for clinicians at distant sites. This led to a consideration of what would be needed to inform creative responses to the very real implementation issues, which so often impact on the translation to practice of more traditional forms of faculty development.

Most medical education literature (including that on clinical teaching) originates from North America, Western Europe and Australia^{8,9}, from higher education settings that are well resourced and health systems with high doctor–patient ratios. It is unlikely that the underlying principles of effective clinical teaching¹⁰⁻¹² should be markedly different in resource-constrained settings. However, it can be argued that there is a need to consider how this can best be supported and delivered in the workplace of small hospitals that are geographically distant from the education institution, without expertise of experienced faculty, and where there are limited human, financial and technological resources, such as is the case in South Africa.

The research reported here sought to develop an understanding of how clinicians working at distant resource-constrained and emerging training sites view their early experiences of having been delegated the task of clinical teaching. This was with a view to inform the development of initiatives that could strengthen their role as teachers.

Methods

As an understanding of the views and subjective experiences of clinicians taking on the role of clinical teaching was desired, qualitative research using an interpretive approach was chosen¹³. Clinicians were studied in their natural settings, with the aim of making sense of the phenomenon of the emerging clinical teacher by interpreting the descriptions of their experience.

At the time that this research was conducted all the authors had some responsibilities for contributing to the quality of clinical teaching provided by the faculty, although none were clinical teachers. JB was working in educational capacity development, MdV was responsible for the quality assurance of undergraduate education and SvS was contributing to the professionalisation of health professions education. JB and MdV are family physicians familiar with both this research context and some of the participants.

The setting for this research was district hospitals in South Africa where medical students spend five weeks doing a clinical rotation in rural health care. Sites were between 65 km and 1200 km from the medical school campus and its traditional tertiary academic teaching hospital. Of particular interest were clinicians who had recently taken on the role of clinical teacher,

or clinicians who were working at sites newly used for clinical teaching. It was assumed that new sites would not necessarily have an established culture, history of or expertise in student teaching, or a developed community of pedagogic practice. Although the clinicians are not considered staff of the university, there is an expectation from both the medical school and the Department of Health that clinicians be involved in clinical training³. In this case, the authors were exploring their responsibilities with regards to clinical supervision. They also facilitate students' quality improvement projects and home visits. Within the distributed training platform at the time, there were nine clinicians (seven of whom were family physicians) at eight different training sites who fulfilled the above criteria. All were approached and invited to participate in an interview and all consented to do so. Table 1 shows the demographic details for the participants.

While the majority of family physicians had completed a module in teaching and learning during their specialist training, none of the participants had attended any of the faculty development opportunities for strengthening their clinical teaching abilities offered at the medical school.

In-depth interviews were conducted by the principal researcher between July and December 2015. Duration of the interviews was 36–95 min, with an average of 60 min. All but two interviews were conducted at the participant's place of work; one was in the village coffee shop and the other at the participant's home.

As it was the authors' intention to generate a narrative account of the clinicians' experiences as educators, the interviews were unstructured, commencing with 'Can you tell me what it is like for you as a clinical teacher?' Further probing was done where necessary, led by the findings of the authors' previous research⁵, in order to explore the participants' clinical teaching practice and how it could be strengthened.

Interviews were audio-recorded and then anonymised during the process of verbatim transcription. They were coded inductively by JB, using Atlas ti v6 (<https://atlasti.com>), looking for underlying meanings, which were then grouped into categories. The codebook and categories were discussed with, adapted and agreed to by all the researchers.

There is a challenge to develop not only code saturation but also meaning saturation¹⁴. This meant that although the study population was limited, the authors were sensitive to the need to obtain a deep understanding of the data from the nine interviews. This was done through an iterative process of reading and coding, reflecting on previous research with clinician teachers, and utilising an understanding of both the participants and the context.

Table 1: Demographic details for study participants

Qualification	Gender	New teacher	New site	Location of district hospital
Family physician	Male	No	Yes [†]	Peri-urban
Family physician	Female	No		
Family physician	Male	Yes	Yes	Rural
Family physician	Male	Yes	Yes	Rural
Family physician	Male	Yes	No	Rural
Family physician	Female	Yes	Yes	Rural
Family physician	Female	Yes	Yes	Remote
Clinical manager	Male	Yes	Yes	Rural
General practitioner	Male	Yes	Yes	Rural

[†] Two participants at the same site.

Ethics approval

Approval for this research was obtained from the Stellenbosch University Health Research Ethics Committee (N14/08/097) and the Western Cape Department of Health.

Results

Three themes emerged during the analysis: relationships, responsibilities and resources. Table 2 presents the codes, grouped into categories and themes. The dominant theme concerned the relationships that the clinicians have with students, and those

that they miss having with the medical school. The respondents recognised the student's responsibility in learning, embraced their own responsibility for teaching and called on the medical school to fulfil its responsibility to support them in this delegated task. The resource that the clinicians would turn to most often was trusted colleagues.

Table 2: Themes, categories and codes from the interviews

Theme	Category	Code
Relationships	Clinician's relationship with students	Enjoy learning from and with students
		Understand the importance of creating a safe learning environment
		Meeting the breadth of our country's future healthcare needs
		Students need to engage in the work done by the clinical team
	Medical school's relationship with the clinicians	Lack of information with regard to clinician's responsibilities
		Clinician teachers seek recognition for the contribution they make
		Should be opportunities for two-way communication about students
		Clinicians want to co-create curriculum
Responsibilities	Student's responsibility	Students must take the responsibility to learn
	Medical school's responsibility	Clinicians want feedback about whether they are doing the 'right' thing
Resources		Turn to mentors as a resource
		Wish to belong to a network of clinician teachers

The following illustrative quotes from clinicians (C) capture how meaning was made of the data.

Relationships

Clinicians' relationships with students: *Enjoy learning from and with students* Clinicians enjoyed the intellectual exercise of having students with them, expressing enjoyment at being challenged and having the opportunity to update their knowledge (either with information from students, or from being provoked into checking on latest evidence by a student's question). By creating a relationship in which patients could be discussed together, the diversity of knowledge, experience and interests brought a richness to conversations around patient management and problem-solving.

... it's valuing people's differences and people's different perspectives, and realising that there is something you can learn from a third year student, there is something you can learn out of a situation. Yes, it's quite exciting to be able to grow together and work as a team. (C5)

Understand the importance of creating a safe learning environment All the clinicians spoke of the importance of their relationship with the student. They recognised that it was important to create a relationship where the student found them approachable, enabling them to trust that they would be 'safe' both to ask questions of the clinicians and to contribute to decision-making. The clinicians related this idea of safety to the student feeling able to be vulnerable enough to expose the gaps in their knowledge and skills.

I think maybe the teacher sets the framework in which that person can experiment and learn safely. (C6)

Meeting the breadth of our country's future healthcare needs Clinicians were also aware of their role in contributing to the type of medical practitioner that they would like to see in the workforce. They positioned their relationship as an investment in the country's future health care by exposing students to skills appropriate for care outside of tertiary hospitals, and offering them an experience that would develop a respect for the healthcare service provided by these clinicians in decentralised sites.

... ultimately I want my hospital staff, ultimately I want staff, empathic doctors who have a good sense of self-control, a good sense of self, are resilient, wise practitioners. I think that's what I am looking for, wisdom and experience and introspection ... I'm trying to do that, but it's also, from an idealistic point of view, I think that's how a good person should be, so I'm trying to make everybody into that person. (C6)

Doctors need to be trained in the district facilities. That is where doctors need to be trained. ... They need to see TB, they need to see HIV, they need to see COPD, they need to see asthma attacks, they need to see uncontrolled diabetes. That is the thing that they need to see, and if I think, if I only could learn those conditions and I learnt them well, I would have been a much better doctor. ... they will have respect for that doctor sitting in the periphery. (C2)

Students need to engage in the work done by the clinical team The respondents felt that, in order for teaching to happen, the student must work with the clinical team. This reciprocal relationship involved giving the student clinical responsibilities and acknowledging the student's contribution to the team's diagnostic reasoning, problem-solving and learning with regards to patient care.

Often I am doing things and I think this would be nice for a student to see, but they are nowhere to be found [sic], and I'm not going to now go and call a student or whatever. They must just be around and absorb. (C5)

Medical school's relationship with the clinicians: Lack of information with regard to clinicians' responsibilities There was minimal or no orientation of the clinicians, which left them in doubt about what was expected from students and what the intended learning outcomes were.

... just to know what the vision for the university is, for this institution, for the students, I'd love to get on par, just to make sure that I'm still on the right track. (C1)

Ideally I would want to know exactly what is the expectation ... and to have clear guidance on it. I think it's a problem, because I don't think the departmental guys all have a clear understanding of what that is, you know. I don't think everybody is on the same page as to what the required standard is ... we need to understand what they need to know. (C7)

Clinician teachers seek recognition for the contribution they make The respondents thought that the medical school was not really recognising the magnitude of what it was asking of them and was not offering them support to do the job.

I feel like the university needs to get off – I almost want to say – get off their throne, and come here and say we need to train medical students, how are we going to make this happen that we support you so that you can still render your service, but that you can train our doctors because we need you to train our doctors. We need you to train our doctors. (C2)

I didn't feel any support at all from the university. I did get a lot of jobs from the university, but I felt no support. (C6)

Should be opportunities for two-way communication about students Clinicians at more geographically dispersed sites felt they did not have channels of communication that could be used for receiving information regarding students arriving for a rotation, or for expressing concerns about students currently in a rotation with them.

Actually, one of the things, and it's probably bitterly unfair to say this, but to know what to expect when your student walks through the door. It's probably unfair in a lot of senses, but if you know the student coming is borderline, it changes your expectation. (C7)

... the channels for feedback should be more obvious, and more laid down so that ... feedback, sometimes subjective, sometimes objective, but feedback about the students to the university, I think is also important. (C5)

Clinicians want to co-create curriculum In terms of relevant curriculum content, clinicians expressed that, as the training platform had expanded into different contexts with different case mixes, the consequences should be incorporated into re-aligning the curriculum.

... being able to sit down and be part of the planning discussions ... to also be seen as a valuable member of that team, and to be able to bring some of my varied experiences to that, and have them open for that. (C5)

Responsibilities

Students must take the responsibility to learn Clinicians seemed to feel that creating an environment of trust

and approachability would allow them to put responsibility for learning in the student's court. They expressed that students needed to take responsibility for their own learning in the clinical environment. This was often expressed as the student needing to be able to come forward to ask questions. There was a sense that answering questions posed by the student was a way to meet the student's needs without needing to 'teach' in the context of their own busy patient schedule.

The other thing I tell them when they arrive here, I say listen here, see me as your friend, I want to teach you something, what I want, but it depends on yourself. Not on me. (C3)

... putting the ball in their court, that they are going to learn as much as they are willing to learn, and the more they ask questions, the more people are going to think they are keen to learn, and the more people will actually remember to call them for specific clinical scenarios ... there is a measure of responsibility that comes from the student's side as well ... so there has got to be a drivenness [sic] in the students as well. (C5)

Clinicians want feedback about whether they are doing the 'right' thing: Clinicians wanted to know that they were doing what was expected of them, but had not been given any information about whether they were doing what was required concerning teaching.

I would like to know if the Faculty is happy with how I'm doing it. Not with me, how I'm handling it. That's all that I want to know. (C3)

We never get that feedback [how the students do in their exams], and we would really appreciate it, because it would help. (C8b)

... give me a more secure sense of actually, are we on the right track, at least with these pre-graduate students ... and is what I'm doing still the right thing. (C1)

This uncertainty seemed to underlie a willingness to have their clinical teaching evaluated by their students. While clinicians referred to how challenging it might be to receive this sort of evaluation, there was a strong desire to improve their teaching practice by being informed of which areas required attention.

I prefer to think of myself as somebody that can take criticism and I actually prefer to know if I'm doing something that is either wasting somebody's time or that is not correct. So even though it might be a bitter pill to swallow I'd prefer to rather know that than to continue on with my own stupidity. (C4)

Resources for clinicians

Turn to mentors as a resource: In general the participants would turn to people they recognise as mentors to discuss issues around teaching or in responding to student evaluations.

... otherwise if you are aiming towards teaching, teaching, or helping me to learn how to think, I think I'm more like a questions based person, so if I have a question, I would like to have somebody that I can go to. Usually I will have another question and another and another, so it's nice to be able to have somebody that actually has time sometimes to speak with you for a sort of longer period of time, and that will ask you your blind spot questions. There is so much direct learning, but obviously you are going to have those blind spots. So somebody else kind of pinches you in your blind spots. (C6)

I find that mentorship is not something that we stress enough, and we almost kind of are afraid of that. I mean, even if I tell XXX you are my mentor, he will kind of, not really, you know. For me it's extremely important. He actually needs to understand how important it is for me, and actually take the responsibility of that. (C2)

I would definitely discuss it with people that are more knowledgeable, people that are also in the teaching business, especially medical teaching, like you, with XXX or someone. I would ask them "listen, is there no possible way that I can actually improve my own skill?" (C1)

Wish to belong to a network of clinician teachers: The participants expressed the need to belong to a group where issues related to clinical teaching could be discussed and where they could strengthen their teaching skills.

... that kind of more formal networking system and almost debriefing system and community, like sense of community and team that comes out of those kinds of contact sessions together, is also very valuable, and it definitely did have an impact on the teaching we received as well. So I think it's a very valuable model. (CS)

These findings show that these clinicians intuitively grasp the social aspects of learning: they are keen to contribute to students' learning, particularly if students take an active role in participating in the clinical work; and they want to do 'the right thing' as clinical teachers. The participants embrace having students at their facilities, seeing this as a way to keep themselves up to date with clinical advances, but also as an investment in the future, making a contribution to teaching the sort of graduates that they would like to employ or work alongside in the future (relationships). They strive to provide a good 'experience' for the students through which the students will respect the service provided at the facility and may consider rural practice as a career option. However, they also indicate that they would like a stronger relationship with the medical school, expressed as first being acknowledged for their contribution and creating opportunities for them to become more effective clinical teachers, and second as a desire to both contribute to curriculum re-alignment and have a voice in student evaluation (roles and responsibilities). In addition, when needing advice or mentorship concerning clinical teaching, they would turn to trusted clinical colleagues and mentors (resources).

Discussion

The findings from this research suggest a need to explore creative responses to issues not traditionally dealt with in faculty development initiatives: relationships, responsibilities and resources. We argue that these three Rs should be foundational considerations when faculty developers consider how best to assist emerging clinical teachers. In her commentary on McLean et al's Association for Medical Education in Europe guide on faculty development¹⁵, Lieff calls for us to consider the critical issues of context and design when implementing faculty development initiatives¹⁶. The authors have explored a context that is assuming a more prominent position in medical education where emerging clinical training environments are geographically distant from the central medical school. In 2002, Worley proposed a model¹⁷ of relationships that were key to enabling high quality, community based education for medical students. The research presented here seems to take his proposal that 'relationships do matter' further by finding that relationships also matter for the clinician teachers in community based education. In this case, the desired relationships extend beyond students, to their clinical peer support network and the university faculty. Findings from a self-administered survey asking rural general practice preceptors in Tasmania about their educational needs, were very similar to the present study's findings, in particular the desire for contact and communication with university staff and to have a role in the curriculum¹⁸.

Traditional faculty development activities that are designed to 'teach' relevant pedagogical knowledge and skills are still necessary, but they may no longer be sufficient for clinicians in these contexts. Such practices may need to be extended by specifically designing for a process of engaging existing networks of clinical practice so that pedagogical expertise can be vested within a group that already access each other's expertise for clinical support. While this is not necessarily viewed within the traditional remit of faculty development, it can be seen as an organisational re-alignment that talks to Steinert's call for creation of communities of practice¹⁹ and Lieff's reminder that as faculty development initiatives are organisational development initiatives, we are required to create shared ownership in order to be successful¹⁶.

Senge's work on learning organisations²⁰, Wenger's work on communities of practice²¹, Eib and Miller's article on faculty development as community building²², Sherbino et al's depiction of the evolution of a community of practice amongst a group of clinician-educators²³, van Schalkwyk et al's article describing the need to create spaces for academics to flourish as teachers²⁴, and others, have relevance in this context. They all advise that effective design of faculty development initiatives needs to include deliberate attention to development for those who participate, and opportunities for membership of communities of practice with ongoing relationships where participants can continue to engage with people they know and trust. When dealing with clinicians who are geographically dispersed, this becomes of even greater importance as they have limited access to medical school resources. The participants in this research did not see faculty developers, or teaching modules, as where they would turn to if they needed advice. They identified their most likely resource as their own social learning environment. This may suggest that faculty developers should consider designing new methods that include entering

and working with the social system that the clinician already feels part of and turns to for support. Strengthening the network of clinical practice's pedagogical knowledge and skills would develop a resource to which members of the social system would feel able to turn for ongoing advice and encouragement.

For a relationship to be sound, identification of responsibilities is crucial. In embracing the teaching that had been delegated to them, participants voiced a need for medical school to take responsibility for letting them know if they were indeed doing a 'good enough' job and to identify where they might be able to do better. In the presence of a nascent relationship with the medical school, this is an important responsibility that the medical school needs to accept. All teachers appointed at a medical school should be informed of how they will be evaluated by students. Faculty developers could play a role in informing clinicians of the results of that evaluation and offering further directed opportunities to strengthen any identified areas. This could serve to build a rewarding relationship between the medical school and their clinical teachers. It could provide the mechanism for acknowledging a job well done, as well as allaying uncertainties about the value of their current practice. Ensuring that the clinicians receive feedback about how they are doing in terms of medical school requirements, student evaluations and student performance would provide powerful input for directing their enthusiasm with regards to becoming better teachers²⁵.

In his research, Billett considers the pedagogic practice most central for learning effectively in practice settings to be direct guidance by experts, who can use particular strategies to support the learning of particular kinds of knowledge, and utilisation of workplace activities that are inherently pedagogically rich⁴. The participants in this research function well as experts guiding the students and they have intuitively grasped that the student's engagement in workplace activities is how learning may occur. Missing from their accounts was any mention of 'particular strategies to support the learning of particular kinds of knowledge', such as the strategies that are included in most faculty development for clinical teaching (eg feedback)¹⁵. One suggestion could be for specific evaluation tools to be incorporated into the medical school's quality assurance of clinical teaching. These could then be used to meet the need expressed by participants for feedback on their performance as well as to hone offerings by faculty developers to address any particular developmental needs that arise.

An additional issue is less related to faculty development as such, but is related to relationships. The present study's findings indicate that these clinicians would value being involved in the co-creation of a curriculum that would take into account the strengths and constraints of their clinical training platform. Frenk et al⁶ suggest that instructional reform calls for consultation between the education and health systems to deliver relevant medical education. This could be an opportunity to utilise the important perspective of those embedded in this different sphere of health care to deliver on the imperatives that led to extending the clinical training platform in the first place – namely strengthening the district healthcare system and preparing graduates for practice in contexts of primary and secondary care.

There are limitations to this work. This is a relatively small cohort of clinicians. The interviews were conducted by a family physician who had a role supporting some of the participants in their clinical teaching. All but two of the participants knew that the interviewer was working in faculty development. Despite this, the participants seemed able to express less positive opinions of the faculty around, for example, communication and acknowledgement. Six of the clinicians had completed a module on teaching and learning during their specialty training, and the group had varied exposures to the faculty's educational development activities. These findings could therefore be seen to represent the best outcome of the faculty's existing activities to strengthen clinical teaching.

Conclusion

In order for a medical school to be satisfied that the clinical teaching that it has delegated to clinicians at distant sites is as effective as possible, methods need to be found to engage with clinicians where they are as they seek ways of strengthening their pedagogical skills. McLean et al¹⁵ and Lieff¹⁶ refer to faculty development as change, requiring an open, conducive organisational culture of learning and responding to local individual needs. Faculty development initiatives have largely focused on those teaching within the physical spaces of a medical school. As the needs of emerging clinician teachers are identified, particularly those at geographically distant sites, that focus may need to broaden, embracing the interdependence of the health and education systems (as Frenk suggested⁶) to optimise clinicians' existing clinical social systems. Wenger describes increasing the learning capability of social systems by providing genuine encounters among members where they can engage with their

experience of the practice while attending to the social dynamics of that space in an effort to maximise learning capability²¹. Worley's assertion that relationships do matter¹⁷ seems to have been validated in this group of clinicians. Clinicians' desire for engagement seems to mitigate the professional isolation felt by many rural practitioners as shown in the literature on clinical continuing medical education programs for rural doctors²⁶. This would suggest that faculty developers consider entering into existing social (professional) systems as mediators of learning capability and utilise a set of skills that may not traditionally be associated with the field.

The authors do not minimise the need to teach clinicians specific teaching strategies relevant to their workplaces. However, it is suggested that, in aiming to reach emerging clinician teachers in geographically distant contexts, there is a need for faculty developers to overtly utilise existing professional systems and design programs that attend to the foundational three Rs: relationships, responsibilities and resources.

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6.2 MEDICAL STUDENTS' EXPERIENCE OF CLINICAL TEACHING

This component of the research was conducted to explore how medical students experience clinical teaching.

Earlier iterations of this research were accepted as oral presentations at

- The 9th South African Association of Health Educationalists conference held in Port Elizabeth, South Africa in June 2016 as “Whose responsibility is it to cultivate students' agentic capability for learning in the clinical environment?” [5825]
- The Annual Scientific Meeting of the Association for the Study of Medical Education (ASME) held in Belfast, Northern Ireland in July 2016 as “Whose responsibility is it to cultivate students' agentic capability for learning in the clinical environment?” [Paper 471]. Unfortunately this was not presented as I was unable to travel.
- The 4th International Conference on Faculty Development in the Health Professions held in Helsinki, Finland in August 2017 as “Should faculty development include how to foster students' agentic capability for learning?” [2C3]

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Blitz J, De Villiers M, Van Schalkwyk S.

Designing faculty development: lessons learnt from a qualitative interpretivist study exploring students' expectations and experiences of clinical teaching.

Title page

Designing faculty development: lessons learnt from a qualitative interpretivist study exploring students' expectations and experiences of clinical teaching

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Abstract

Background

Clinical teaching plays a crucial role in the transition of medical students into the world of professional practice. Faculty development initiatives contribute to strengthening clinicians' approach to teaching. In order to inform the design of such opportunities, we thought that it would be useful to ask senior medical students about their perspectives on how learning during clinical training could be strengthened.

Methods

This qualitative study was conducted using convenience sampling of medical students in the final two months of study before qualifying. Three semi-structured focus group discussions were held with a total of 23 students. Using an interpretive approach within social learning theory, the transcripts were analysed looking for underlying meanings and then grouped into themes.

Results

Students saw clinical rotations as having the potential for them to apply their knowledge and test their procedural abilities in the environment where their professional practice and identity will develop. They expected engagement in the clinical workplace. However, they described their experience of the environment as not always supportive of clinical learning.

They appreciated that learning required them to move out of their “comfort zone”, but seemed to persist in the idea of being recipients of teaching rather than becoming directors of their own learning. Students seem to need help in participating in the clinical setting, understanding how this participation will construct the knowledge and skills required as they join the workplace. Students did not have a strong sense of agency to negotiate participation in the clinical workplace.

Conclusions

There is the potential for clinicians to assist students in adapting their way of learning from the largely structured classroom based learning of theoretical knowledge, to the more experiential informal workplace-based learning of practice. This suggests that faculty developers could broaden their menu of offerings to clinicians by intentionally incorporating ways not only of offering students affordances in the clinical learning environment, but also of attending to the development of students’ agentic capability to engage with those affordances offered.

Keywords: Faculty development; Clinical teachers; Student experience; Agency; Engagement; Workplace-based learning

Designing faculty development: lessons learnt from a qualitative interpretivist study exploring students' expectations and experiences of clinical teaching

Background

In the clinical environment, education had been called a 'black box' because so little was known about what, how, and under which conditions students learn in this context [1]. However, this is where students learn what it means to be a "real doctor" [2] with opportunities to apply their newly acquired medical knowledge to patient care [3]. Learning in the clinical setting constitutes an important part of the medical curriculum, particularly in the senior years when it is seen as the culmination of preparation of the student for internship and a prelude to independent practice. Undergraduate medical curricula, therefore, are often rounded off with a student internship (clerkship) as the final phase. This liminal space [4] provides the opportunity to make use of the support and supervision characteristic of being a student, while learning the tasks and responsibilities that will be required after graduation. In order to use the opportunity optimally, the student is required to adapt their way of learning from the largely structured classroom based learning of theoretical knowledge to the more experiential informal workplace-based learning of practice [1, 5].

Billett has developed an argument around what might be necessary for learning to happen in the workplace. His work has progressed from a call for practice settings (and not only educational institutions) to be legitimated as environments which make a contribution to the learning of people who participate and learn in them [6], through recognising that support of that learning is mediated by the kinds of activities in which learners engage [7] to an understanding that this requires learners to utilise everyday work activities as pedagogically rich opportunities [8]. The emphasis on the social nature of learning emerges clearly in his thinking. As learning requires the learner to be involved and consciously engaged, the priority in creating learning in the workplace becomes the supervisor's ability to promote effective engagement; the clinical supervisor needs to afford the learner the opportunities [9]. The similarity with situated learning can be seen through which participation in meaningful work facilitates the learner joining the community of practice [10]. This is where the specific learning potential of the student internship lies.

Although many clinical teachers are enthusiastic and can be assumed to have clinical competencies, they may lack the knowledge of educational principles and teaching strategies (communication, adult learning principles, use of new information technology, etc.) to use in a

healthcare system that may be quite transformed from that in which they were trained [11, 12]. Research has shown that performance of students is related to the competence of their teachers [13]. Dornan's [9] and Billett's [14] work suggests that the way clinical teaching is carried out will have consequences for how students learn and understand, with implications for whether the student is fully able to benefit from their clinical training time [15, 16]. All this points to the need to support clinical teachers in this particular teaching role.

This article presents one of four components of a situational analysis of clinical teaching which would inform strengthening of faculty development initiatives for clinical teachers. This component, set out to understand students' perspectives on their expectations and experiences of clinical learning.

Methods

As the goal of this study was generating rich perspectives on the experiences of students, a qualitative approach was chosen within an interpretivist paradigm [17, 18].

At the time this research was conducted, the researchers had various responsibilities for contributing to the quality of clinical teaching provided by this faculty: JB is a family physician who was responsible for educational capacity development; MdV is a family physician who was responsible for quality assurance of undergraduate education; SvS is an educationalist contributing to the professionalisation of health professions education. We have been involved in a variety of research projects looking at a range of aspects with regard to the educational impact of the faculty's Rural Clinical School on the academic programme, staff and students [19-21]. None of us were involved in the teaching programme of these students.

At this institution, each class of medical students is randomly divided into four groups (approximately 50 students per group) for the last eighteen months of their programme, to do rotations (clerkships) in a number of clinical disciplines and at a variety of clinical teaching sites, some of which are outside the traditional teaching hospital. This research was conducted in the last two months prior to their graduation. By that point in time the class was completing their final rotation and would therefore all have had a similar range of experiences across the clinical training platform. Convenience sampling was used to identify students in three rotations that were accessible at the time planned for data collection. All students in these rotations were informed about the research by the researcher, given informed consent forms and requested to return completed forms to the research assistant. Those students who gave consent were then

invited to participate in a focus group discussion with the other consenting members of their rotation group. This method was used in order to explore students' "attitudes and perceptions, feelings and ideas" [22] about the topic of clinical teaching in the company of fellow students whom they knew.

Three focus group discussions were held with a total of 23 students (8 males, reflecting the demographics of the faculty's student body) and facilitated by the lead researcher. The discussions lasted between 70 and 80 minutes. An interview guide covered the following areas which the researchers thought would have the potential to inform ways of strengthening clinical teaching (see Additional File 1 for prompt questions):

- how student interns experience clinical rotations, in particular what they identify as clinical teaching;
- what clinical teaching practices they consider to have been of the greatest benefit to their learning;
- suggestions that they have for the improvement of clinical teaching.

In order to promote trust and confidentiality, individuals were not identified by name, only by a letter of the alphabet. Participants in the focus group discussion agreed to maintain the confidentiality of the discussions. The discussions were audio-recorded and then transcribed verbatim. The transcriber signed a confidentiality agreement. Ethics approval was obtained from the Stellenbosch University Health Research Ethics Committee (#N14/08/097).

Following an interpretive approach, thematic analysis was performed [23, 24] inductively using Atlas.ti to obtain a clearer understanding of the students' perspectives on how clinical teaching could be strengthened. Braun and Clarke's suggested criteria for good thematic analysis were used during both coding and analysis phases. Trustworthiness and credibility were attended to [17] by addressing craftsmanship; iteratively checking, questioning and theoretically interpreting the findings. The initial coding and generation of themes was done by JB. MdV and SvS each read one of the transcripts and as a team we then discussed and reached agreement on the final themes. While analysing the data we continually referred to how the findings would impact on faculty development initiatives to strengthen the teaching role of clinicians – the action that would result from the research.

Results

We set out to explore students' experience of clinical teaching for the purpose of informing faculty development initiatives. In the process we discovered several examples of tensions between those experiences and what students stated as having been their prior expectations.

Students expected teaching to be a component of all doctors' (including registrars') obligations, but experienced that not all clinicians embraced this professional role.

I feel like the whole concept that medicine is sort of taught from the most experienced downwards, it's the best way, and I think that some people don't think about it that way. ... So "I am here to get my degree and I don't care about anyone that is rotating under me, or the gap that is forming in their knowledge because I'm not willing to give some of my time" [voicing a perception of the registrar's attitude]. That mentality to be able to give back because you have been privileged enough to get is not present in all.

[F]

Students had thought that they would learn by seeing clinicians in action, but such occasions did not necessarily translate into learning opportunities.

I also think it's kind of rushed. So even if you get to sit in with the doctor during clinic for instance, again, they're not doing things systematically. They are doing things by [sic] their own, so it's not exactly a good place to pick up.

[FS2]

Students found that despite identifying the need to do so, they were not always invited to join a clinical team or given responsibility.

... immediately with that first contact you can tell if they're like ... "just go and work there", or if they say "hey, welcome to the team, we work in this, this and this ward, can you see patients there, if you have any questions come to me". It's very different.

[FS]

[being part of the team] gives you confidence, and you need confidence to be out there on your own, in your abilities and your skill.

[FS2]

I think the one doctor where we learnt the most is one where he gave us a patient, told us go across the corridor, see a patient on your own, call me when you are ready, and by that time we would have discussed everything that might be a possible diagnosis, read up about everything. We are not going to be asked a question and not be able to answer, and then afterwards he will teach us and give us practical tips, like pearls. ... I think that is also, that comes in with being thrown into the deep side, being a little bit uncomfortable. Like you don't really know what you are doing now, but it's still a safe way of not knowing what you are doing. ... Because it's very easy to stagnate behind the doctor's back while he's doing the work and you are just like trying to read what he is writing. I don't think that is the optimum way to learn in the hospital. I think it's by being in the frontline. ... It's almost like he gave us responsibility for that patient.

[E]

Although students anticipated that they would have opportunities to apply their knowledge to real patient care, clinicians did not always have the time to explore students' clinical reasoning.

I feel that in hospital, in bedside teaching, ward rounds. ... It's as if it is integrated, because you can see the pathology lying there, and then they often teach you an approach like you can divide the causes up into a few groups. So then you learn to think about stuff in a logical and structured way, and that way you remember it. You are not going to remember it by regurgitating a list over and over and over.

[E]

take you right from your whole presentation, why are you saying this now, why you say it here. So really help you sort of construct a nice approach to how to present a patient, and then to go and get you to examine the patient in front of them. How do you check for that reflex and why do you say this, and listen here. Not every time, because it is time consuming, but maybe just once a week to try with each student.

[O]

Students expected feedback on their performance, but reported that they were very seldom observed and even less often given feedback.

there is just too little time. The physicians or the surgeons or whatsoever don't have all the time to observe. ... they will send the intern with you. The intern is also qualified, they can do it, but you don't get the expert watching you do it.

[A]

I want somebody to teach me the things that I don't know, or the things that I am missing, or to correct my ...

[FS]

... they don't always know that we are okay if you tell us that you have done the wrong thing. That's fine, just tell me what to do. It's like you don't want to step on toes, ... It's not harmful to us, it's fine, we're okay, but just to give doctors that permission that they can tell students and redirect, that's fine.

[V]

At least explain why this is wrong.

[H]

Students found the complexity of clinical care frustrating and resorted to wanting the “answers”.

In the beginning I felt so frustrated, because whenever you ask them a question, they give you a question back. ..., what I mean is you want an answer because you think that that is the best way. You want an answer. What are the causes? This is the list, you want that answer.

[F]

... it's so much more useful to get an answer from the doctor that exactly knows, that has been through all of this a thousand times before, to make sense of it and now give it to us.

[D]

Despite expecting that clinical teaching was about “doing”, students found it difficult to ask to be taught in the clinical environment.

... if they are all busy and running around, ... you're not going to be like oh, can you please sit down and talk about something.

[O]

You don't want to inconvenience anyone.

[N]

because I don't know you and it's the first time I'm working with you, I am intimidated and I see you as I'm just going to be an irritation, so let me rather reserve myself until you maybe come forward or offer to teach, and then only will I be willing to ask.

[I]

I always feel guilty asking the doctor to spend extra time with me now to go and practice or do this thing, because I know it's going to take him twice as long, and it might hurt the patient more if I try it the first time. It's a difficult place to be.

[G]

Clearly, there was a mixture of experiences – for some individuals their experience had been of met expectations, reinforcing their beliefs that these were indeed reasonable expectations. However, we also heard of clinical experiences in which expectations were unmet, playing out as tensions between actual experiences in the light of preceding expectations (Table 6.1).

Table 6.1 depicts tensions between students' experiences and expectations

Students experience was that ...	only selected clinicians were enthusiastic about teaching responsibilities,	despite having expected that ...	skilled teaching is what professionals should do.
	they seldom have the opportunity to observe clinicians in action,		there would be opportunities to do so.
	it isn't always easy to become a member of the clinical team,		they would join clinical teams.
	clinicians did not have time to interrogate clinical reasoning,		this was the time when they would be able to test their clinical reasoning skills.
	they are very seldom observed and even less often given feedback,		they would receive corrective feedback on their performance.
	the complexity of clinical teaching was frustrating so they prefer to be given the "correct" answers,		learning would be facilitated by being given responsibility for patient care.
	it is difficult to ask for teaching,		clinical teaching is about opportunities to "do".

Having found these tensions we returned to the data looking for how students had responded to that tension between expectations and experience.

Students realised that learning was often accompanied by being a bit uncomfortable.

At the end of the day, it comes down to you remain the student. There is nothing you can do about it. ... be aware of the fact that we are sometimes scared to approach them.

[L]

... it will make it more comfortable for us to be willing to ask questions, even if we feel like the doctor isn't approachable. It will put us in a situation where we can.

[I]

So you've just got to sort of grow.

[O]

However, they also acknowledged that as they approached graduation, they forced themselves to be involved, realising there was a real need to be able to “do” as they started anticipating their role as an intern.

Now in final year, I don't mind volunteering. ... We're just a little bit more experienced and mature and confident. ... I think something that plays a role is the fact that we know that in a few months' time we will be doctors, and we need to do it, so you start actually actively biting the bullet and trying to do it.

[E]

Students did not always recognise the opportunities for learning inherent in everyday clinical tasks.

Some of the doctors on the ward rounds like literally just want us to tag along behind them to do the bloods and take it to the lab, or fill in the x-ray form, whenever they still had x-ray forms, take it to x-rays or whatever, and you don't learn anything.

[H]

... at the end of the ward round you come to your patients and you are so bored out of your mind because this is the fourth hour of your ward round. So, that I find works better, where

you are told listen, everybody needs to present one patient and make sure it's at the beginning of the round.

[FS]

However, some students came to the realisation that they could be more active in their learning

So basically bottom line there is still a great deal of self-responsibility in the clinical setting on the student yourself.

[A]

It's like you are not just given information. You actually have to think for yourself as well. You have to find it, you have to create a response to this.

[H]

I feel individually you need to learn to do this because one day you are going to be on your own, and there is not going to be anybody out there to help you, so you need to learn. So you need to take the opportunity yourself to do the procedures. But I don't think all students feel that way, and I don't think all students do that.

[FS2]

Of interest to us was that despite well-articulated expectations that were not always met, students did not express a sense of agency to be able to shift their clinical experiences to meet these. The descriptions indicated a degree of passivity, a dependence on doctors to teach them and a low sense of agency. While they appreciated the value of responsibility for patient care, they were waiting for it to be given, rather than setting out to take this on. They referred to calibrating their learning by wanting the teachers to probe, question and check on them, rather than being able to ask for feedback, to self-assess or ask peers to assess. The “difficulty” of the clinical environment was aggravated by uncertainty, challenges in developing relationships with clinicians and a lack of clarity in their minds as to what clinicians’ responsibilities were with regards to teaching. Their approach to learning, seemed to be waiting to be taught, waiting to be given opportunities, wanting to be given the “right” answers, and wanting their days to be given structure.

As graduation looms, some students realise the need to be more assertive about ensuring they acquire the knowledge and skills necessary to be able to function independently in their internship.

Discussion

The aim of this study was to understand students' expectations and experiences of clinical teaching and what this means for strengthening faculty development initiatives for clinical teachers. Our initial analysis discovered a tension between students' prior expectations and their experience of clinical teaching. With a view to exploring what this might mean for faculty development, we returned to the data to find how students resolved this tension. This led us to finding that a few of the students exercised agency in deciding to brave the discomfort of participating in clinical activities to become more active in their clinical learning. In this discussion, we explore the notion of personal agency, in particular the role that faculty development for clinical teachers could play in encouraging students to engage with clinical learning opportunities.

In the final phase of training, medical students encounter a liminal space between the structured, systematic, less ambiguous space of classroom learning (student) and the uncertain, chaotic and opportunistic space of workplace learning (intern). Successful transition across this space is an important part of the journey to becoming a clinician. In this study, students were interviewed just prior to graduation, thus having had exposure to a variety of clinical teachers in a number of different disciplines and a number of different clinical settings. Their descriptions of how clinicians approach teaching in the clinical environment differ little from experiences described in the literature on perceptions of clinical teaching [25, 26]. Students expected that clinical rotations would have the potential for them to apply their knowledge and test their procedural abilities in the environment where they would soon be exercising their professional practice and identity. However, they experienced the clinical environment as not supportive of clinical teaching, feeling that teaching is secondary to clinicians' focus on patient care and that teaching was opportunistic, insufficiently structured and not skilfully delivered. Students appreciated that learning requires them to move out of their "comfort zone", but seemed to persist in the idea of being recipients of teaching rather than becoming directors of their own learning.

We suggest that if students are to experience the learning space of the clinical environment, as one in which their expectations of participation can be met and their learning optimised, they may need assistance in developing their ability to engage. To facilitate this engagement they need to both understand their personal way of constructing knowledge, their beliefs about knowledge and knowing, and to develop their agentic capability. In understanding our findings

in relation to the design of faculty development to strengthen clinical teaching, we draw on the work of Bandura, Billett and Dweck.

It seems that the students in this research largely utilised what Bandura [27] refers to as proxy agency where they depended on the clinicians to act in their best interest by directing their learning in ways that would enable the student to graduate. Social cognitive theory suggests that the intentional action which students take to make learning happen depends on their beliefs about what capacity they have to exercise control over the nature and quality of their life. Bandura [27] also refers to two other modes of exercising agency, namely direct personal agency and collective agency exercised through socially coordinative and interdependent effort. In terms of faculty development initiatives, it seems as though it may be worthwhile to consider ways in which the students' direct personal agency could be encouraged by clinicians. In addition, the prospect of socially coordinative and interdependent agency speaks to students being enabled to join teams and the purposeful creation of environments conducive to learning where the interdependence of clinicians and students is recognised and utilised.

In this research students' expressed expectations of participation in the clinical environment, but experienced that the affordances to do so were not always offered. This challenges faculty developers who are assisting clinicians to enable students' learning for professional preparation, to include both the offering of affordances for student engagement, but also the promotion of students' exercise of agency for participation. Billett's socio-cultural lens [14] has taken Bandura's work further by understanding that workplace learning occurs through participatory practices. Personal factors, that he refers to as engagement (how individuals elect to make use of the opportunities afforded them in the workplace), modify this participation and therefore the student's construction of their learning.

Exercise of personal agency mitigates against the student merely being subjected to what is experienced in the workplace, enabling them to participate and construct their knowledge. Students supported to approach learning in this way are motivated because they see that engaged learning results in mastery of the knowledge and skills required of them when they graduate and join the workplace. Utilising achievement motivation and encouraging the student to develop a growth mindset [28], where intellect is viewed as not inherently fixed but able to be developed through practice, can be valuable skills for clinical teachers. It is more likely that personal agency will be exercised, enabling a student to participate in affordances that are offered.

The understanding of how to optimise students' learning provided through the interplay of social cognitive, socio-cultural and achievement motivation theories supports the importance of clinicians strengthening their teaching by developing not only students' proxy agency, but also their direct personal and collective agency. The question then arises as to how this could be done.

In their 2013 paper, Richards et al [29] outline the five factors that support medical student agency and conclude by suggesting that "medical schools need to consider equipping their students with the necessary skills to engage effectively in their clinical learning" and that "students would benefit from the inclusion of the interdependent agentic capacities to enhance their learning experiences". However, they do not suggest who should do the equipping! In our research, despite a low sense of agency, students expected and anticipated engagement. It seems clear that the role of the clinical teacher to not only offer engagement experiences (affordances), but also to foster students' sense of agency is pivotal in maximising the potential of clinical learning. Therefore, we suggest that faculty development initiatives need to more intentionally incorporate these aspects when considering how to strengthen clinicians in their teaching role.

A limitation of this study is that the interviews elicited a dominance of unmet needs. As the focus of the discussions was on how clinical teaching could be improved, it is likely that this evoked responses about what students thought was not happening; exploration of the students' positive experiences may have elicited practices that had the potential to be reinforced through faculty development offerings. These student participants were in the last two months of their programme; we did not establish the level of agency that students starting their clinical placements may have had. Further research could valuably explore the most effective ways to equip clinicians with an understanding of student agency and how to nurture it. It would be useful to establish the most effective point(s) at which the development of student agency should be attended to.

The findings of this research illustrate the extent to which students' expectations at this stage of their studies are for involvement as integral members of a clinical team. However, their experience is a struggle to position themselves for this involvement. Sometimes they even express resentment about having to engage in clinical work which takes them away from studying. This is despite recognising that it is exactly this involvement in the everyday tasks of the clinical team that will result in being invited to become a member of the team and that it is this participation that will assist both their learning and their preparation for the world of work – crossing the liminal space from classroom to bedside.

Conclusions

In their 2008 AMEE guide, McLean et al [30] suggest that in order to fulfil the mandate of medical education, faculty development must develop teachers who are genuinely committed to the holistic development of health care practitioners and to improving student learning. In considering how faculty developers can improve student learning, the perspectives of students in this research suggest that an important challenge is the need to foster personal agency in students. For learning in the workplace, clinical teachers may be best placed to meet this need. We therefore suggest that understanding the concept of student agency and its relationship to both the offering of appropriate affordances by clinicians and the acceptance of engagement by students, along with techniques and skills for developing students' personal agency, are important additions to faculty development initiatives offered to clinical teachers. Faculty developers should consider incorporating ways in which clinicians can afford all students opportunities to take ownership of their learning and demonstrate agency in enhancing their participation in a workplace learning environment.

Declarations

Ethics approval and consent to participate

Ethics approval was obtained from the Stellenbosch University Health Research Ethics Committee (#N14/08/097). In compliance with the terms of this approval, all students provided written informed consent to participate in this study.

Availability of data and material

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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no role in the in the design of the study nor collection, analysis, and interpretation of data, nor in writing the manuscript.

Authors' contributions

JB conceptualised the study, collected and analysed the data and wrote the article; SvS and MdV respectively, supervised and co-supervised the research, including substantial contributions to both conception and design, critical revision of the manuscript for important intellectual content, and final approval of the version to be published.

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Additional Files

Additional File 1 (.doc)

Interview prompt questions

Additional File 1

Prompt questions

How do you experience clinical rotations; in particular, what do you identify as clinical teaching? What is the object of the exercise of clinical teaching? Why do we have clinical teaching? What makes it different from any of the other teaching that you ever had? How often do you get a chance to actually try it out under supervision? How often has somebody actually observed you? How do you know that you are seeing the things you should be seeing? Do you ever have a chance to watch somebody else doing a history or an examination?

What clinical teaching practices do you consider to have been of the greatest benefit to your learning? Anything that you have been exposed to that has really worked well for you in terms of learning? How often were you given responsibility? How does the teaching on ward rounds happen?

What criteria do you use to evaluate good clinical teaching? How do you recognise good clinical teaching, and what is it that you judge it against? If you could create the world's best clinical teacher, what attributes would those be?

Any suggestions that you have for the improvement of clinical teaching? How do we help more clinicians to teach better? What is the one thing that you think could be done to make clinical teaching better? What would make it better for you?

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6.3 CHAPTER SUMMARY

In this chapter, I presented the final two sub-studies of the situational analysis of clinical teaching.

The next chapter offers a generative synthesis of how these findings inform the design of fit-for-purpose faculty development for emerging clinical teachers on an expanding training platform in a resource-constrained environment.

CHAPTER 7

ENABLING THE JOURNEY

"The real voyage of discovery consists not in seeking new landscapes but in having new eyes."

Marcel Proust (French novelist, critic, and essayist; 1871 – 1922)

The research presented in this dissertation was precipitated by a study that described the journey undertaken by specialists as they embraced the role of clinical teacher (Blitz et al., 2014 – Addendum A). Chapters 5 and 6 have presented the findings of four sub-studies that constitute a situational analysis of clinical teaching of medical students outside the traditional tertiary teaching hospital. This was conducted to establish in what way faculty development could assist other clinicians embarking on similar journeys. In Chapter 5, I presented findings which suggest that there is room to improve clinical teaching (5.1) and that faculty developers have not yet considered ways of reaching clinicians, particularly those on the expanding teaching platform (5.2). In Chapter 6, I presented further perspectives on the current situation of clinical teaching captured in the form of two journal articles. One article describes not only the enthusiasm of these geographically distant clinicians to embrace the responsibility of teaching medical students, but also their desire to strengthen their own teaching skills (6.1). The other presents the students' collective voice describing challenges around being able to engage in the potential clinical learning opportunities that are inherent to the clinical platform (6.2).

This chapter presents a synthesis of these four sub-study findings (Figure 7.1) in terms of the implications for designing faculty development to strengthen clinical teaching in an under-resourced context as described in Chapter 3. This research was designed (see Chapter 4) to provide a situational analysis (particularly addressing Kern's targeted needs assessment) of current clinical teaching practice at geographically distributed sites, with a view to informing a framework for faculty development for emerging clinical teachers. In order to be fit-for-purpose, it was necessary to develop an in-depth understanding of the context and the teaching practice as it is currently, identifying both strengths and areas in need of strengthening.

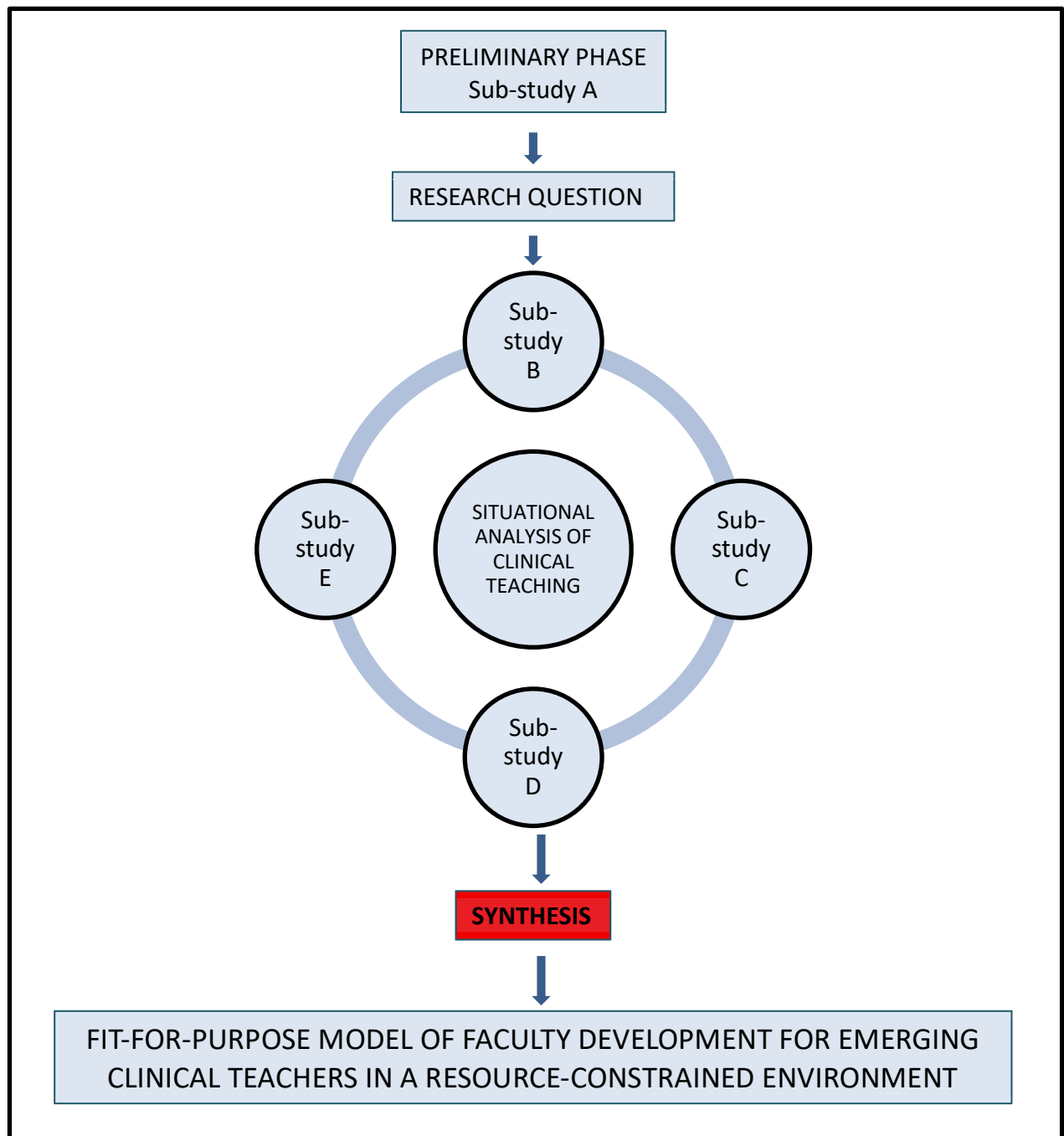


Figure 7.1: *Research design*

7.1 A SITUATIONAL ANALYSIS OF CLINICAL TEACHING

This section offers a synthesis of the findings of the sub-studies conducted in this research, presented in the form of a situational analysis.

At the time when the interviews with faculty developers were conducted in 2015, academic staff responsible for faculty development had not yet given much consideration to making changes in their practice as a response to the actual or imminent expansion of their teaching platform. If

they had, this tended to be taking existing faculty development activities to the new teaching sites, or using more blended teaching approaches for their activities (including online teaching modules and resources) in an attempt to reach out to new clinicians. Faculty development offerings aimed at strengthening clinical teaching were seldom evaluated for change in clinician behaviour, or in students' perceptions of teaching.

This seems to fly in the face of the obligation that medical schools have to attend to the quality of their students' clinical teaching across the breadth of the training platform. Ways of engaging with the clinicians to whom teaching has been delegated need to be explored. Clinicians outside the traditional teaching hospital who were interviewed in this research (section 6.1) turned to colleagues within their existing professional networks for advice with regards to teaching. While such networks would consist of clinicians of varying seniority and possibly with significant tacit knowledge of clinical teaching, there is no indication that those colleagues would necessarily have the pedagogical knowledge or skills to be of help in terms of strengthening others' clinical teaching.

The issues that dominated in the interviews with clinicians included both an eagerness and a hesitancy in the early phases of taking on teaching. Whether specialists or generalists, clinicians invited to participate in teaching students in their clinical environments generally greeted the prospect with enthusiasm and willingness. This was despite not being offered additional remuneration or any other incentives to do so. However, in the initial stages of actually taking on the teaching role, there is an early phase of uncertainty and hesitation (Blitz et al., 2014; Blitz et al., 2018) (section 6.1). Opportunities for continuity and relationship building between clinician and student, and between clinician and medical school seem to mitigate this. In the preliminary phase research with the RCS specialists (Blitz et al., 2014 – Addendum A), what seemed to assist the emergence of the clinical teacher role was the concrete support they received from the medical school with regards to taking on teaching. This support was provided in a number of ways – the RCS being recognised as an official campus of the university, purposeful faculty development activities provided at the RCS, and the liaison role played by the Director of the RCS between the specialists and the medical school and its MB,ChB programme committee. In contrast, emerging clinical teachers (either as they took on the teaching role or were giving consideration to how they would imminently be doing so) on the expanding platform (6.2) had not received such support. Their journey seemed to stall in the phase of uncertainty and hesitation.

The emerging clinicians on the expanding platform had been recruited for teaching students at a departmental level. There seemed to be less evident support from the academic, disciplinary department whose students they were teaching, than the faculty and MB,ChB programme had provided for the RCS clinicians (Blitz et al., 2014 – Addendum A). Some clinicians specifically expressed that they did not feel connected with the academic department and the medical school sending the undergraduate students, feeling that their particular perspective on patient care and the practice of medicine as it happens outside the traditional teaching hospital would add value to the curriculum were it to be considered. They thought that the philosophical reasons for expanding the clinical teaching platform (e.g. better exposure to the continuum of healthcare, more exposure to undifferentiated patients, working closer to communities, breadth of scope of practice) should necessarily be accompanied by an adaptation of learning outcomes. They wanted to be recognised by the module, or programme, for the contribution that they could make to this adaptation. They sought recognition as partners of the academic team, seeing themselves not as simply being responsible for the training of students to pass assessments, but also for making a significant contribution to the training of doctors that are even more appropriate and equipped for the country's needs.

Understanding their responsibility to the students, the clinicians were keen to know whether they were performing their teaching tasks well enough and were amenable to receiving advice and training on how to strengthen their teaching. The clinicians' views on strengthening their clinical teaching indicated that they would turn to their existing community of clinical practice for assistance with issues related to teaching. These are clinical mentoring networks; either the specialists that do clinical outreach from regional (or central) hospitals, or a more virtual network associated with patient referral pathways, or a community within their healthcare district built around postgraduate student training programmes (6.1).

Many of the clinicians seemed to intuitively seek to create a conducive and supportive learning environment, understanding that learning could be enhanced in an atmosphere of encouragement and affirmation. They could articulate this as a specific choice they had made in terms of how they approach their teaching. Despite this, they seldom involved the student actively in the work of patient care – what Billett refers to as the affordances (how the workplace provides and supports participation in work activities) that the teacher can offer in the workplace (Billett, 2002), what Sfard refers to as learning by participation (Sfard, 1998) and Strand as learning by membership (Strand et al., 2015). In rotations where the student was more immersed in the context (where they temporarily relocate for a few weeks for a rotation at a distant site and spend

the full rotation with a particular “named teacher”), there seemed to be a greater chance that the students would be given a degree of supported responsibility for patient care. In other circumstances, students would more commonly be used to provide administrative support to the clinician (find records, write prescriptions), or be tasked with clerking (consulting with the patient unobserved by the clinician) and then presenting patients (section 5.2), as opposed to observing the clinician at work (or being observed by the clinician while they consulted the patient). It seemed that as in other clinical teaching, these clinicians taught with whatever patients presented in the routine activity of patient care (ward rounds, or outpatient clinics), but with little, if any, consideration for what the teaching objective might be and with no concluding lessons learnt or identification of the student’s learning needs (5.2).

There was little evidence of students being observed while participating in patient care (5.2). As a consequence, there were almost no opportunities to assess the student’s level of competence or to give feedback on actual clinical performance, and therefore no way for the clinician to determine what support the student might need in order to move to increasing responsibility for patient care. This might have been an indication that clinicians had not considered how to structure observation and supervision of students into their clinical work, or that they did not know how to structure teaching so that these senior students could be supported to participate in work activities.

If we accept that clinical teaching is a crucial step in the medical student’s journey to becoming a doctor, then it is clear that one of the important aspects of clinical (experience-based) teaching is for clinicians to offer affordances to students for supported participation in authentic clinical work (Billett, 2016). The students who participated in this research suggested that this had quite often been disappointingly absent in their clinical rotations (6.2) and this was also largely absent in the recording of clinical teaching episodes (5.2) with no mention of this in the interviews of people responsible for faculty development (5.1). Involving students in everyday work requires clinicians to make a call as to whether the student is capable of doing that work (their attained level of experience). Clinicians would be assisted in this by both knowing the student’s capability at the start of the rotation (where they are in the curriculum, how they had fared in previous assessments) and knowing the intended learning outcomes of the rotation. Research presented here (6.1), showed that the clinicians did not feel that they were well informed regarding the outcomes and had not been consulted when those outcomes were determined.

While clinicians may develop skills in offering affordances for participation and supporting students in their workplace experience, the other side of this coin is the student's ability and or willingness to engage – exercising their personal agency (Bandura, 2006). A component of the situational analysis of clinical teaching presented in this dissertation indicated a gap in students' sense of personal agency for engaging and participating in patient care activities, through taking ownership of their clinical learning (section 6.2). The students had expected and anticipated engagement with patient care during their final year of study. However, they did not always feel able to exercise personal agency for their learning in the clinical environment, interpreting the clinician's primary duty of patient care as an impediment to his/her availability to teach. Not all students seemed to successfully transition from classroom learning to workplace learning (Peters et al., 2017). In some, there remained an expectation of being more formally taught as opposed to a realisation that stepping into the (possibly) uncomfortable place of involvement, as a willing member of the team and joining in with the tasks of everyday clinical work, is what would enable learning to happen (Billett, 2002). Students wanted to try to enter this new clinical space and generally, being so close to graduating, saw the necessity to do so. Not unexpectedly, as they are still students and developing their confidence, they expressed the need for support in doing so (6.2). They did not always perceive such affordances being made available and did not feel able to ask for them. Students recognised the potential and importance of learning in the workplace, but although they anticipated being able to participate in the everyday work done there, they seemed uncertain of what to do when not offered the opportunity to do so.

Summary

This situational analysis of clinical teaching on an expanding training platform provides elements for the design of a fit-for-purpose framework for faculty development offerings that may assist clinicians in a resource-constrained environment. I summarise this as strengths, weaknesses, opportunities and threats (SWOT) in Table 7.1. The SWOT format is often used as a tool in strategic planning. It is commonly attributed to Humphrey who used this methodology at Stanford in the 1960's (Humphrey, 2005) as it presents a situational analysis in a way that guides implementation; in this case assisting the design of a fit-for-purpose faculty development framework.

Table 7.1: Situational analysis of clinical teaching presented as strengths, weaknesses, opportunities and threats

Strengths	Weaknesses
<ul style="list-style-type: none"> • a willingness of people involved in faculty development to grapple with how to best strengthen clinical teaching on the expanding training platform, • and their strong allegiance with a local community of clinical practice, • clinicians' intuitive grasp of the necessity to create a learning environment that is supportive, • students' realisation that they need to become involved in patient care activities. 	<ul style="list-style-type: none"> • faculty development offerings are not evaluated for their impact on clinical teaching, • that clinicians feel they do not have a relationship with the medical school and their academic disciplinary home, • that clinicians do not maximise affordances for students to participate in authentic clinical work, seldom giving students supported responsibilities for patient care, • students seldom display a sense of personal agency as they shift their learning into the workplace.
Opportunities	Threats
<ul style="list-style-type: none"> • there is currently a confluence of circumstances requiring the clinical training platform to expand, which make it crucial for faculty development to address the clinical teaching that needs to be situated there, • an enthusiasm (albeit hesitant) from clinicians to become teachers and a desire to be involved in shifting curricula to accommodate adaptations that result from acknowledging the need to expand clinical teaching platform, • existing communities of clinical practice can be optimised as a resource for advice on teaching, • adding students as participants in everyday clinical work has the potential to shift the way that work is done by clinicians. 	<ul style="list-style-type: none"> • limitations imposed by working in a resource-constrained environment can seem to impose restrictions on how faculty development might be extended to a wider platform, • faculty development seldom occurs in the clinical environment, • at this point in time, the expanding platform is focused around individual "named teachers" not around clinical communities or networks.

A number of theoretical considerations assist with interpreting this situational analysis. Bandura, in his description of social cognitive theory, refers to agency as being able "to influence intentionally one's functioning and life circumstances ... to secure valued outcomes; and override environmental influences" (Bandura, 2006). Clinical teaching viewed through the lens of social cognitive theory, would suggest the desirability of enabling the student to exercise their personal agency – the clinical teacher thus needing to develop the student's intentionality, forethought, self-reactiveness and self-reflectiveness that are the core properties of agency. Therefore, faculty development should attend to how the clinician can both offer affordances, and also nurture student agency for engagement. However, agency does not manifest in isolation

from the social context; in this case, the clinical context and the relationship between student and clinician. Billett refers to workplace learning as “affording experiences with which the learner displays their sense of agency in deciding how they will engage” (Billett, 2016). Dornan’s work presents a blueprint for clinical teaching based on supported participation in practice (Dornan et al., 2014). His work characterises clinical learning as based on real patient encounters, involving affective components as well as attending to the traditional knowledge, skills and attitudes outcomes, but expanding to include study skills. This requires the clinician not only to provide students with opportunities for participatory learning, but also to support that learning. Combining social cognitive theory with theories of workplace and experience-based learning leads us to consider ways in which clinicians need to strengthen their teaching in order to deliver on the promises that these theories offer for more effective clinical teaching.

7.2 LIMITATIONS

When thinking about presenting this section, I was guided by the “reflection approach” advocated by Lingard (Lingard, 2015), which asks for reflection on the sources of uncertainty in the research and therefore the consequences for how the research then adds to the progression of knowledge in the field. This is an acknowledgement that the research assumptions that were made influenced the outcomes that were reached.

I accept that observation is fallible and has error and that all theory is revisable. This gave rise to the very real uncertainty of “knowing” when the point of “enough” interpretation of the data had been achieved; that the resulting “meaning” was the best understanding that could be reached at that point in time. It was necessary to reach a place of being comfortable that the results indicated an approximation of the truth for that point in time in the reality that was being researched. Nevertheless, coming to an understanding of that reality was what was required to be able to develop a framework that had the potential to work for current clinical teachers in this contextual reality. As pointed out by Johnson and Onwuegbuzie (2004), “Qualitative researchers are responsive to changes that occur during the conduct of a study (especially during extended fieldwork) and may shift the focus of their studies as a result.” The focus of this dissertation did not falter from its intent to shed light on how faculty development could be designed to strengthen clinical teaching.

The fact that data was largely (other than sub-study C) collected from one medical school in South Africa also warranted reflection. In this regard, the description of context will enable

others working in faculty development to determine the transferability of these results to their contexts. A strength is that this particular medical school has conducted a large amount of research since its Rural Clinical School came into being. While the RCS research was done in a setting that is similar to that used in this research, it is sufficiently different to strengthen credibility of the results presented here through both comparison with the previous research findings as well as triangulation of findings with the colleagues who conducted that research (De Villiers et al., 2018; Van Schalkwyk et al., 2014). As this research was conducted in a resource-constrained environment, the framework could serve as a resource for other faculties of medicine nationally and regionally (and possibly in low- and middle-income countries elsewhere in the world) as they bring clinicians into clinical teaching activities on their expanding or new platforms.

It could be argued that in the best of all worlds, the ideal form of data collection to determine how clinical teaching happens (sub-study B) would have been the video recording of encounters which could have been analysed or have formed the basis of stimulated recall interviews with teachers, students and patients. However, given the difficulties of gaining ethical approval for and conducting the audio recording of teaching encounters, it is unlikely that this level of intrusion into the clinical environment (and patient privacy) would be allowed. The other three sub-studies (C, D and E) depended on self-reporting as opposed to observation of actual events. Observation may have been a powerful method, but also may have exaggerated the separation of the researcher from the participants with whom the researcher did not share the clinical teaching experience (an etic perspective of the outsider looking in). The aim was not to observe and comment on the other, but to use a familiarity with the context to enable the researcher to elicit the opinions and perspectives of students and clinicians (a more emic position of the insider). The choice to use interviews and discussions was with the hope that formulating responses might facilitate reflection by the participants, which in turn might provide fertile opportunity for the co-creation of new understandings about this issue and potentially ease change management when the time came for using a new approach to faculty development. The interviews with students and clinicians focused on how things could be improved, thus they seem to have enabled participants to express disappointments and frustrations, and to have elicited unmet needs. However, this approach was less conducive to eliciting positive practices that could have been reinforced. Along with the fact that I have no data from evaluation of teaching practices, there is some uncertainty as to what current good practices are. In designing faculty

development offerings, it is worthwhile remembering to acknowledge and reinforce good practice at least as much as it is to provide new skills and challenges for participants.

In contrast to much preceding research on clinicians' teaching perceptions and practice (as described in Chapter 2), this research was not conducted with "excellent" clinical teachers, but with clinicians who were chosen opportunistically to take on teaching. The nature of the expanding teaching platform (as described in Chapter 3) meant that when this research was conducted, it largely included family physicians and not other specialists. Clinical teachers on the expanding teaching platform are frequently family physicians or medical officers, but this does give rise to the question of whether the situation may be different for clinicians from other specialties. I chose not to compare tertiary hospital clinical teachers with clinicians on the distributed platform; and therefore did not establish if a situational analysis carried out at other levels in the healthcare system might reveal different needs for faculty development. This research was based on the clinical teaching of student interns; so it is not clear what adaptations may be necessary for clinical teaching of more junior medical students and this has the potential for valuable further research.

At the time that this data was collected, the medical schools in this study did not have a system by which students could evaluate clinical rotations, for example, using one of the clinical teaching effectiveness instruments. Future research would benefit from the availability of this type of data that, apart from enriching our understanding of how clinical teaching is experienced, would also enable tracking of the impact of faculty development offerings that attempt to strengthen clinical teaching.

In spite of these limitations, the fact that this research is grounded in the reality of clinical teaching as it currently occurs in the public health sector facilities used by South African medical schools has been a first and important step in the development of a fit-for-purpose faculty development framework to strengthen clinicians in their role as clinical teachers.

7.3 FITNESS FOR PURPOSE

This dissertation set out to offer how faculty development for clinical teachers could be designed so that it is fit-for-purpose. Consideration of purpose (the reason for which something is done) includes elements of intention and also of usefulness. As presented in Chapter 2 (section 2.3.1), decisions on fitness-for-purpose are informed by three design guidelines, *necessity*, *appropriate standard* and *intended use*. There is no doubt as to the importance of clinical teaching in the

medical curriculum, this being the phase during which the student is enabled to incorporate theory into practice and develop their professional identity (as described in section 2.2). The situational analysis of clinical teaching that has been presented in this dissertation establishes the *necessity* for supporting clinicians taking on clinical teaching responsibilities, having highlighted that while clinicians may have tacit approaches to teaching, there is room for strengthening their operationalisation of social cognitive learning theories and inviting and enabling student participation (Chapters 5 and 6). International literature, albeit based in countries with a very different healthcare system and resources (as presented in Chapter 3), offers us guidance with regards to a *standard* for clinical teaching which at least provides us with aspirational goals. In this case, the *intended use* is for strengthening clinical teaching, in particular for emerging clinicians on the expanding teaching platform. Therefore considerations of fitness-for-purpose would require taking into account the context of these clinicians (Chapter 3).

It is important to note that the purpose of the faculty development proposed in this dissertation is not the creation of formal medical educators (scholarship) who may take formal leadership roles in medical education structures (Steinert, 2012a), nor the creation of clinician educators defined by Sherbino as “clinicians active in health professional practice who apply theory to education practice, engage in education scholarship, and serve as a consultant to other health professionals on education questions and issues” (Sherbino, Frank & Snell, 2014). It is however, to respond to calls echoed by clinicians and student participants in this research to more optimally use the rich learning potential of clinical teaching opportunities – to equip clinicians with the confidence and competence to step into the role of clinical teacher.

7.4 ELEMENTS OF A FIT-FOR-PURPOSE FACULTY DEVELOPMENT FRAMEWORK FOR EMERGING CLINICAL TEACHERS IN A RESOURCE- CONSTRAINED ENVIRONMENT

The situational analysis presented in this dissertation has identified the particular needs of, and for, a group of emerging clinical teachers with respect to strengthening their clinical teaching. Faculty development is recognised as a vehicle to achieve this, but taking cognisance of available resources, needs to be fit-for-purpose. This section draws on the situational analysis developed from the findings of the empirical research presented in this dissertation (Chapters 5 and 6), and outlines the implications for the design of such faculty development in a resource-constrained environment (Chapter 3). I offer four elements of a fit-for-purpose faculty development

framework that will offer a response to the situational analysis presented in this dissertation. These are:

- 7.4.1 Faculty development within communities and networks of clinical practice
- 7.4.2 Enable clinicians to offer students affordances for participation in authentic work
- 7.4.3 Enable clinicians to nurture student engagement and personal agency
- 7.4.4 Close the loop of faculty development for strengthening clinical teaching

7.4.1 Faculty development within communities and networks of clinical practice

Throughout this study, the notion of community has been key in both the literature and in the findings of this research. However, having a sense of community with a group of like-minded people is not the same as belonging to a community of practice. Steinert refers to the collegiality to be found in clinical medicine and suggests that it could be worthwhile locating faculty development within such communities (Steinert, 2010). These are *communities*, not of practice in the Wenger sense (Wenger, 1998) (see p. 40), but in the sociological sense of a social unit that has something in common (Crow, 2007). In general, such “things in common” are often categorised as common residence, interests, identity or synchronization of activities, but could also be seen as the common identity and interests of healthcare workers in their work together at their healthcare facility. Isolating and upskilling a single member of the community (social unit), through, for example, attending a faculty development offering (and perhaps shifting their identity from that of “pure” clinician), would not necessarily shift other members of the social unit into embracing the teaching role. The social practice aspect of teaching means, among other things, that the prevailing social norms of medical schools/institutions/workplaces play a large role in shaping the practice of teaching. This being the case, faculty development has an opportunity to provide clinicians with the means to address and reshape the current norms of clinical teaching that they find in their workplace (D'Eon, Overgaard & Harding, 2000). Therefore, intentional change of social practice may be expedient; for example, by creating communities of clinical teaching practice for groups of clinicians on the expanding platform which have the explicit aim of exploring shared issues of clinical teaching practice, and in so doing, creating a resource that will enable them to embrace this new role.

As suggested above, a faculty development strategy cannot work only at the level of strengthening clinical teaching of the individual (the “named teacher” of this research), or even at the level of their clinical practice social unit. Despite the fact that it is their disciplinary

academic home that has delegated to them the responsibility of clinical teaching, research presented here (sub-study D) indicates that these clinical teachers did not feel connected, or that they belonged to, this “home”. In contrast, the faculty development described in the preliminary phase of this dissertation (sub-study A), whether done so intentionally or not, supported linkages between members of the RCS communities of clinical practice and their respective academic disciplinary homes at the medical school. Supporting all the specialists at the site (community of clinical practice), also seems to have enabled them to grow into a community of teaching practice where the identity of clinical teacher was embraced (Blitz et al., 2014 – Addendum A).

Faculty development activities in South Africa have not usually addressed this relationship between clinical teachers on the distant training platform and their academic home (sub-study C). Membership in a community of clinical practice has implications for how faculty development could be offered in a way to make it not only available, but also accessible to these clinicians. In her response to the AMEE Guide on Faculty Development (McLean et al., 2008), Steinert expresses disappointment that, in general, faculty development has not moved into the workplace of the teacher where it could lead to the development of a community of practice (Steinert, 2010).

Wenger would suggest that faculty development should attend to the social dynamics of the professional group by providing opportunities for members to engage with their experience of the practice (in this case clinical teaching) in order to “increase their learning capability” (Wenger, 2000). Lieff reminds us that faculty development initiatives are organisational development initiatives, requiring shared ownership in order to be successful (Lieff, 2010). This seems to suggest that faculty development could valuably consider co-creating learning capability within such a community of clinical practice, to expand the learning from clinical practice to include strengthening clinical teaching by nurturing the shared identity of clinical teacher. This further supports the suggestion that those tasked with faculty development should enter and work within the social space that the clinician already feels part of and turns to for support (sub-study D). In so doing, they would be strengthening the network of clinical practice’s pedagogical knowledge and skills, thus developing an available resource to which members would naturally turn for ongoing advice and encouragement on both clinical and pedagogical issues. There is a sense of layering that sees each extension of community potentially offering a richer source of engagement (Figure 7.2) and more encultured strengthening of teaching practice.

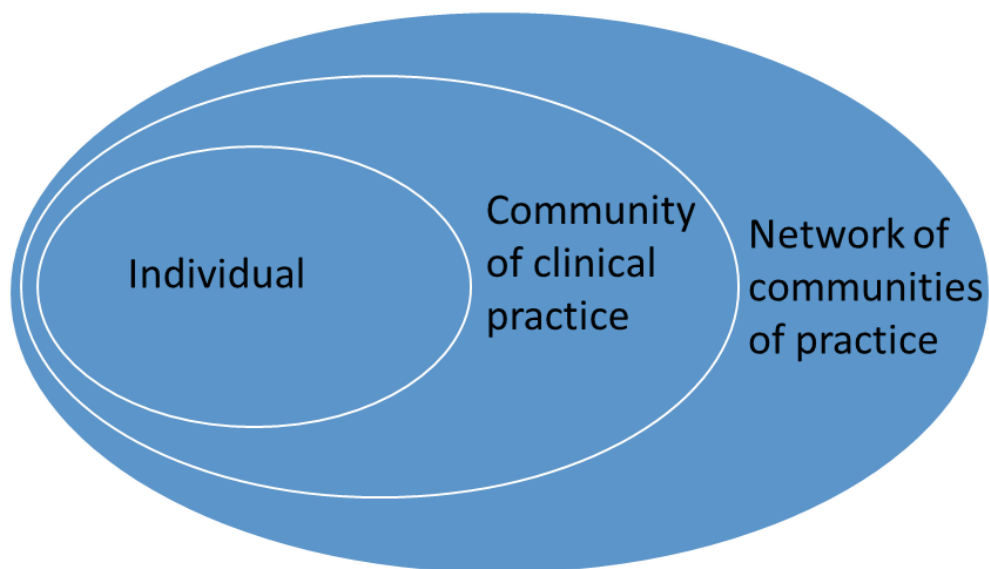


Figure 7.2: *Networks of communities of practice*

However, it is not simple to develop a community into a community of practice. A community of practice (Wenger, 1998) is an important theoretical construct (see Chapter 2) that underlies a particular model of learning, namely situated learning, in which people, through a process of legitimate peripheral participation (Vygotsky, 1978), take up membership in, and identify with, a community which serves as the home of these shared practices (enculturation). Communities of practice rely on situated theories of knowledge, i.e. the idea that knowledge is a property enacted by groups of people over time in shared practices, rather than the idea that knowledge is a cognitive residue in the head of an individual (Hoadley, 2012). However, in the particular case of emerging clinical teachers on an expanding teaching platform there is often no culture of formal learning and teaching of students, there is often no shared teaching practice into which each can be “encultured”; there is no teaching community in which each may “legitimately peripherally participate”, no role model clinical teacher from whom they can learn.

The Wenger-Trayner’s refer to the fact that communities of practice cannot be started by someone other than the members themselves as a collective (Wenger-Trayner & Wenger-Trayner, 2011). However, they do suggest that if it is possible to *create* communities of practice, this probably happens through the valuable role played by what they call the “social artist”, the co-ordinator (Wenger, Trayner & De Laat, 2011; Wenger-Trayner & Wenger-Trayner, 2012). This is a person who has the ability to develop the relationships of trust and respect that are integral to the conversations and activities required for potential members to be inspired to learn together (Wenger, 2009). These conversations could address the issues and challenges individuals are facing, establishing whether others with whom they interact face similar issues

and challenges and if they think that it could help to make interactions with those others about these issues and challenges more sustained and systematic. What often happens in the context of such conversations is that some potential members display a willingness to invest in making a community of practice happen. A dedicated core group can then be engaged in designing a process by which the community can get going, starting work on an issue and letting the process attract others.

The research presented here makes a case for a new strategy for faculty development, namely taking on the role of social artist as a way to develop social learning capability in communities of clinicians, joining them in their place of service delivery and clinical teaching to nurture an interest in strengthening clinical teaching. As has been noted much earlier in this study, clinical communities, while consisting of “qualified” clinicians, seldom have members that are “qualified” teachers. In most situations described in the research presented here (sub-study D), there is not yet a member of the community who has the expertise to facilitate the development of teaching activities, or mentor clinicians into a teaching role. This proposed move towards providing situated and contextually appropriate faculty development has the potential to mitigate the perceptions expressed by clinicians in this research of “the faculty” being too distant from the realities of what clinicians actually do in their teaching role. Would this result in clinicians feeling “colonised”? (Blitz et al., 2014 – Addendum A). This may depend on the intent. If faculty development is seen only as knowledge and/or skills transfer; the sharing of information, with “foreigners” entering a space that they do not have local knowledge of and informing people of how they could be better; then possibly so. However, if it creates value (Wenger et al., 2011) by assisting clinicians to optimise what they already enjoy doing, then maybe this could be seen as a partnership in strengthening learning through co-creation, knowledge exchange, capacity building and mutual learning towards the shared goal of strengthening the practice of clinical teaching. A faculty development strategy for clinicians on an expanding training platform should, therefore, purposefully work with academic departments, using their clinical outreach activities (prong 3 in Figure 7.3) which aim to strengthen clinical disciplinary practice across the distributed clinical platform, to also strengthen clinical teaching practice in this expanding context. This shifts Steinert’s “build it and they will come” referring to building faculty development activities that address expectancy-value issues of potential participants (Steinert et al., 2010), to “they’ve built it and we should go there” referring to people involved in faculty development strengthening clinical teaching by engaging with existing communities of practice that have already been built by clinicians.

I propose that faculty development be deliberately designed as a three-pronged approach (Figure 7.3) to address:

- individuals (1), while
- building interdependent relationships and networks between them and their community of clinical practice (2) and
- piggybacking educational outreach onto clinical outreach, to build the link to the community of practice that constitute their academic disciplinary home (3).

Those responsible for faculty development could take on the role of enabling meaningful interaction with the potential for clinicians from the expanding platform to feel more like partners in the academic process, being able to fulfil their wish to offer their perspectives during curriculum planning and assessment.

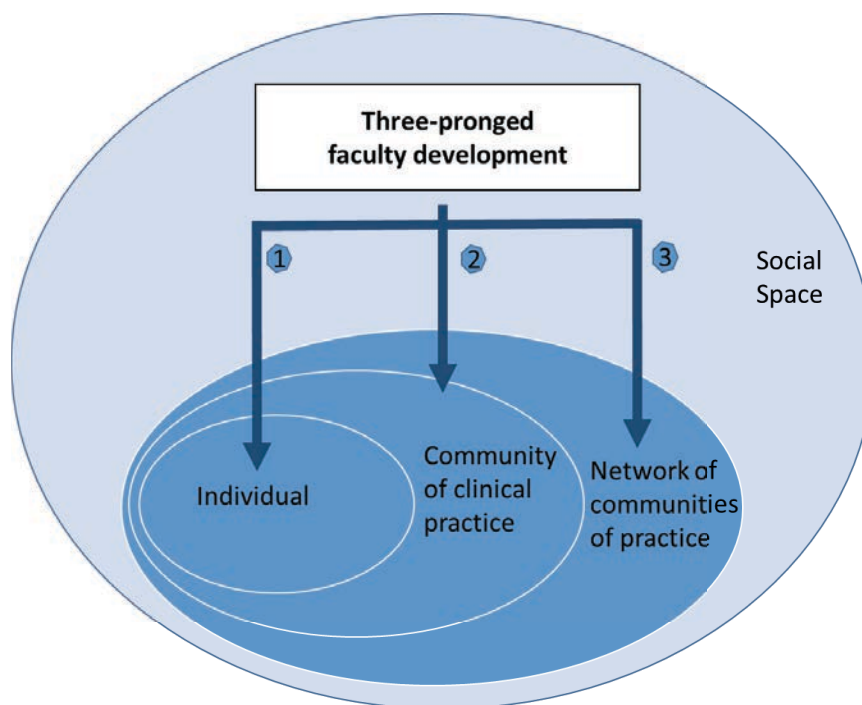


Figure 7.3: *The first element of a fit-for-purpose faculty development framework for emerging clinical teachers*

7.4.2 Enable clinicians to offer students affordances for participation in authentic work

In 2010, Swanwick and Morris wrote a commentary in *Medical Education*, in which they provocatively asked “how might faculty staff resist the enticements of their trainees into models of acquisition (Sfard, 1998), counter the tug of teaching and avoid the urge to bring the classroom

into the clinic?” (Swanwick & Morris, 2010). They end the commentary with four suggestions of what “faculty staff” might do – they might seek to make explicit the learning that arises from working, help learners to talk their way into the expertise of the community, provide opportunities for learner participation, and seek to encourage interaction with patients. All these approaches revolve around learning as a social practice, a process of becoming a member of a social community. In terms of faculty development, the challenge remains how clinicians may be assisted to make this shift from having been socialised (based on their own learning experience and the teaching practice they see around them) into teaching with an understanding of learning as acquisition (where the student is an observer or receiver), to being also able to teach with an understanding of learning as participation (thus the student as participant); how the clinician, while continuing to provide patient care and assure patient safety, may enable students to participate actively in everyday clinical work.

Assisting the student to move from observer to participant (Dornan et al., 2014) can be achieved by the clinician designating particular patient care tasks for the student and having the expectation that they will take responsibility for those tasks (Cantillon & Macdermott, 2008), while ensuring support appropriate for the current assessed competence of that student. Faculty development offerings should incorporate techniques for how clinicians can include supervision, observation and feedback in their clinical teaching. The workplace-based teaching methods described in Table 2.4 offer the clinician the means to be able to judge the current state of the student’s capabilities, and therefore be able to give an indication of what the student’s next level of engagement and responsibility could be.

The example of the RCS (Blitz et al., 2014 – Addendum A), showed us that where (through purposeful faculty development) clinicians’ confidence in their teaching grows to reach the point of feeling responsible for their students’ success as imminent graduates, they embrace and support students’ participation, recognising the importance of this step in preparing the students for internship. In sub-study B of this dissertation, the clinicians did not always seem to recognise the teachable moments and seldom offered students the opportunity to participate in actual work. This suggests that faculty development needs to facilitate clinicians in recognising work situations in which students can be given responsibility through participation, as well as how they may use supervision and the giving of feedback to gauge the level of support and challenge that each student needs to be offered such opportunities appropriately.

7.4.3 Enable clinicians to nurture student engagement and personal agency

Affordances however, need to be matched by students engaging with such learning opportunities and being supported in that engagement. The research presented here would suggest that students did not always feel able to exercise personal agency for their clinical learning (sub-study E) and that clinicians were not recorded as offering opportunities for participation (sub-study B). It would seem appropriate then for faculty development to include assisting clinical teachers with skills to foster such agency in students. As has been mentioned before, creating an enabling learning environment is integral to social cognitive approaches to learning. However, while this is a necessary condition, it is not a sufficient one. Teaching, whether classroom-based, or clinical, draws on particular skills (Harden's twelve roles; Harden & Crosby, 2000) (Figure 7.4). In the case of clinical teaching, it is predominantly those skills on the right side of Harden's "pie", in the realms of student contact and medical expertise. In addition there are a number of workplace-based tools and strategies to assist clinicians (see Chapter 2.2.2). This, however, presupposes that the clinicians are both aware of the tools and feel comfortable and confident in using them. The clinicians interviewed in this research seemed to intuitively grasp the need to create supportive social learning environments characterised by being approachable, enabling the student to feel safe enough to ask questions, allowing the student a role in decision-making about patient care (sub-study D). Thus, a faculty development framework can possibly afford to place less emphasis on strengthening clinicians' ability to create a supportive learning environment. On the other hand, the clinicians were less aware of ways and methods of facilitating the student's clinical workplace learning, such as nurturing the students' ability to exercise their agency in engaging with, and participating in workplace activities. Similar to the RCS research (Blitz, 2014 – Addendum A), others have also described how the relationship between clinician and student shifts over time (Walters, 2011) towards enabling greater participation in workplace activities. However, this is most often described from the clinicians point of view and seldom from the student's perspective. This suggests that such a framework needs to place more emphasis on assisting clinicians with nurturing student's personal agency in moving from passive observer, to supported participant and ultimately to active team member co-responsible for the work of patient care.

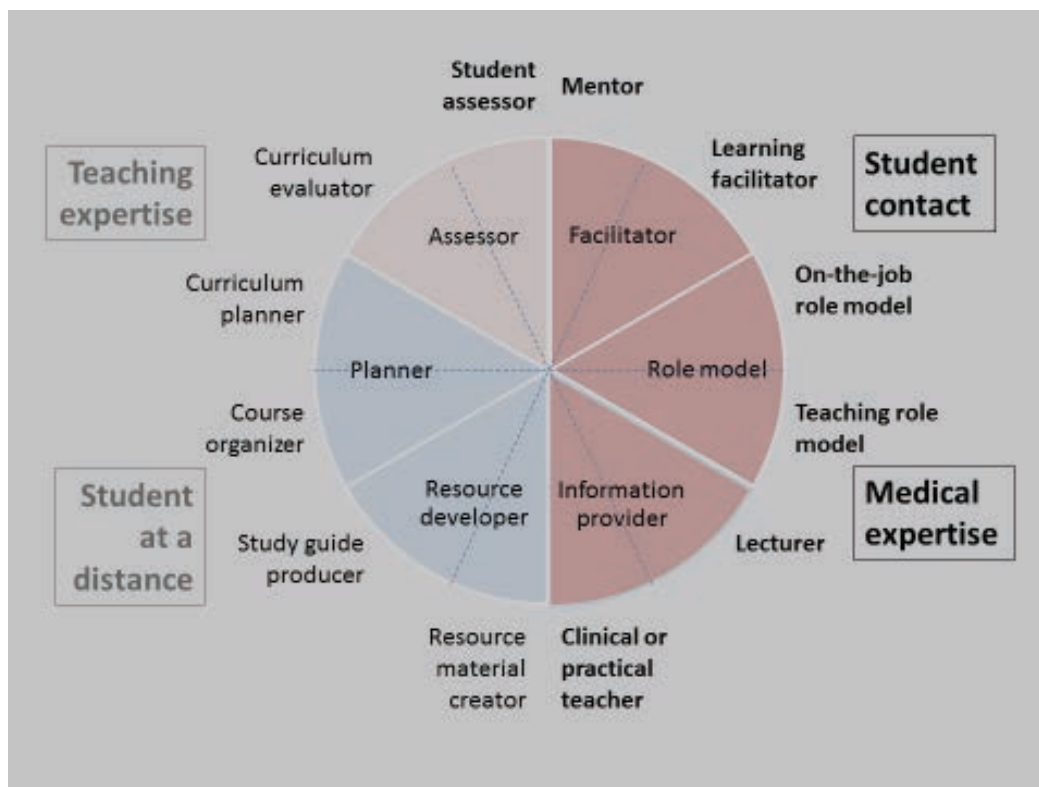


Figure 7.4: The twelve roles of the teacher (Harden, 2000)

Bandura points out two necessary steps in exercising personal agency (Bandura, 2006). Firstly, a student needs to be aware of the goal towards which they are working and, secondly, they need to believe that they do not simply undergo experiences, but are an agent in those experiences. Using this approach, therefore, a student would need to be able to self-assess their own capabilities, be aware of the affordances on offer and to regulate their engagement with them accordingly. This speaks not only to students' need for feedback on their performance in order to calibrate their capabilities, but also to generate in students an interest in receiving, accepting and using feedback as a mechanism for their growth (Watling, Driessen, Van der Vleuten & Lingard, 2012). Students' sense of personal agency can be nurtured by situating feedback in what Dweck refers to as the "growth mindset" (Dweck, 1986), which assists students to embrace the challenge to do more and to do better. This can be done by offering them supported opportunities to try new things, encouraging them to ask for input when stuck and giving feedback on what they have tried.

This certainly requires faculty development offerings to teach clinicians how to give feedback that is constructive and developmental, that tells the truth about a student's current achievement but then, together with the student, offers ways to do something about the current state and helps him or her to become even better at the tasks of being a doctor. However, it also challenges

faculty development to assist clinical teachers to move from giving the “right” answers, to developing the intrinsic motivation of students to try more and learn more during this period in which they try *being* doctors in order to *become* doctors (Van Schalkwyk et al., 2015b).

Figure 7.5 develops the three-pronged approach to faculty development from section 7.3.1 (Figure 7.3) to include a further two elements of the framework, namely assisting clinicians with how to offer affordances (7.4.2) as well as how to facilitate student engagement (7.4.3), such that each iteratively informs the other, and building on their understanding of how and why to create a supportive learning environment.

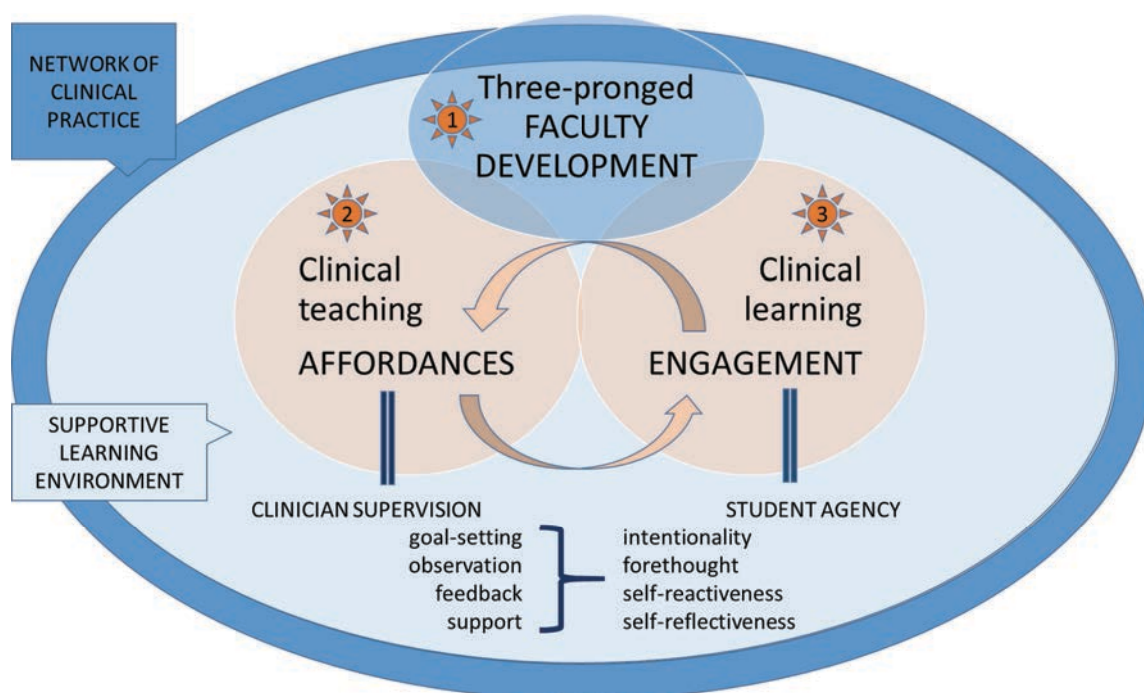


Figure 7.5: *Elements 2 and 3 of a fit-for-purpose faculty development framework for emerging clinical teachers (see Figure 7.3)*

7.4.4 Close the loop of faculty development for strengthening clinical teaching

In 2012, Steinert called for faculty development practices to be systematically evaluated (Steinert, 2012a). Some of the research presented here indicated that faculty development offerings across South Africa were not being evaluated for results or impact (sub-study C). In other research presented in this dissertation, the clinicians expressed enthusiasm for having their clinical teaching evaluated (provided that any feedback on how to improve their practice was skilfully mediated), to learn if they were doing a good enough job of clinical teaching (sub-study

D). Faculty development could be more focused by evaluation of its impact on clinical teaching practices (Kirkpatrick, 1994).

Recently, a number of instruments based on different social learning theories have been designed for students to evaluate the effectiveness of their clinical teaching (Dornan et al., 2012, Stalmeijer et al., 2010, Strand et al., 2013). Authors have suggested that these instruments could be used to inform faculty development activities, in particular offering mediated and individualised advice on strengthening a clinician's clinical teaching (Arah et al., 2011; Fluit et al., 2012; Haider et al., 2015; Mintz et al., 2015). This is reminiscent of Biggs' notion of constructive alignment (Biggs, 1996), aligning the intended outcomes of faculty development for clinical teaching (clarifying the expectations of clinical teachers), the offerings that were designed to enable the clinicians to reach those outcomes, and the students' evaluation of whether clinical teaching had indeed been delivered in that way. Faculty development that builds on the clinician's current practice as evaluated against measures of effective clinical teaching, has the potential to increase both the clinician's competence and confidence; assistance to move through the initial uncertainty and insecurity of becoming a clinical teacher encourages clinicians to embrace the role (Blitz et al., 2014 – Addendum A).

Figure 7.6 presents an adaptation of Figure 7.3, to indicate how students' evaluation of clinical teaching (7.4.4) can be used to close the loop of faculty development aimed at strengthening clinical teaching.

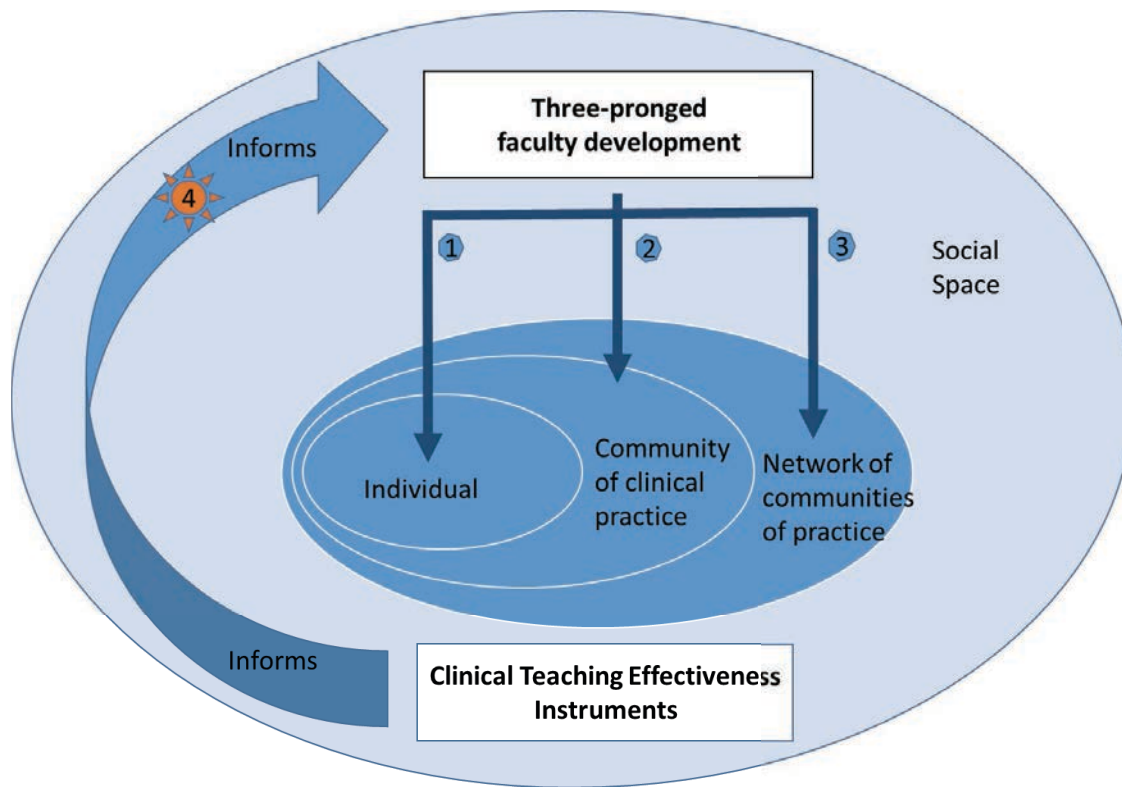


Figure 7.6: *Fourth element adding evaluation of clinical teaching to iteratively inform faculty development offerings (see Figure 7.3)*

7.5 SUMMARY

Figure 7.7 illustrates the summary of the elements of a fit-for-purpose faculty development framework for emerging clinical teachers, indicating that faculty development needs to take place within the network of clinical practice (involving the three prongs of individual, community and discipline), through focusing on the interplay of clinical teaching as supervision (the offering of affordances) with clinical learning as student agency (manifest as student engagement), and by designing tailor-made faculty development offerings that are informed by student evaluations of clinical teaching.

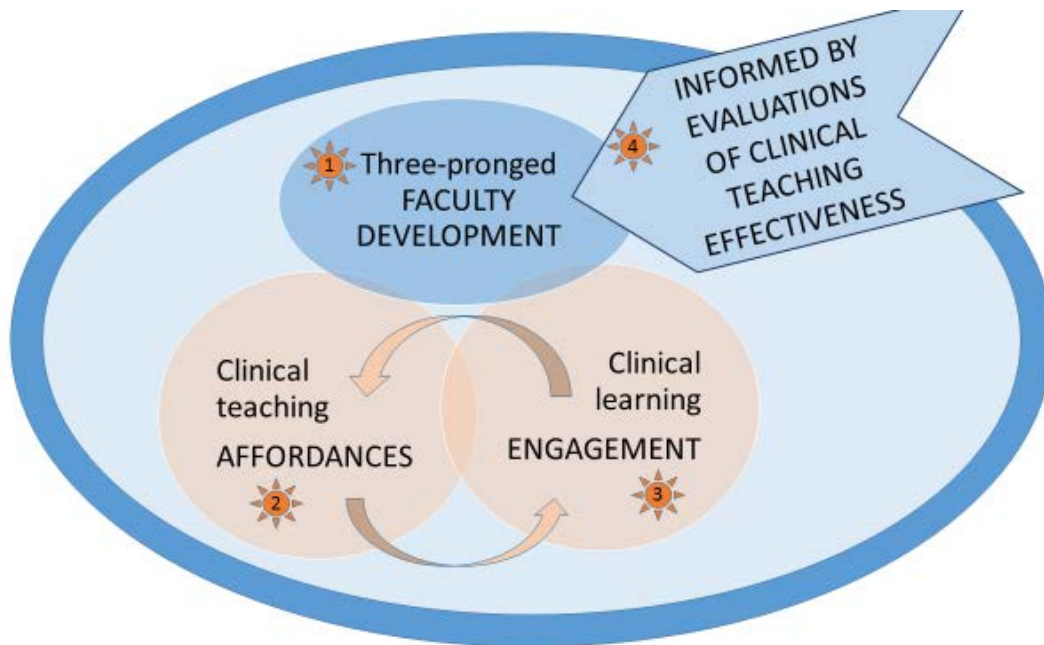


Figure 7.7: *Four elements of a fit-for-purpose faculty development framework*

7.6 CONCLUDING THOUGHTS

Lara Varpio tweet 19 Jan 2018

“The 3 things every Social Science / Behavioral Science finds:

- 1. some do and some don't*
- 2. the differences aren't that big*
- 3. its more complicated than it seems”*

“Qualitative research, by its nature, involves immersion in situations and relationships which are complex and unpredictable” (Reid, Brown, Smith, Cope & Jamieson, 2018). This was certainly true of the research presented here. A qualitative research approach inherently creates uncertainties in the knowledge that is produced, not least because the researcher’s values and experiences influence the analysis. The outcome is intimately connected to the perspectives and lenses of the researcher(s). This is even more of a consideration when the researcher also collects the data. My own lens is that of a family physician very familiar with the clinical environments that constitute the context used here. I knew many of the participants (both emerging clinicians and faculty developers) from my work as an academic family physician responsible for the postgraduate training programme from which some of the clinician participants had graduated. I am an advocate for faculty development, convinced of the necessity for its role in strengthening clinical teaching. For me, as an insider, conducting the interviews (both with the clinicians and

with the people responsible for faculty development) had both pros and cons – it had the potential to create in-depth discussions, but equally the potential to elicit less discrepant opinions.

While each sub-study was collected within a fairly narrow time period, the different sub-studies were conducted over a period of thirteen months. The landscape of this research is quite changeable; things that may have impacted on people's opinions and perspectives are happening as the extended training platform is being used more, explored and researched by others. Faculty development discussions and initiatives, including in Family Medicine, are happening at national conferences and are being offered by the national professional association (South African Academy of Family Physicians in association with the Royal College of General Practitioners) (Blitz et al., 2016; Mash, Blitz, Edwards & Mowle, 2018). My context (and therefore my perspective) has changed as I moved from being an academic family physician to becoming a faculty developer, and in the last phase of this research to being a manager responsible for the quality of learning and teaching in the faculty. This resulted in a progressive distancing from the participants and their reality as I undertook the analysis of the data to develop an understanding of the participants' experiences.

South Africa's context has also changed during the time of this research, with two initiatives that highlight the relevance of the research presented here. Firstly, medical schools have been required to expand their clinical training platforms sooner than they had anticipated. This is in order to accommodate the large number of returning Nelson Mandela Fidel Castro Medical Collaboration Programme students (refer p. 55). In 2018, and for the next four years, there will be approximately 700 students from Cuba returning annually to do 18 months of clinical training in South Africa to comply with the requirements to register their Cuban medical degree for licence to practice in South Africa. Because this requirement is for clinical training, this is putting intense pressure on medical schools to expand to clinical sites in which they currently have no presence. Despite the fact that this programme is supported by the National Department of Health, resources to do this training will remain constrained. Secondly, a national project started in 2016 with the aim of developing an approach to distributing clinical teaching across a wider platform. This project (SUCCEED¹²) has held a number of workshops at the national health educationalists conference, produced a number of publications (De Villiers, Van Schalkwyk, Blitz, Couper, Moodley, Talib & Young, 2017a; De Villiers, Blitz, Couper, Kent, Moodley, Talib, Van Schalkwyk & Young, 2017b; Gaede, 2018) and a nationally supported consensus

¹² SUCCEED – Stellenbosch University Collaborative Capacity Enhancement through Engagement with Districts. <http://succeed.sun.ac.za/Activities/Decentralised-Learning>

statement (South African Association of Health Educationalists (SAAHE), 2017), all of which have heightened the awareness of issues related to expanding the clinical training platform.

A curriculum for faculty development (as for any other subject) needs to respond to changes in context, circumstances and needs (Kern et al., 1998). As health professions education embraces learning in the workplace, so we need to attend to its counterpart, teaching in the workplace, and the essential role of the clinician in optimising both their teaching and their students' learning. This research offers a response to the imperatives that exist for medical schools to expand their clinical training platforms. This fit-for-purpose faculty development framework has the potential to be of assistance to clinicians at new sites as they embark on their journey to becoming confident clinical teachers.

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ADDENDUM A: PRELIMINARY PHASE RESEARCH PUBLICATION



ORIGINAL RESEARCH

'I felt colonised': emerging clinical teachers on a new rural teaching platform

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'I felt colonised': emerging clinical teachers on a new rural teaching platform

Rural and Remote Health 14: 2511. (Online) 2014

Available: <http://www.rrh.org.au>

ABSTRACT

Introduction: Studies that investigate the impact of long-term rural exposure for undergraduate medical students often focus largely on students' experiences and perspectives. Research focusing on the physician experience in clinical exposures appears to be limited. When the Ukwanda Rural Clinical School (RCS) at the Faculty of Medicine and Health Sciences, Stellenbosch University, South Africa was implemented in 2011, the clinical specialists working at the rural hospitals were expected to take on the additional task of teaching the students in the year-long rotation. The specialists were prepared for the task through a series of workshops. The objective of this study was to explore what the implementation of the RCS meant for the practice of these physicians and to what extent the shift from full-time practising clinician to clinical teacher required them to adapt and change.

Methods: This was a qualitative study. Semi-structured interviews were conducted with lead clinical specialists who were responsible for teaching medical students in the year-long RCS rotation. Following an interpretive approach, thematic content analysis was performed to obtain a clearer understanding of how these clinicians had experienced their first year as clinical teachers in the RCS.

Results: Four overarching themes were identified from the interviews with the clinicians: attitudes towards the implementation of the new medical education model, uncertainty and insecurity as a teacher, emergence of the clinician teacher, and a sense of responsibility for training a future colleague. These depict in part, the journey from clinician to clinician teacher travelled during the first year of implementation.

Conclusions: Embracing the role of clinical teacher enabled the development of constructive relationships between clinicians and their students with a mutual sense of responsibility for learning, patient care and improvement in clinical practice. Understanding this journey ought to influence the thinking of those considering faculty development initiatives for novice clinical teachers.

Key words: clinical teacher, continuity of relationship, development, faculty, shared responsibility.

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Introduction

Medical schools are exploring ways of diversifying the sites they use for clinical teaching. In 2002, Stellenbosch University extended its teaching from the tertiary hospital and urban community-based training sites to include short clinical rotations for senior students at rural hospitals. In 2011, this was expanded significantly with the establishment of a rural clinical school (RCS; Fig1). The model adopted at the Ukwanda RCS (*Ukwanda* is a Xhosa word that can be translated as 'to grow' and 'develop'; to make a positive difference) was implemented, with eight final-year undergraduate medical students spending their entire final year of studies at a regional or district hospital (and their referring community health centres) situated between 100 and 150 km from the tertiary teaching hospital.

Studies that investigate the impact of long-term rural exposure for undergraduate medical students often focus largely on student experiences and perspectives. However, in any such endeavour there are always multiple role-players. In particular, the health practitioners who serve as clinical teachers for students on these rural rotations ought to be another important research focus. While the role of the clinical teacher is sometimes mentioned as an adjunct to the student experience¹⁻⁴, research that has specifically investigated aspects of the clinical teacher experience in community-based, and specifically rural, clinical exposures appears to be limited⁵. In addition, the work that has been done covers a wide range of approaches, differing lengths of exposure (duration) and location of the exposure in the curriculum (ie during which year(s) of study). These studies also consider different healthcare practitioners (such as general practitioners, family physicians, nurse practitioners) as clinical teachers in these different contexts⁵⁻⁸.

Despite all of these caveats, clinical teachers involved in rural clinical placements, especially placements of longer duration, generally describe their experiences in a positive light, expressing enjoyment in the role^{5,8-10}. While many report initial uncertainty and an impact on workload and increased time pressure, personal and professional development occur as a result of exposure to the

'teaching' role and engagement with the academic hospital and medical school^{11,9}. The clinical teachers tend to appreciate the opportunity to engage fellow practitioners in a different space such as during capacity-building activities facilitated by the academic institution^{2,4}.

In a recent study evaluating the first year of implementation of a rural clinical school¹¹, the data highlighted how the effects of this educational intervention had extended beyond the students to influence the practice and thinking of all the specialists who had become responsible for teaching activities. Prior to the implementation of the RCS they had predominantly clinical service responsibilities, but now they were required to incorporate a significant and continuous teaching component into their jobs. In preparation, over the year that preceded the students' arrival, they were involved in meetings that explored international models of rural clinical training, they designed an integrated curriculum based on 20 common presenting symptoms, developed the method by which each student's patient portfolio would be compiled and assessed, and completed a course on clinical supervision techniques. The clinicians were not offered any financial incentive for taking on this additional role, but were offered free access to the university library. The existing hospital teaching and learning facilities were used for this initial cohort of students.

In the regional hospital (280 beds) the students rotate through the main medical disciplines taught by specialist clinicians. In the district hospital (80 beds) the students are taught by a specialist family physician. One day a week is dedicated to a so-called 'academic day', a more formal teaching and learning opportunity involving all the specialists and the entire student cohort, including the district hospital students. Because of the small number of students who attended the RCS in the inception year, interactions between student and clinical teacher were often one-on-one. This led the researchers to consider what the implementation of the RCS had meant for the practice of these clinicians and how they had experienced this teaching responsibility that had been added into their already established clinical community and space. To what extent had the shift from full-time practising clinician to clinical teacher required them to adapt and change?

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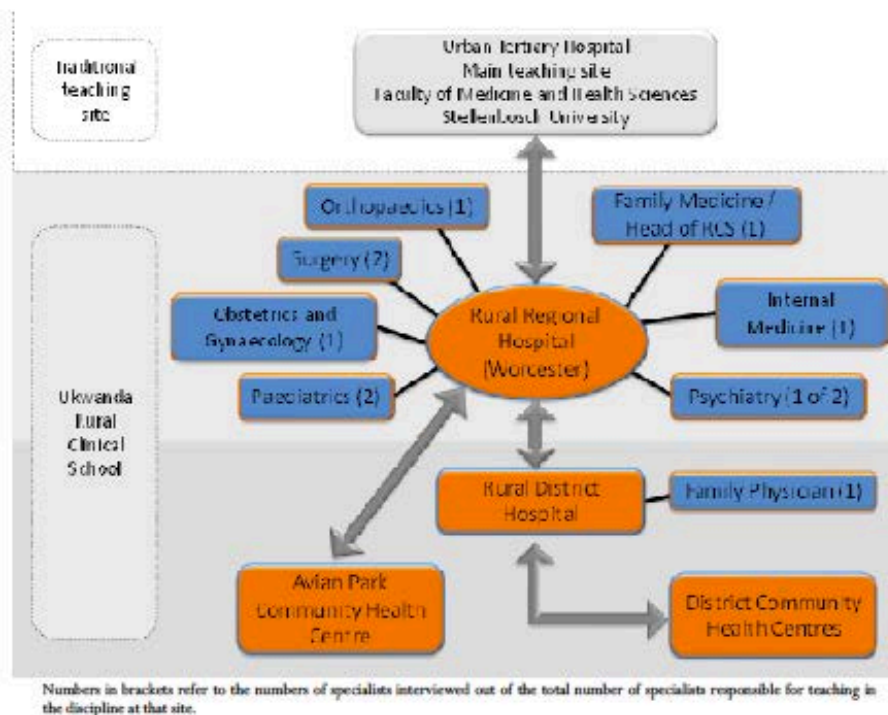


Figure 1: Ukwanda Rural Clinical School teaching sites.

This article shifts the spotlight from the student to the specialist clinicians as the description of their experience as key role-players in the inauguration of a rural clinical school is explored.

Methods

As part of an evaluative study referred to previously, semi-structured interviews had been conducted by one of the authors (SvS), an educational advisor tasked with implementing a longitudinal evaluative research project on the impact of the RCS. The 11 lead clinicians responsible for teaching the students in each discipline were invited to

participate – surgery (2), internal medicine (1), obstetrics and gynaecology (1), paediatrics (2), psychiatry (2), orthopaedics (1) and family medicine (2). Ten were able to participate in the interviews (one was not available at the time). None refused to be interviewed. Most of the clinicians had been in practice at the sites of this study for 5–15 years prior to their incorporation into the RCS.

The interviews were generally about an hour long and were conducted and audio-recorded at the Ukwanda RCS. They were anonymised during the process of transcription.

For the purpose of this article the interview data were revisited, after having been previously analysed in light of the

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student experiences, this time with the specialist physician as the subject of investigation. Following an interpretive approach and using open-coding, three of the authors (JB, JB and MdV) conducted thematic content analysis to obtain a clearer understanding of how these practising physicians had experienced their first year as clinical teachers in the RCS. This second round of coding was undertaken by researchers who had not been involved in the coding for the earlier study. The coding was initially done independently and then discussed to reach consensus. Another researcher, the Director of the Rural Clinical School (HC) checked the findings in relation to his knowledge of the participants and the hospital community and confirmed the consensus coding. The participants had the opportunity to comment on the research findings when a report on the research was presented to them.

Ethics approval

Ethics approval had been obtained from Stellenbosch University's Health Research Ethics Committee (N11/07/245). All the specialists who were approached to participate in interviews about their experiences during the implementation of the RCS gave consent.

Results

Four overarching themes were identified from the interviews with the specialist physicians. These are presented as they emerged chronologically from the data (Fig2), depicting, in part, the journey travelled during the first year of implementation. (For the following quotes, the number in brackets refers to respondent and 'T' indicates that the quote had been translated from the original Afrikaans.)

Attitudes towards implementation of the new medical education model (RCS)

Some of the practising specialists felt that the new model was imposed on them. Yet, while they had limited choice in their

participation in the model, and the teaching increased the scope of their original appointment, they were not averse to the implementation of the RCS. Evidence about similar educational initiatives implemented in other parts of the world presented to them influenced their willingness to participate in a positive way. Over time their attitudes shifted towards taking pride and ownership in successfully implementing the new model.

I felt slightly colonised actually, by it, by the way that the thing was organised. I mean, I enjoy students, I think that the idea of a rural clinical school is very good. I like the way in which it sort of breaks down the traditional third world/first world divide that has characterised South African medicine. I was actually uncomfortable with the way the thing was communicated and the way that Stellenbosch assumed that we would do it before we'd said we would, and it sort of passed the point of no return. [6]

I listened to the outcomes that were presented by the others, you know about what is happening internationally, for example in Australia and America and so forth, and I thought it made sense. I thought that we are competent to do this. [5, T]

Important influences were those of the RCS director, a practising rural and academic family physician with longstanding links with the university, and certain departments at the main tertiary teaching hospital.

Most definitely Prof XX was basically the middle man and if there were any questions or problems, we spoke to him. At (the tertiary teaching hospital), of course, some departments are much better than others. They were prepared to bend over backwards to help us. So, I think very, very good support. I mean, we would not have been able to do it on our own here on this side. Or even if only Prof XX and I had to sort of do it, it would not have worked out. So, yes, I think academically the University really took responsibility⁴.

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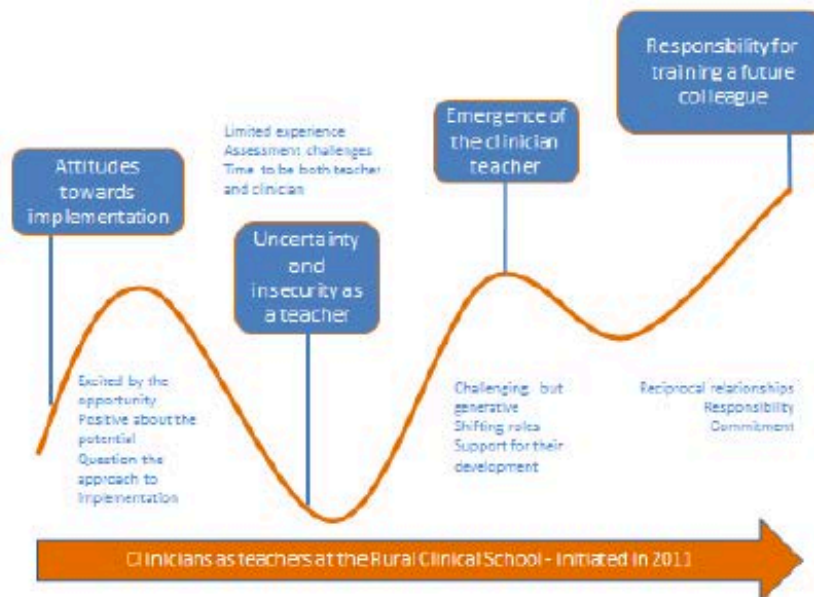


Figure 2: Illustration of the journey of the evolving clinical teacher.

Uncertainty and insecurity as a teacher

The specialists described differing levels of prior teaching experience and some perceived themselves as somewhat underprepared for the implementation of the RCS, although their self-confidence in teaching the students grew over time. They questioned whether they were 'good enough' and at the same time wanted to 'show the (tertiary teaching) hospital' that they could do it. Despite having had a role in the development of the new tools such as the student portfolio¹¹, they were uncertain about their role in the implementation of these new tools and their preparation of the students for the summative clinical examinations. They valued the leadership of the RCS director in this regard. As practising specialists they also expressed concerns about the impact that teaching would have on their time and their service delivery.

I think we were excited about it, but I think we were also cautious because we were unsure about the extra work involved and whether we were ready to do this. [9, T]

Yes, there were uncertainties, because as I said, you did not prepare yourself, and I think the uncertainties were there just because we did not have all the information right from the beginning. We did not know what our role would be. [9, T]

I was uneasy about the portfolio because it was a totally new thing. It is always difficult to learn something new. So it was a difficult concept to me, but once they were under way and they were writing, what was nice was that [one of the GP consultants] was there for the evaluation of the portfolio. [9, T]

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We did not know what it would involve, time wise, and how it would work in practice and then of course the students' fears. Our biggest fear with this project was that we were offering them a different way of training, a way that was different to what was experienced at [the tertiary teaching hospital], and we were assessing them differently and everything else and this made them anxious and I am not exactly sure whether we are addressing this appropriately. [5,T]

Emergence of the clinician teacher

About half of the practising specialists had not been involved in undergraduate (pre-service) training in the past. The way they described their teaching approaches could be seen as case-based, practical and interactive. They intuitively embraced student-centred learning by addressing the students' learning needs, stimulating independent learning and allowing the students to 'lead' the curriculum. The process led to the specialists spending more effort and time in keeping up to date themselves and preparing for teaching. Most importantly they felt that they enjoyed the teaching experience.

For me, I enjoyed it. It's not a role that comes, or in the past it didn't come to me naturally, to teach. I was just a guy, don't speak to me, I just do the work, that kind of thing, and if I was left alone and nobody bothered me, so much the better ... I don't chase numbers to see how much or how fast an operation I can do, anymore. I used to do that when I first started here. It now gives me a kick to see a young guy, me being able to train him. It almost gives me as much satisfaction as doing the operation myself, seeing somebody else progressing ... Now they stand at the back with a cell phone and Google. You can't just tell them any old story anymore. They actually check if it's the truth. [6]

What was interesting was that I sometimes had an idea about what I wanted us to discuss and then they perhaps came with a different patient. Sometimes it was a surprise what we actually discussed in the end. [9,T]

I think to me it was actually valuable, because I realised again that you should refresh your own academic knowledge and on the most recent, you know, it motivates one to go and read and the students ask interesting questions, and one does not always know. It also activates questions in yourself, and how they see things. So I think from that point of view it was very valuable to me to work with the students to keep up to date with my own academic knowledge and also to think about things in different ways, that they contribute. [2,T]

Responsibility for students' success

The students rapidly became integrated into the clinical service teams and worked as fully fledged members of the team alongside the rest of the staff. The clinicians felt that the students worked long hours in delivering patient care and showed commitment towards patient care. This resulted in the teachers feeling invested in the students and created a much richer and more reciprocal teacher-pupil relationship.

Over time, working together in clinical teams and during the dedicated weekly 'academic days', the specialists got to know the students well and developed a relationship with the students as a group and as individuals. They expressed a sense of responsibility for the students, wanting the students to succeed not only in their summative examinations, but also as future colleagues. This resulted in them taking a personal interest in students, including specific mentoring.

I must say, if I look back, it was quite a difficult year for me in the sense that I felt very responsible for the students. It was sort of, I want to say, if they struggled, it would almost reflect on me. So it was difficult to me in that respect, I felt very responsible for them, but at the same time it is the first time that I am formally a family physician at the hospital. [4,T]

You feel a great responsibility towards these students, and because you soon get to know their names, you know soon, you know where they come from, they become part of the team, so there's this advantage, but you are also responsible. [5,T]



Discussion

In the process of inaugurating new clinical teaching sites there seems to be a focus on the student experience. As a result, the clinicians at these sites may be sidelined, with less attention paid to their experience.

The physicians at the rural regional hospital in this study were well-established clinicians who had initially been employed predominantly to deliver clinical services. They worked in a well-functioning context delivering health care to a rural community. They functioned as members of a supportive community of clinicians – most of them had worked and lived alongside each other for more than 5 years.

With the inauguration of the Ukwanda RCS, their community was disrupted by the university who was seen as imposing an innovative educational model onto their clinical environment, expecting them to take on additional teaching and assessment tasks. It is interesting to note that it was neither the presence of students, nor the role of teacher, that were perceived as the source of the disruption.

The clinicians were uncertain about living up to these new expectations – fitting teaching into their service delivery time, how to teach, whether their teaching would be good enough to enable the students to pass the examinations conducted by the university. They anticipated the challenge of balancing the clinical realities of patient care with having to 'teach' the student.

This dissonance between their previous known, confident clinical practice and the practice of teaching about which they felt less confident created the opportunity for a transformative learning experience for these practising specialists.

Instead of keeping the students in a separate student community, the clinicians responded by inviting the students to participate in their world (ie their clinical teams), embracing them and their potential (and future) role within

the team. This resulted in long-term relationships and continuity of supervision. The incorporation of new members into their community resulted in a sense of responsibility for the students, their growth and their success.

As a result, the specialists recognised the need to look at their own clinical practice – to be (and to remain) up to date with developments in their fields, to consider the evidence base of their practice, to develop new skills in teaching and assessment, and to see that they could make a significant contribution to the preparation of these students to take on their future roles in the clinical community.

This approach enabled them to embrace the role of clinical teacher without having to leave their clinical community, transforming their own social identity. It seems that as a result of their responses to the expectation of taking on the role of teacher (both incorporating the students into their environment and a willingness to take on some of these new roles) these clinicians started on a journey from clinician to clinical teacher. Their learning through social participation enabled them to become better clinical teachers for the sake of their students' success.

They took ownership of teaching, taking responsibility for their students – their learning and their development towards being independent practitioners. They took a long-term view of the value of improving their own teaching practices with a view to the contribution that their students would make to the healthcare system in the future.

These findings seem to be consistent with other reports in the literature regarding initial discomfort with change; continuity of supervision which provides dialogue grounded in practice about values, professionalism, and lifelong learning¹²; and working with students to apply knowledge for patient care¹³.

A golden thread running through all interviews was the commitment expressed by the specialists and their genuine concern for the students. The commitment was such that, even when circumstances were not ideal and presented challenges, the specialists sought to address these challenges.

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Their sense of responsibility for the students stretched beyond academic success and it was evident that on the whole the relationships were reciprocal and positive¹¹.

The data was collected with a focus on the students' experience, but the reported effects on the clinicians emerged, which strengthens its validity. Despite the small study population, this research does express the voice of the vast majority of the cohort of lead clinicians involved in teaching. Interviews with other members of the clinical teams, who might also have been involved in (although not responsible for) teaching, were not included. It could be seen as a limitation that this data emerges from a slice in time during the early implementation phase of the first rural clinical school in South Africa. It is possible that this early stage was a 'honeymoon' phase after which the clinicians' enthusiasm might dissipate. However, the researchers believe these are potentially valuable lessons for others to consider when initiating new clinical teaching sites.

Conclusion

There is little in the literature that describes the transition required of clinicians to become practising clinical teachers when clinical teaching expands to new sites such as this rural clinical school. This article presents findings that may be helpful to others who want to consider ways of facilitating the journey of practising clinicians to becoming clinical teachers. Understanding the change from a sense of being pushed by the university, and then embracing the role of clinical teacher with the accompanying sense of responsibility for the welfare and success of their students and the program, may be a valuable addition to faculty development initiatives. The practising clinicians in a particular clinical environment have the knowledge of the health system and its resources to be able to use these optimally for the incorporation of student. They have the potential to be powerful agents of the development of interdependence in education¹⁴, harmonising the educational institution and the healthcare facility by developing supportive and enabling social participation where constructive relationships between students and teachers

develop with a mutual sense of responsibility for improvement in clinical practice – instructional reform resulting in institutional reform.

This research does not explore whether this effect is unique to a rural environment, or the inauguration of a new clinical teaching site, or whether this understanding might also be of use in faculty development initiatives in established, traditional teaching environments. Further research in this area is indicated.

Acknowledgements

The researchers gratefully acknowledge Professor Ben van Heerden, Dr Therese Fish and Ms Norma Kok from Stellenbosch University who were part of the initial research that catalysed this subsequent study; and the help of Ms Martie van Heusden for translating the quotes and formatting this manuscript. The researchers gratefully acknowledge funding from the US President's Emergency Plan for AIDS Relief (PEPFAR) through Health Resources and Services Administration (HRSA) under the terms of T84HA21652 via the Stellenbosch University Rural Medical Education Partnership Initiative (SURMEPI).

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ADDENDUM B: ETHICS APPROVAL



UNIVERSITEIT-STELLENBOSCH-UNIVERSITY
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Approval Notice New Application

22-Aug-2014
Blitz, Julia JJ

Ethics Reference #: N14/08/097

Title: Clinical teaching on an expanding training platform: designing a fit-for-purpose model of faculty development for emerging clinical teachers in a resource-constrained environment.

Dear Professor Julia Blitz,

The New Application received on 06-Aug-2014, was reviewed by members of Health Research Ethics Committee I via Expedited review procedures on 21-Aug-2014 and was approved.

Please note the following information about your approved research protocol:

Protocol Approval Period: 21-Aug-2014 -21-Aug-2015

Please remember to use your protocol number (N14/08/097) 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/rde 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 of 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 Cape 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 (healthires@pgwc.gov.za Tel: +27 21 483 9907) and Dr Helene Visser at City Health (Helene.Visser@capetown.gov.za Tel: +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/rde

If you have any questions or need further assistance, please contact the HREC office at 0219389657.

Included Documents:

Addendum E - InformedConsentGeneralEng - clinician

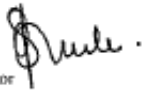
Clinical teaching protocol 2014 06 02.docx

Curriculum Vitae Blitz JJ (short) 2014.pdf

Addendum B - Western Cape DoH approval.pdf
HREC Application Form V9.2_June2014(Blitz).pdf
Addendum C - I felt colonised - Blitz 2014.pdf
Addendum A_ amendment approval
Addendum G - InformedConsentGeneralEng - head of C
JB Investigator declaration_Mar 2009.pdf
Addendum D - Leigh Stocy Confidentiality Agreement
HREC General Checklist V1.3 Blitz.pdf
Addendum F - InformedConsentGeneralEng - students.
MRdV Co-supervisor_declaration_Aug2012.pdf
Addendum H - InformedConsentGeneralEng - workshop
Curriculum vitae MdeV_abbreviated.pdf
Curriculum vitae SvS_abbreviated.pdf
Clinical teaching on an expanding training platform
SCVS Supervisor_declaration_Aug2012 - Pdf.pdf

Sincerely,

Franklin Weber
HREC Coordinator
Health Research Ethics Committee 1



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 HREC's 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 University Health Research Ethics Committee Standard Operating Procedures www.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 C.1: ETHICS LETTER



Ethics Letter

28-Apr-2015

Ethics Reference #: N13/03/040

Clinical Trial Reference #:

Title: An investigation into the teaching strategies used during clinical supervision of undergraduate medical students at Stellenbosch University Faculty of Medicine & Health Sciences clinical teaching environments

Dear Professor Julia Blitz,

Your letter dated 17 March 2015 refers.

The HREC approved the following documents pertaining to the abovementioned research project:

- Revised Protocol Version 3 dated February 2015
- Revised Information Sheet and Consent Form Version 3 dated February 2015

If you have any queries or need further assistance, please contact the HREC Office 219389657.

Sincerely,

REC Coordinator
Franklin Weber
Health Research Ethics Committee 1

ADDENDUM C.2:
INFORMED CONSENT FORM FOR MEDICAL STUDENT
PARTICIPATION IN A RESEARCH STUDY

TITLE OF THE RESEARCH PROJECT:

An investigation into the teaching strategies used during clinical supervision of Stellenbosch University undergraduate medical students

REFERENCE NUMBER: N13/03/040

Principal Investigator: Professor Julia Blitz

Address: Family Medicine and Primary Care, Stellenbosch University, Box 19063, Tygerberg, 7505

Contact Number: 021 9389925 (w); 0824527849 (mobile)

You are being invited to take part in a research project. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. 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 Health Research Ethics Committee (HREC) at Stellenbosch University and will be conducted according to accepted and applicable National and International ethical guidelines and principals, including those of the International Declaration of Helsinki October 2008.

What is this research study all about?

- The purpose of this research is to explore what clinical teaching methods are used by clinical supervisors during undergraduate medical student clinical rotations.

Why have you been invited to participate?

- You have been invited to participate because you are a third or fifth year medical student who will be doing a rotation in either surgery, internal medicine, obstetrics and gynaecology, paediatrics or family medicine from 27th May 2013 to 31st October 2014.

What will your responsibilities be?

- All aspects of this project will occur in the clinical environments of the Western Cape Department of Health.
- If you agree to take part in the project, you will be asked to audio record your clinical teaching sessions with a supervisor and then to annotate a transcription of that interview with clarification regarding what teaching was happening during the recording.
- The supervisor leading the session that you are recording will not be informed which of their clinical teaching sessions you will be recording during the period. This is so that we capture as naturally as possible the usual teaching strategies that supervisors use.
- Your name will not appear on the transcription. You will be only be identified by means of a randomly allocated number.

Will you benefit from taking part in this research?

- The information that is obtained in this study may be useful scientifically and possibly helpful to others. While there may be no direct benefits to you for participating in this study, we hope that we may learn methods to improve the overall clinical teaching methods used by clinical supervisors which in turn may improve the quality of care that the patients are receiving and will most likely improve the outcomes of medical students' supervision but this is not guaranteed.

If you do not agree to take part, what alternatives do you have?

- Your decision not to take part in this study will be accepted and understood and will by no means affect the quality of your relationship with the faculty.

Who will have access to the records?

- The audio record of the session will be held in a password protected computer. The transcript of the record will be numbered only with a random number allocated to you and also stored on a password protected computer. All identifying information of anyone involved in the teaching session will be anonymised in the process of transcription.
- Sponsors of the study, study monitors, or auditors or Research Ethics Committee members may only inspect the anonymised research records.

If you do not agree to take part, what alternatives do you have?

- You do not have to agree to be interviewed and can also withdraw your consent for this at any time.

Will you be paid to take part in this study and are there any costs involved?

- A small incentive will be issued to you on submission of the completed annotated transcript and there are no costs are involved.

Is there anything else that you should know or do?

- You can contact Prof Julia Blitz juliablitz@sun.ac.za if you have any concerns or complaints that have not been adequately addressed by the researchers.
- You can contact the Health Research Ethics Committee at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the researchers.
- Permission to conduct the study has been obtained from the Institutional Research and Planning Division of Stellenbosch University and the Western Cape Department of Health.
- You will receive a copy of this information and consent form for your own records.

DECLARATION BY PARTICIPANT

By signing below, I agree to take part in a generic research study entitled **An investigation into the teaching strategies used during clinical supervision of Stellenbosch University undergraduate medical students**

I declare that:

- I have read this information and consent form 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 pressurized to take part.
- I may choose to leave the study at any time and will not be penalized 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*) 2013.

.....
Name of participant

.....
Signature of participant

STATEMENT BY THE INVESTIGATOR

I, declare that I have explained the information given in this document to

.....

She/he was encouraged and given ample time to ask me questions. Conversation was conducted in English and Afrikaans and no translator was used.

Signed at (*place*) on (*date*) 2013.

.....
Signature of Researcher

.....
Witness

ADDENDUM C.3:

INFORMED CONSENT FORM FOR CLINICAL SUPERVISOR PARTICIPATION IN A RESEARCH STUDY

TITLE OF THE RESEARCH PROJECT:

An investigation into the teaching strategies used during clinical supervision of Stellenbosch University undergraduate medical students

REFERENCE NUMBER: N13/03/040

Principal Investigator: Professor Julia Blitz

Address: Family Medicine and Primary Care, Stellenbosch University, Box 19063, Tygerberg, 7505

Contact Number: 021 9389925 (w); 0824527849 (mobile)

You are being invited to take part in a research project. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. 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 Health Research Ethics Committee (HREC) at Stellenbosch University and will be conducted according to accepted and applicable National and International ethical guidelines and principals, including those of the International Declaration of Helsinki October 2008.

What is this research study all about?

- The purpose of this research is to explore what clinical teaching methods are used by clinical supervisors during undergraduate medical student clinical rotations.

Why have you been invited to participate?

- You have been invited to participate because you are a registrar or consultant who will be supervising middle and/or late medical students in a rotation in either surgery, internal medicine, obstetrics and gynaecology, paediatrics or family medicine from 27th May to 31st October 2014.

What will your responsibilities be?

- All aspects of this project will occur in the clinical environments of the Western Cape Department of Health.
- If you agree to take part in the project, an audio record of your clinical teaching session will be made by one of the medical students in your group.
- You will not be informed which of your clinical teaching sessions will be recorded during the period. This is so that we capture as naturally as possible the usual teaching strategies that supervisors use.
- Your name will not appear anywhere in any record or on the transcription of this recording.

Will you benefit from taking part in this research?

- The information that is obtained in this study may be useful scientifically and possibly helpful to others. While there may be no direct benefits to you for participating in this study, we hope that we may learn methods to improve the overall clinical teaching methods used by clinical supervisors which in turn may improve the quality of care that the patients are receiving and will most likely improve the outcomes of medical students' supervision but this is not guaranteed.

If you do not agree to take part, what alternatives do you have?

- Your decision not to take part in this study will be accepted and understood and will by no means affect the quality of your relationship with your department and/or the faculty.

Who will have access to the records?

- The audio record of the session will be held in a password protected computer. The transcript of the record will be numbered only with a random number allocated to the student who carries the recording device and also stored on a password protected computer. All identifying information of all persons involved in the teaching session will be anonymised in the process of transcription.
- Sponsors of the study, study monitors, or auditors or Research Ethics Committee members may only inspect the anonymised research records.

If you do not agree to take part, what alternatives do you have?

- You do not have to agree to be interviewed and can also withdraw your consent for this at any time.

Will you be paid to take part in this study and are there any costs involved?

- You will not be paid and there are no costs involved

Is there anything else that you should know or do?

- You can contact Prof Julia Blitz juliablitz@sun.ac.za if you have any concerns or complaints that have not been adequately addressed by the researchers.
- You can contact the Health Research Ethics Committee at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the researchers.
- Permission to conduct the study has been obtained from the Institutional Research and Planning Division of Stellenbosch University and the Western Cape Department of Health.
- You will receive a copy of this information and consent form for your own records.

DECLARATION BY PARTICIPANT

By signing below, I agree to take part in a generic research study entitled **An investigation into the teaching strategies used during clinical supervision of Stellenbosch University undergraduate medical students**

I declare that:

- I have read this information and consent form 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 pressurized to take part.
- I may choose to leave the study at any time and will not be penalized 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*) 2014.

.....

Name of participant

.....

Signature of participant

STATEMENT BY THE INVESTIGATOR

I , declare that I have explained the information given in this document to

.....

She/he was encouraged and given ample time to ask me questions. Conversation was conducted in English or Afrikaans and no translator was used.

Signed at (*place*) on (*date*)

.....

Signature of Researcher

.....

Witness

ADDENDUM C.4: APPROVAL FOR RESEARCH



STRATEGY & HEALTH SUPPORT

Health.Research@westerncape.gov.za
tel: +27 21 483 6857; fax: +27 21 483 9895
5th Floor, Norton Rose House, 8 Riebeeck Street, Cape Town, 8001
www.capegateway.gov.za

REFERENCE: RP 184 /2013
ENQUIRIES: Ms Charlene Roderick

Division of Family Medicine & Primary Care
Stellenbosch University
Box 19063
Tygerberg
7505

For attention: Prof Julia Blitz, Elize Archer, Hilary Rhode

Re: An investigation into the teaching strategies used during clinical supervision of undergraduate medical students in the Stellenbosch University Faculty of Medicine and Health Sciences clinical teaching environment

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Please contact the following people to assist you with any further enquiries in accessing the following sites:

Northern / Tygerberg	A Patentia	Contact No. 021 938 1346
Cape Winelands	S Neethling	Contact No. 023 348 8119
Karl Bremer Hospital	L Naude	Contact No. 021 918 1222
Paarl Hospital	B Kruger	Contact No. 021 860 2501
Worcester Hospital	W Driver	Contact No. 023 348 1104
Site B, Khayelitsha	D Binza	Contact No 021 361 4835

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.

2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final report within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).
3. The reference number above should be quoted in all future correspondence.

We look forward to hearing from you.

Yours sincerely



DR NT Naledi *PP*
DIRECTOR: HEALTH IMPACT ASSESSMENT

DATE: *7/01/2014*

CC L BITALO
CC L PHILLIPS
CC A HAWKRIDGE

DIRECTOR: NOETHERN / TYGERBERG
DIRECTOR: CAPE WINELANDS
DIRECTOR: KHAYELITSHA / EASTERN

ADDENDUM D:

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

TITLE OF THE RESEARCH PROJECT:

Clinical teaching on an expanding training platform: designing a fit-for-purpose model of faculty development for emerging clinical teachers in a resource-constrained environment

REFERENCE NUMBER: N14/08/097

PRINCIPAL INVESTIGATOR: Julia Blitz

ADDRESS: F312 FISAN Building; Tygerberg campus; Francie van Zijl Dr; Tygerberg

CONTACT NUMBER: 021 938 9925

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the study staff or doctor any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. 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 Health Research Ethics Committee at Stellenbosch University and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

- This study will be conducted by telephone at your convenience. All medical faculties will be approached to participate.
- This project aims to develop an appropriate model of faculty development that is fit-for-purpose in its ability to prepare clinicians to become clinical teachers in a resource-constrained environment.

Why have you been invited to participate?

- You lead a Centre for Health Professions Education (or similar unit) that may be delivering faculty development opportunities that strengthen clinical teaching.

What will your responsibilities be?

- To fully participate in a semi-structured interview.

Will you benefit from taking part in this research?

- There will not be direct personal benefits accruing to you as a result of your participation in this study. However, the aim of the study is to develop a way to provide faculty development opportunities for clinicians to strengthen their clinical teaching. The aim is that this would improve clinical teaching skills in the future.

Are there in risks involved in your taking part in this research?

- There are no risks involved in your participation in this research.

What will happen in the unlikely event of some form injury occurring as a direct result of your taking part in this research study?

- There is no possibility of injury arising as a result of your participation in this study.

Will you be paid to take part in this study and are there any costs involved?

- No you will not be paid to take part in the study. There will be no costs involved for you, if you do take part.

Is there any thing else that you should know or do?

- You can contact Professor Julia Blitz at tel 021 938 9925 if you have any further queries or encounter any problems.
- You can contact the Health Research Ethics Committee at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the principal investigator.
- You will receive a copy of this information and consent form for your own records.

DECLARATION BY PARTICIPANT

By signing below, I agree to take part in a research study entitled **Clinical teaching on an expanding training platform: designing a fit-for-purpose model of faculty development for emerging clinical teachers in a resource-constrained environment**

I declare that:

- I have read or had read to me this information and consent form 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 study doctor or 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*) 20 .

.....

Signature of participant

.....

Signature of witness

DECLARATION BY INVESTIGATOR

I *Julia Blitz* 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.

Signed at (*place*) on (*date*) 20 .

.....

Signature of investigator

.....

Signature of witness

ADDENDUM E:

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

TITLE OF THE RESEARCH PROJECT:

Clinical teaching on an expanding training platform: designing a fit-for-purpose model of faculty development for emerging clinical teachers in a resource-constrained environment

REFERENCE NUMBER: N14/08/097

PRINCIPAL INVESTIGATOR: Julia Blitz

ADDRESS: F312 FISAN Building; Tygerberg campus; Francie van Zijl Dr; Tygerberg

CONTACT NUMBER: 021 938 9925

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the study staff or doctor any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. 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 Health Research Ethics Committee at Stellenbosch University and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

- This study will be conducted at clinical teaching sites used by Stellenbosch University Faculty of Medicine and Health Sciences outside of the tertiary hospital. We anticipate initially interviewing a sample of 12 clinicians.
- This project aims to develop an appropriate model of faculty development that is fit-for-purpose in its ability to prepare clinicians to become clinical teachers in a resource-constrained environment.
- Purposeful sampling will be used to ensure representation across types of teaching sites and seniority of clinicians.

Why have you been invited to participate?

- You are currently involved in clinical teaching outside the tertiary hospital and this research sets out to determine what clinical teachers understand clinical teaching to be.

What will your responsibilities be?

- To fully participate in an in-depth interview.
- To consider making yourself available to attend a one-day workshop where the model developed out of this research will be validated by key stakeholders.

Will you benefit from taking part in this research?

- There will not be direct personal benefits accruing to you as a result of your participation in this study. However, the aim of the study is to develop a way to provide faculty development opportunities for clinicians to strengthen their clinical teaching. If you wanted to you would be able to participate in such activities in the future.

Are there in risks involved in your taking part in this research?

- There are no risks involved in your participation in this research.

What will happen in the unlikely event of some form injury occurring as a direct result of your taking part in this research study?

- There is no possibility of injury arising as a result of your participation in this study.

Will you be paid to take part in this study and are there any costs involved?

- No you will not be paid to take part in the study. There will be no costs involved for you, if you do take part.

Is there any thing else that you should know or do?

- You can contact Professor Julia Blitz at tel 021 938 9925 if you have any further queries or encounter any problems.
- You can contact the Health Research Ethics Committee at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the principal investigator.
- You will receive a copy of this information and consent form for your own records.

DECLARATION BY PARTICIPANT

By signing below, I agree to take part in a research study entitled **Clinical teaching on an expanding training platform: designing a fit-for-purpose model of faculty development for emerging clinical teachers in a resource-constrained environment**

I declare that:

- I have read or had read to me this information and consent form 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 study doctor or 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*) 20 .

.....

Signature of participant

.....

Signature of witness

DECLARATION BY INVESTIGATOR

I *Julia Blitz* 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.

Signed at (*place*) on (*date*) 20 .

.....

Signature of investigator

.....

Signature of witness

ADDENDUM F1:

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

TITLE OF THE RESEARCH PROJECT:

Clinical teaching on an expanding training platform: designing a fit-for-purpose model of faculty development for emerging clinical teachers in a resource-constrained environment

REFERENCE NUMBER: N14/08/097

PRINCIPAL INVESTIGATOR: Julia Blitz

ADDRESS: F312 FISAN Building; Tygerberg campus; Francie van Zijl Dr; Tygerberg

CONTACT NUMBER: 021 938 9925

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the study staff or doctor any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. 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 Health Research Ethics Committee at Stellenbosch University and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

- This study will be conducted at Stellenbosch University Faculty of Medicine and Health Sciences. Approximately 25 final semester student interns will be sampled
- This project aims to develop an appropriate model of faculty development that is fit-for-purpose in its ability to prepare clinicians to become clinical teachers in a resource-constrained environment.
- Purposeful sampling will be used within the student interns who respond to an invitation to participate in a focus group discussion in order to adequately represent gender and language.

Why have you been invited to participate?

- You are currently completing your student internship and have therefore been exposed to a large variety of clinical teaching.

What will your responsibilities be?

- To fully participate in a focus group discussion.

Will you benefit from taking part in this research?

- There will not be direct personal benefits accruing to you as a result of your participation in this study. However, the aim of the study is to develop a way to provide faculty

development opportunities for clinicians to strengthen their clinical teaching. The aim is that this would improve clinical teaching skills in the future.

Are there in risks involved in your taking part in this research?

- There are no risks involved in your participation in this research

What will happen in the unlikely event of some form injury occurring as a direct result of your taking part in this research study?

- There is no possibility of injury arising as a result of your participation in this study

Will you be paid to take part in this study and are there any costs involved?

- No you will not be paid to take part in the study. There will be no costs involved for you, if you do take part.

Is there any thing else that you should know or do?

- You can contact Professor Julia Blitz at tel 021 938 9925 if you have any further queries or encounter any problems.
- You can contact the Health Research Ethics Committee at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the principal investigator.
- You will receive a copy of this information and consent form for your own records.

DECLARATION BY PARTICIPANT

By signing below, I agree to take part in a research study entitled **Clinical teaching on an expanding training platform: designing a fit-for-purpose model of faculty development for emerging clinical teachers in a resource-constrained environment**

I declare that:

- I have read or had read to me this information and consent form 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 study doctor or 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*) 20 .

.....
Signature of participant

.....
Signature of witness

DECLARATION BY INVESTIGATOR

I *Julia Blitz* 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.

Signed at (*place*) on (*date*) 20 .

.....
Signature of investigator

.....
Signature of witness

ADDENDUM F2:

SUBMISSION GUIDELINES – BMC MEDICAL EDUCATION

Research article

Criteria

Research articles should report on original primary research, but may report on systematic reviews of published research provided they adhere to the appropriate reporting guidelines which are detailed in our [editorial policies](#). Please note that non-commissioned pooled analyses of selected published research will not be considered.

BMC Medical Education strongly encourages that all datasets on which the conclusions of the paper rely should be available to readers. We encourage authors to ensure that their datasets are either deposited in publicly available repositories (where available and appropriate) or presented in the main manuscript or additional supporting files whenever possible. Please see Springer Nature's [information on recommended repositories](#).

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Preparing your manuscript

The information below details the section headings that you should include in your manuscript and what information should be within each section.

Please note that your manuscript must include a 'Declarations' section including all of the subheadings (please see below for more information).

Title page

The title page should:

- present a title that includes, if appropriate, the study design e.g.:
 - "A versus B in the treatment of C: a randomized controlled trial", "X is a risk factor for Y: a case control study", "What is the impact of factor X on subject Y: A systematic review"
 - or for non-clinical or non-research studies a description of what the article reports
- list the full names, institutional addresses and email addresses for all authors
 - if a collaboration group should be listed as an author, please list the Group name as an author. If you would like the names of the individual members of the Group to be searchable through their individual PubMed records, please include this information in the "Acknowledgements" section in accordance with the instructions below
- indicate the corresponding author

Abstract

The Abstract should not exceed 350 words. Please minimize the use of abbreviations and do not cite references in the abstract. Reports of randomized controlled trials should follow the [CONSORT](#) extension for abstracts. The abstract must include the following separate sections:

- **Background:** the context and purpose of the study
- **Methods:** how the study was performed and statistical tests used
- **Results:** the main findings
- **Conclusions:** brief summary and potential implications
- **Trial registration:** If your article reports the results of a health care intervention on human participants, it must be registered in an appropriate registry and the registration number and date of registration should be stated in this section. If it was not registered prospectively (before enrollment of the first participant), you should include the words 'retrospectively registered'. See our [editorial policies](#) for more information on trial registration

Keywords

Three to ten keywords representing the main content of the article.

Background

The Background section should explain the background to the study, its aims, a summary of the existing literature and why this study was necessary or its contribution to the field.

Methods

The methods section should include:

- the aim, design and setting of the study
- the characteristics of participants or description of materials
- a clear description of all processes, interventions and comparisons. Generic drug names should generally be used. When proprietary brands are used in research, include the brand names in parentheses
- the type of statistical analysis used, including a power calculation if appropriate

Results

This should include the findings of the study including, if appropriate, results of statistical analysis which must be included either in the text or as tables and figures.

Discussion

This section should discuss the implications of the findings in context of existing research and highlight limitations of the study.

Conclusions

This should state clearly the main conclusions and provide an explanation of the importance and relevance of the study reported.

List of abbreviations

If abbreviations are used in the text they should be defined in the text at first use, and a list of abbreviations should be provided.

Declarations

All manuscripts must contain the following sections under the heading 'Declarations':

- Ethics approval and consent to participate
- Consent for publication
- Availability of data and material
- Competing interests
- Funding
- Authors' contributions
- Acknowledgements
- Authors' information (optional)

Please see below for details on the information to be included in these sections.

If any of the sections are not relevant to your manuscript, please include the heading and write 'Not applicable' for that section.

Ethics approval and consent to participate

Manuscripts reporting studies involving human participants, human data or human tissue must:

- include a statement on ethics approval and consent (even where the need for approval was waived)
- include the name of the ethics committee that approved the study and the committee's reference number if appropriate

Studies involving animals must include a statement on ethics approval.

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If your manuscript does not report on or involve the use of any animal or human data or tissue, please state "Not applicable" in this section.

Consent for publication

If your manuscript contains any individual person's data in any form (including any individual details, images or videos), consent for publication must be obtained from that person, or in the case of children, their parent or legal guardian. All presentations of case reports must have consent for publication.

You can use your institutional consent form or our [consent form](#) if you prefer. You should not send the form to us on submission, but we may request to see a copy at any stage (including after publication).

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If your manuscript does not contain data from any individual person, please state "Not applicable" in this section.

Availability of data and materials

All manuscripts must include an 'Availability of data and materials' statement. Data availability statements should include information on where data supporting the results reported in the article can be found including, where applicable, hyperlinks to publicly archived datasets analysed or generated during the study. By data we mean the minimal dataset that would be necessary to interpret, replicate and build upon the findings reported in the article. We recognise it is not always possible to share research data publicly, for instance when individual privacy could be compromised, and in such instances data availability should still be stated in the manuscript along with any conditions for access.

Data availability statements can take one of the following forms (or a combination of more than one if required for multiple datasets):

- The datasets generated and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS]
- The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.
- All data generated or analysed during this study are included in this published article [and its supplementary information files].
- The datasets generated and/or analysed during the current study are not publicly available due [REASON WHY DATA ARE NOT PUBLIC] but are available from the corresponding author on reasonable request.
- Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.
- The data that support the findings of this study are available from [third party name] but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of [third party name].
- Not applicable. If your manuscript does not contain any data, please state 'Not applicable' in this section.

More examples of template data availability statements, which include examples of openly available and restricted access datasets, are available [here](#).

BioMed Central also requires that authors cite any publicly available data on which the conclusions of the paper rely in the manuscript. Data citations should include a persistent identifier (such as a DOI) and should ideally be included in the reference list. Citations of datasets, when they appear in the reference list, should include the minimum information recommended by DataCite and follow journal style. Dataset identifiers including DOIs should be expressed as full URLs. For example:

Hao Z, AghaKouchak A, Nakhjiri N, Farahmand A. Global integrated drought monitoring and prediction system (GIDMaPS) data sets. figshare. 2014. <http://dx.doi.org/10.6084/m9.figshare.853801>

With the corresponding text in the Availability of data and materials statement:

The datasets generated during and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS].^[Reference number]

Competing interests

All financial and non-financial competing interests must be declared in this section.

See our [editorial policies](#) for a full explanation of competing interests. If you are unsure whether you or any of your co-authors have a competing interest please contact the editorial office.

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If you do not have any competing interests, please state "The authors declare that they have no competing interests" in this section.

Funding

All sources of funding for the research reported should be declared. The role of the funding body in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript should be declared.

Authors' contributions

The individual contributions of authors to the manuscript should be specified in this section. Guidance and criteria for authorship can be found in our [editorial policies](#).

Please use initials to refer to each author's contribution in this section, for example: "FC analyzed and interpreted the patient data regarding the hematological disease and the transplant. RH performed the histological examination of the kidney, and was a major contributor in writing the manuscript. All authors read and approved the final manuscript."

Acknowledgements

Please acknowledge anyone who contributed towards the article who does not meet the criteria for authorship including anyone who provided professional writing services or materials.

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Endnotes

Endnotes should be designated within the text using a superscript lowercase letter and all notes (along with their corresponding letter) should be included in the Endnotes section. Please format this section in a paragraph rather than a list.

References

Examples of the Vancouver reference style are shown below.

See our editorial policies for author guidance on good citation practice

Web links and URLs: All web links and URLs, including links to the authors' own websites, should be given a reference number and included in the reference list rather than within the text of the manuscript. They should be provided in full, including both the title of the site and the URL, as well as the date the site was accessed, in the following format: The Mouse Tumor Biology Database. <http://tumor.informatics.jax.org/mtbwi/index.do>.

Accessed 20 May 2013. If an author or group of authors can clearly be associated with a web link, such as for weblogs, then they should be included in the reference.

Example reference style:

Article within a journal

Smith JJ. The world of science. *Am J Sci.* 1999;36:234-5.

Article within a journal (no page numbers)

Rohrmann S, Overvad K, Bueno-de-Mesquita HB, Jakobsen MU, Egeberg R, Tjønneland A, et al. Meat consumption and mortality - results from the European Prospective Investigation into Cancer and Nutrition. *BMC Medicine.* 2013;11:63.

Article within a journal by DOI

Slifka MK, Whitton JL. Clinical implications of dysregulated cytokine production. *Dig J Mol Med.* 2000; doi:10.1007/s801090000086.

Article within a journal supplement

Frumin AM, Nussbaum J, Esposito M. Functional asplenia: demonstration of splenic activity by bone marrow scan. *Blood* 1979;59 Suppl 1:26-32.

Book chapter, or an article within a book

Wyllie AH, Kerr JFR, Currie AR. Cell death: the significance of apoptosis. In: Bourne GH, Danielli JF, Jeon KW, editors. *International review of cytology*. London: Academic; 1980. p. 251-306.

OnlineFirst chapter in a series (without a volume designation but with a DOI)

Saito Y, Hyuga H. Rate equation approaches to amplification of enantiomeric excess and chiral symmetry breaking. *Top Curr Chem.* 2007. doi:10.1007/128_2006_108.

Complete book, authored

Blenkinsopp A, Paxton P. Symptoms in the pharmacy: a guide to the management of common illness. 3rd ed. Oxford: Blackwell Science; 1998.

Online document

Doe J. Title of subordinate document. In: *The dictionary of substances and their effects*. Royal Society of Chemistry. 1999. [http://www.rsc.org/dose/title of subordinate document](http://www.rsc.org/dose/title%20of%20subordinate%20document). Accessed 15 Jan 1999.

Online database

Healthwise Knowledgebase. US Pharmacopeia, Rockville. 1998. <http://www.healthwise.org>. Accessed 21 Sept 1998.

Supplementary material/private homepage

Doe J. Title of supplementary material. 2000. <http://www.privatehomepage.com>. Accessed 22 Feb 2000.

University site

Doe, J: Title of preprint. <http://www.uni-heidelberg.de/mydata.html> (1999). Accessed 25 Dec 1999.

FTP site