EVALUATION OF A PILOT "REGISTRAR-AS-TEACHER" FACULTY DEVELOPMENT PROGRAM AT STELLENBOSCH UNIVERSITY

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DECLARATION

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the owner of the copyright thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: 5 November 2014

I, the undersigned, hereby declare that the work contained in this assignment is my original work and that I have not previously submitted it, in its entirety or in part, at any university for a degree.

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Date: 5 November 2014

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SUMMARY

A. Background

Registrars play a significant role as teachers for undergraduate medical students and junior doctors in the clinical setting. (Jack et al. 2010; Busari & Scherpbier 2004). Many however teach ineffectively as registrars are rarely taught how to teach (Morrison et al. 2002, Busari et al. 2002; Thomas et al. 2002).

This has prompted a number of universities to implement "Registrar-as-Teacher" training programs as part of faculty development (FD) initiatives (Leslie et al. 2014; Post et al. 2009, Hill et al. 2009). Although available evidence has demonstrated a positive impact of these programs on the teaching performance of registrars, large differences exist in the interventions, curricula content and participant characteristics. Few studies identified a conceptual framework that informed the design. Most studies focused on a quantitative approach to evaluate outcome; ignoring contextual factors that may shape the successful implementation of new knowledge and skills gained.

At Tygerberg Hospital, education is a key performance area of registrar's staff performance management agreement but no formal training program for registrars as teachers exists. The Centre for Health Professions Education at Stellenbosch University thus piloted a half-day workshop for newly appointed registrars from various disciplines with the aim to develop the clinical supervision skills of registrars as clinical educators.

B. Research Design and Methodology

The overall aim of this study was to evaluate the outcome of a pilot "Registrar-as-Teacher" workshop at the University of Stellenbosch. The specific objectives included:

- To evaluate registrar perceived relevance of workshop content
- To evaluate registrar self-evaluation of teaching practices
- To identify factors affecting the teaching practices of registrars
- To observe and evaluate registrar teaching practices in the clinical setting
- To increase the "Registrar-as-Teacher" workshop effectiveness

A two-phased mixed method design was used, using semi-structured interviews and observation of registrars. Phase one comprised of semi-structured interviews to elicit

both numerical and text-based data. Phase two included observer ratings to further explore the application of knowledge, skills and attitudes gained.

The “Registrar-as-Teacher” program content was informed by the teaching roles described by Harden and Crosby (2000). As educational strategy, Knowles’ adult learning theory (1980) was applied.

The study was conducted at Tygerberg Hospital, a Stellenbosch University Faculty of Health Sciences affiliated teaching hospital in Cape Town, South Africa. The study population included newly appointed registrars (year 1 and 2) from the Departments of Internal Medicine, Paediatrics, Obstetrics and Gynaecology, Surgery, and Orthopaedics.

An inductive approach was used to analyze the qualitative data. Demographic, registrar self- evaluations and workshop evaluation data was analyzed using descriptive statistics.

This study was approved by the Health Research Ethics Committee of Stellenbosch University (protocol number S13/10/177).

C. Results

Seven of the fifteen registrars attending the pilot workshop agreed to take part in phase 1 of the study; five from the Department of Paediatrics and Child Health, and one from Surgery and Obstetrics & Gynaecology respectively. Five agreed to take part in phase 2 of the study; all from the Department of Paediatrics and Child Health.

Participants reported satisfaction with the program and experienced the workshop as a positive learning experience (Kirkpatrick level 1). Participants self-reported positive changes in attitudes, including motivation, self-confidence, enthusiasm, and conceptions of teaching. Knowledge and skills were gained, as self-reported and observed. Individual benefits such as increased self-awareness of teaching ability and increased awareness of student needs were reported (Kirkpatrick level 2). Participants self-reported behavior changes in their teaching practices. Participants, bar one, demonstrated appropriate educational practices and teaching skills (Kirkpatrick level 3).

Participants in our study reported their expanded conceptions of the roles of a teacher as one of the most useful aspects of the workshop. Role modelling was singled out as the most useful session.

Participants generally had a positive view on their contribution to student learning. They saw it as a formative influence on how students view the profession and discipline. Unique aspects of registrar teaching were highlighted as being more informal in nature, more practice orientated; and working in a closer relationship with students; thus complementary to the consultant teaching role.

Participants recognized that they are still developing their clinical teaching skills. Most participants rely on observed teaching methods or borrow from their own experiences as students. Participants based their self-assessment of being a good teacher on their personal views that mirrored their conceptions of a good teacher; seldom asking for or receiving feedback on their teaching skills to shape their own learning or performance as clinical teachers. Most participants in our study asked for regular or follow up training where they could reflect on their development and also receive feedback on progress made.

Few participants felt comfortable to give feedback to students or to use the 'one-minute preceptor' compared to other aspects of clinical teaching. Our FD program's session on teaching in the clinical setting and the 'one-minute preceptor' thus worked less well. This speaks to how to increase the effectiveness of future workshops.

Even though all participants enjoyed teaching students, reported barriers to effective teaching were many. Participants often felt frustrated and overwhelmed by their teaching task. Limited time with competing responsibilities such as huge service demands and administrative duties impacted negatively on participants' ability to teach students.

Participants mostly felt unsupported and undervalued as teachers by their various departments, with little guidance on the expected student teaching content, process or learning outcomes. Although the expectation to teach is clearly communicated by the various departments, there is no training, supervision structure, formative feedback, or appreciation of their teaching performance. This lack of orientation and communication was further highlighted by participants pointing to the explanation of

the MBChB undergraduate curriculum structure as the second most useful component of the course after role modelling.

D. Conclusion and Recommendations

Our study confirmed the important role of registrars as teachers in the clinical setting. Apart from sharing theoretical and on-the-job knowledge, registrars teach practical skills and act as role models for the profession.

Participants perceived the pilot “Registrar-as-Teacher” workshop content as relevant and the workshop shaped their teaching conceptions and practices. But workplace barriers like limited time with competing responsibilities impacted negatively on participants’ ability to teach students. A reported lack of guidance and support from the respective departments further undermined their ability to develop as clinical teachers.

Future “Registrar-as-Teacher” FD initiatives at Stellenbosch University should thus provide registrars with optimal approaches and best teaching practices for busy clinical settings; enabling them to merge teaching with work.

Strengthening FD requires the adoption of a broader conceptual framework that does not just focus on the individual participant, but link FD to the development of the department or institution as a whole (Swanwick & McKimm 2012). Workplace communities that include departmental faculty members should be involved in FD programs; allowing for ongoing learning and professional development of registrars as clinical teachers (O’Sullivan & Irby 2011; Steinert et al. 2010; Webster-Wright 2009; Hunter et al. 2008; Thorndyke et al. 2006).

This requires a longitudinal strategy. Our “Registrar-as-Teacher” FD program should thus move away from the one-time workshop and instead create multiple learning events with opportunities for application and reflection.

OPSOMMING

A. Agtergrond

Kliniese Asssistente (KAs) speel ‘n belangrike rol as onderwysers vir voorgraadse studente en junior dokters in die kliniese omgewing (Jack et al. 2010; Busari & Scherpbier 2004). Baie gebruik egter oneffektiewe onderrigmetodes omdat hulle selde opleiding ontvang oor onderrig (Morrison et al. 2002, Busari et al. 2002; Thomas et al. 2002).

Verskeie universiteite het die probleem aangespreek deur “KA-as-Onderwyser” opleidingsprogramme as deel van hul Fakulteitsontwikkelings inisiatiewe te loots (Leslie et al. 2014; Post et al. 2009, Hill et al. 2009). Alhoewel beskikbare bewyse dui op ‘n positiewe impak van die programme op die onderrig prestasies van Kliniese Assistente, kom groot verskille voor in die intervensies, kurrikulum inhoud en deelnemer eienskappe. Min studies het sover ‘n konseptuele raamwerk geidentifiseer wat die studie ontwerp belig. Meeste studies fokus ook op slegs ‘n kwantitatiewe benadering as evalueringsuitkoms; en ignoreer die kontekstuele faktore wat die suksesvolle implementering van nuwe kennis en vaardighede mag beinvloed.

By Tygerberg Hospitaal is onderrig ‘n sleutel prestasie area vir Kliniese Assistente se personeel prestasie bestuur ooreenkoms, maar geen formele opleidingsprogram vir KAs bestaan nie. Die Sentrum vir Gesondheidsberoepe Onderwys by Stellenbosch Universiteit het dus ‘n halfdag werkswinkel geloots vir nuutaangestelde KAs van verskeie departemente met die doel om hul kliniese supervisie vaardighede te ontwikkel.

B. Navorsingontwerp en Metodiek

Die oorkoepelende doel van die studie was om die uitkoms van die nuwe “KA-as-Onderwyser” werkswinkel by die Universiteit van Stellenbosch te evalueer. Die spesifieke doelwitte het ingesluit:

- Om die KAs se relevansie van die werkswinkel inhoud te evalueer
- Om KAs se self-evaluasie van hul onderrigpraktyke te evalueer
- Om faktore te identifiseer wat onderrigpraktyke van KAs beinvloed
- Om KAs se onderrigpraktyke in die kliniese omgewing te observeer en te evalueer

- Om die effektiwiteit van die “KA-as-Onderwyser” werkswinkel te verbeter

‘n Twee-fase gemengde metodiek ontwerp is gebruik wat die gebruik van semi-gestruktureerde onderhoude en observasies van KAs ingesluit het. Fase een het bestaan uit semi- gestruktureerde onderhoude om beide numeriese en teks-data te ontlok. Fase twee het ingesluit observasies en gradering van onderrig aktiwiteite om die toepassing van nuwe kennis, vaardighede en houdings te verken.

Die “KA-as-Onderwyser” program inhoud is deur die onderwyser rolle soos beskryf deur Harden en Crosby (2000) toegelig. As onderrigstrategie is Knowles se volwasse leerteorie (1980) toegepas.

Die studie is uitgevoer by Tygerberg Hospitaal, ‘n Stellenbosch Universiteit Fakulteit van Geneeskunde en Gesondheidswetenskappe geaffilieerde onderrighospitaal. Die studie populasie het ingesluit nuutaangestelde KAs (jaar 1 en 2) van die Departemente Interne Geneeskunde, Pediatrie, Obstetrie en Verloskunde, Chirurgie en Ortopedie.

‘n Induktiewe benadering is gevolg om die kwalitatiewe data te analiseer. Demografiese, KA self- en geobserveerde evaluasies, en werkswinkel evaluasie data is met behulp van beskrywende statistiese metodes geanaliseer.

Die studie is goedgekeur deur die Gesondheids Navorsings Etiese Komitee van Stellenbosch Universiteit (protokol nommer S13/10/177).

C. Resultate

Sewe van die vyftien KAs wat die werkswinkel bygewoon het, het ingestem om deel te neem aan fase 1 van die studie; vyf van die Departement van Pediatrie en Kindergesondheid, en een elk van Chirurgie en Obstetrie en Verloskunde. Vyf het ingestem om deel te wees van fase 2 van die studie; almal van die Departement van Pediatrie en Kindergesondheid.

Deelnemers was gelukkig met die program en het die werkswinkel as ‘n positiewe leerervaring beskryf (Kirkpatrick vlak 1). Deelnemers het positiewe veranderinge in houding, insluitend motivering, selfvertroue, entoesiasme, en opvattings van onderrig rapporteer. Beide selfbeskrywende en geobserweerde kennis en vaardighede is uitgebrei. Individuele voordele soos verhoogde self bewustheid van onderrig

vermoeens en verhoogde bewustheid van studentbehoeftes is gerapporteer (Kirkpatrick vlak 2). Deelnemers het veranderinge in hul onderrig praktyke rapporteer. Alle deelnemers, behalwe een, het ook toepaslike onderrig praktyke en onderrig vaardighede demonstreer (Kirkpatrick vlak 3).

Deelnemers van ons studie het die nuwe opvattings oor hul rol as kliniese onderwysers as een van die waardevolste aspekte van die werkswinkel beskryf. Rolmodellering was uitgesonder as die mees waardevolste sessie.

Deelnemers het in die algemeen ‘n positiewe siening van hul bydrae tot studente onderrig gehad. Hulle sien dit as ‘n formatiewe invloed op hoe studente die mediese professie en spesifieke dissiplines beskou. Unieke aspekte van KA onderrig wat uitgelig is was die meer informele aard van hul onderrig, dat dit meer prakties georienteerd is, en dat hul ‘n nouer verhouding met studente het; dus ‘n komplementere rol tot die onderrig rol van die konsultant.

Deelnemers erken dat hul steeds ontwikkel as kliniese onderwysers. Meeste deelnemers maak staat op geobserweerde onderrigmetodes of leen van hul eie ervarings as student. Deelnemers baseer hul siening oor hulself as goeie onderwysers op hul persoonlike siening van ‘n goeie onderwyser en vra selde terugvoer oor hul onderrig praktyke om sodoende hul eie leer en prestasie as kliniese onderwysers te vorm. Meeste deelnemers in ons studie het egter gevra vir gereelde en opvolg opleiding sodat hulle oor hul eie onderrig praktyke kan reflekteer.

Min deelnemers was gemaklik om terugvoer aan studente te gee of om die ‘one-minute preceptor’ strategie te gebruik in vergelyking met ander onderrig strategiee. Ons werkswinkel sessie oor onderrig en strategiee in die besige kliniese omgewing was dus minder suksesvol en sal in toekomstige werkswinkels aangespreek moet word.

Alhoewel deelnemers studente onderrig oor die algemeen geniet, is baie hindernisse tot effektiewe studente onderrig beskryf. Deelnemers voel dikwels gefrustreerd en oorweldig deur hul onderrig taak. Min tyd, met kompeterende verantwoordelikhede soos dienslewering en administratiewe pligte beinvloed onderrig negatief.
Deelnemers rapporteer dat hul nie voldoende ondersteuning ontvang van hul verskeie departemente nie, en voel ondergewaardeer as onderwysers. Min leiding word verskaf oor verwagte studente leeruitkomste, prosesse of kennis wat oorgedra

moet word. Alhoewel die verwagting dat KAs moet onderrig gee duidelik gekommunikeer word deur die verskeie departemente, vind geen opleiding, supervisie of terugvoer oor hul prestasies plaas nie. Hierdie gebrek aan orientering en kommunikasie was verder uitgelig deurdat deelnemers die verduideliking van die MBChB voorgraadse kurrikulum struktuur as die waardevolste sessie naas rolmodellering beskryf het.

D. Opsomming en Aanbevelings

Ons studie bevestig die belangrike rol van KAs as onderwysers in die kliniese omgewing. Behalwe dat teoretiese en praktiese kennis en vaardighede geleer word, tree hul ook as rolmodelle vir die mediese professie op.

Deelnemers het die “KA-as-Onderwyser” werkswinkel inhoud as relevant beskou en rapporteer dat dit hul onderrig opvattings en praktyke positief beinvloed het. Werksplekhindernisse soos beperkte tyd en kompeterende verantwoordelikhede beinvloed onderrig van studente egter negatief. ‘n Gerapporteerde gebrek aan leiding en ondersteuning van hul onderskeie departemente ondermyn verder KAs se ontwikkeling as kliniese onderwysers.

Toekomstige “Kliniese Assistent-as-Onderwyser” Fakulteitsontwikkelings-inisiatiewe by Stellenbosch Universiteit moet dus KAs voorsien van optimale strategiee en onderrig praktyke om werk en onderrig suksesvol te kan kombineer.

Om Fakulteitsontwikkelings-inisiatiewe verder te versterk, moet ‘n breer konseptuele raamwerk aanvaar word wat nie net fokus op die individuele deelnemer nie, maar wat Fakulteitsontwikkeling koppel aan die ontwikkeling van departemente en instansies (Swanwick & McKimm 2012). Werksplek gemeenskappe wat departementele konsultante insluit, moet betrokke wees by Fakulteitsontwikkeling om KAs in staat te stel om professioneel te ontwikkel as kliniese onderwysers (O’Sullivan & Irby 2011; Steinert et al. 2010; Webster-Wright 2009; Hunter et al. 2008; Thorndyke et al. 2006).

Hierdie vra vir ‘n longitudinale strategie. Ons “KA-as-Onderwyser” Fakulteitsontwikkelingsprogram moet weg beweeg van eenmalige werkswinkels en eerder veelvuldige leergeleenthede skep met geleenthede vir toepassing en refleksie.

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Chapter 1: INTRODUCTION

'Who dares to teach must never cease to learn.' ~John Cotton Dana

Registrars play a significant role as teachers for undergraduate medical students and junior doctors in the clinical setting; often spending as much as 25% of their work time teaching (Jack et al. 2010; Busari & Scherpbier 2004; Bordley & Litzelman 2000). Not surprising then that medical students estimate that up to a third of their teaching are being performed by registrars, while in contrast only 19% of knowledge resulted from consultant teaching (Bing-You & Sproul 1992; Sheets et al. 1991).

Registrars further contribute to students' educational process by acting as role models and teachers of values and professionalism; with their own professional attributes influencing the learning environment and student behavior and attitudes (Butani et al. 2013; Smith & Kohlwes 2011; Seeley 1999).

But in general, registrars are not taught how to teach as part of their specialists training program (Morrison et al. 2001; Bing-You & Tooker 1993). This leaves many ill-prepared for their teaching responsibilities in the ever developing clinical environment with student diversity, integrated curricula and evolving teaching practices. Many registrars teach ineffectively due to a lack of teaching skills or confidence, with the majority employing teaching skills acquired from their own experience as students (Thomas et al. 2002; Morrison et al. 2002; Goode et al. 2002).

The CanMEDS Physician Competency Framework (CanMEDS) identifies seven clusters of essential competencies or roles that are necessary for competent medical practice and improved patient care (Royal College of Physicians and Surgeons Canada 2005). The communicator and scholarly roles of CanMEDS imply a teacher role for the physician, and teaching is seen as an essential feature of doctor-patient interaction (Sherbino, Frank, Snell 2014; Nation et al. 2011). To support the acquisition of these competencies among registrars, general accreditation standards for have been established in Canada, which state that a registrar training program "must ensure" there is effective teaching and assessment of the competencies captured in the CanMEDS framework (Warren et al. 2014). If a similar viewpoint is adopted, it can be argued that the responsibility for the professional development of registrars as teachers lies with their training institution.

A number of universities have implemented “Registrar-as-Teacher” training programs as part of their faculty development (FD) initiatives since. A positive impact on the teaching performance of registrars in terms of self-assessed teaching behaviors, self-reported knowledge, self-confidence as teachers and higher learner evaluations have been reported. (Foster & Laurent 2013; Reamy et al. 2012; Post et al. 2009; Ricciotti et al. 2012; Hill et al. 2009; Dewey et al. 2008; Busari et al. 2006; D’Eton 2004; Wamsley et al. 2004; Morrison et al. 2003). Morrison and colleagues (2005) reported a sustained impact on registrar’s enthusiasm for teaching, the use of learner-centered approaches and self-awareness of teaching principles one year after the intervention.

FD programs play a critical role in the development of teaching competencies, but evidence to inform the content, structure and evaluation of these programs are still incomplete. In a recent systematic review of 21 Faculty Development programs in medical education by Leslie and colleagues (2013), only one study (Sullivan et al. 2005) explicitly discussed a theoretical framework for the FD activities. An earlier systematic review of FD programs by Steinert and colleagues (2006), similarly found that few studies identified a conceptual framework to inform design. Both reviews found evaluation approaches to be mostly quantitative and advised the addition of qualitative perspectives to generate findings on different institutional and contextual factors shaping the success of FD programs.

At Tygerberg Hospital, the tertiary and training hospital for the University of Stellenbosch, education is a key performance area of all registrar’s staff performance management agreement; with the expected activities described as “to teach and train medical students during ward rounds and giving tutorials to them as indicated by the consultants and the academic head…” but no formal training program for registrars as teachers currently exists.

The Centre for Health Professions Education at Stellenbosch University has thus piloted a half-day clinical supervision workshop for newly appointed registrars from various disciplines. This course is one of the FD initiatives at the University of Stellenbosch with the aim to develop the clinical supervision skills of registrars as clinical educators.

The purpose of this study was to evaluate the pilot “Registrar-as-Teacher” faculty development (FD) program using both qualitative and quantitative data. This study

focused on both the educational process and interplay of contextual factors that affect the success of a FD program and will provide valuable information on registrar teaching practices in the clinical setting; informing the development of future faculty development programs. Specific objectives include:

- To evaluate registrar perceived relevance of workshop content
- To evaluate registrar self-evaluation of teaching practices
- To identify factors affecting the teaching practices of registrars
- To observe and evaluate registrar teaching practices in the clinical setting
- To increase the “Registrar-as-Teacher” workshop effectiveness

The current knowledge on teaching in the clinical setting and the unique role of the registrar will be discussed first; followed by the conceptual framework that informed the design of the “Registrar-as-Teacher” FD program as well as the methodology of the study. Chapter 3 will specifically focus on the methodology and study design, outlining the theoretical framework for the study. The results in chapter 4 will be grouped into four main categories based on the stated study objectives, followed by the discussion and implications of the study findings in chapter 5 and 6.

Chapter 2: LITERATURE REVIEW

'It goes without saying that no man can teach successfully who is not at the same time a student.' ~Sir William Osler

A. Registrars as Teachers in the Clinical setting

Clinical education occurs in the context of patient care, and involves the translation of theory into the development of clinical knowledge and practical skills (Higgs & McAllister 2007).

Effective clinical educators use several distinct and sometimes overlapping forms of knowledge during clinical teaching which includes domains such as clinical reasoning skills, ethical patient care and professionalism (Spencer 2003; Copeland & Hewson 2000). Knowing which domain to use depends upon an evaluation of the situation, what the student needs to learn, how conducive the learning environment is to helping students to learn and what constraints are present (Higgs & McAllister 2007).

The knowledge, skills and attitudes required for effective teaching in the clinical setting are many and varied; ranging from enthusiasm, availability and accessibility, the ability to motivate, rapport with students and patients, creating a supportive learning environment, taking advantage of teaching opportunities, observation and reflective practice, instruction, problem solving, giving and receiving constructive feedback, to organizational skills and managing a service (Butani et al. 2013; Smith & Kohlwes 2013; Hatem et al. 2011; Fluit et al. 2010; Kilminster et al. 2007; Sullivan et al. 2005; Harden & Crosby 2000; Irby 1994).

Registrars are uniquely positioned to be effective clinical teachers as they focus on day-to-day management-oriented patient care as opposed to the often in-depth discussion and problem-solving teaching behavior of consultants (Jack et al. 2010; Tremonti & Biddle 1982).

Registrars in general enjoy teaching and consider it an important aspect of their training and preparation for practice (Bing-You & Tooker 1993). Teaching benefits registrars by contributing to their professional development (Busari & Arnold 2009; Weiss & Needlman 1998) and studies confirmed that formal teaching responsibility improved registrars' knowledge and acquisition more than self-study or attending lectures (First et al. 1992). Registrars further perceive the teaching of medical

students as beneficial for their own learning (Busari et al. 2002). Many residents may also wish to pursue academic careers, in which they will be expected to teach in diverse settings (Mann et al. 2007).

In order to teach effectively, registrars, in addition to being competent, analytical and up to date with the area of clinical expertise, need to be familiar with the basic learning principles and teaching techniques (Dandavino et al 2007; Sullivan et al. 2005; Irby 1994). But despite their well-established teaching role, many residents receive little or no formal instruction as part of medical education faculty development programs (Shapiro 2001).

A better understanding of teaching and learning principles may improve personal learning (Dandavino et al. 2007; Stern et al. 2000; Weiss & Needlman 1998), whilst Irby (1994) demonstrated that if clinical teachers understand the learning process, it reinforces and improves their didactic, cognitive and clinical skills.

B. Faculty Development in Medical Education

Faculty Development (FD) has been defined as any planned activity to improve a faculty member's knowledge and skills in areas considered necessary for their performance (e.g. teaching skills, administrative skills, research skills, clinical skills) (Sheets & Schwenk 1990).

FD is part of the professional development of medical educators and is recognized as an essential support framework to assist with the improvement of knowledge, skills and attitudes of individuals. It further reinforces or alters attitudes and beliefs about education; providing a conceptual framework for what is often done intuitively (Leslie et al. 2013; Steinert 2011; McLean et al. 2008; Forsetlund et al. 2009).

Studies on the effectiveness of Medical Education FD programs reported that participant satisfaction of these programs was high. It also reported positive changes in participants' attitude towards teaching, changes in knowledge about educational principles and specific teaching behaviors, increased personal interest and enthusiasm, improved self-confidence to teach and a greater sense of belonging to a teaching community (Skeff et al. 1997; Steinert et al. 2008).

Large differences exist in the interventions, theoretical basis, curricula content, and participant characteristics of these faculty development programs though. Authors

from a Best Evidence Medical Education (BEME) study focusing on the outcome of faculty development evaluation, suggested the use of the Kirkpatrick framework (Kirkpatrick & Kirkpatrick 2006) to categorize the impact levels of an education intervention; with level 1: reaction (participants' view of the learning experience), level 2: learning (changes in attitude, knowledge or skills), level 3: behavior (application of new knowledge and skills), and level 4: results (change in the system or organizational practice or the participants' students and peers). Most published studies evaluating the educational outcomes of registrar-as-teacher programs utilized level 1 or 2 assessments of the Kirkpatrick framework only (Leslie et al. 2013; Hill et al. 2009; Post et al. 2009; Wamsley et al. 2004).

The Kirkpatrick evaluation framework fits with the primary assumption that FD programs serve the overarching goals of medical education; namely the improvement of patient and community care through the training and education of medical practitioners (McLean et al. 2008). This linear approach assumes a causal chain of events starting with a FD program, continuing through changes in actions of individual faculty participants to changes in the action of learners, and culminating in changes in patient care (Figure 1). If teaching influences student learning, then by improving educational knowledge and teaching practice, students should benefit (Prebble et al. 2004).

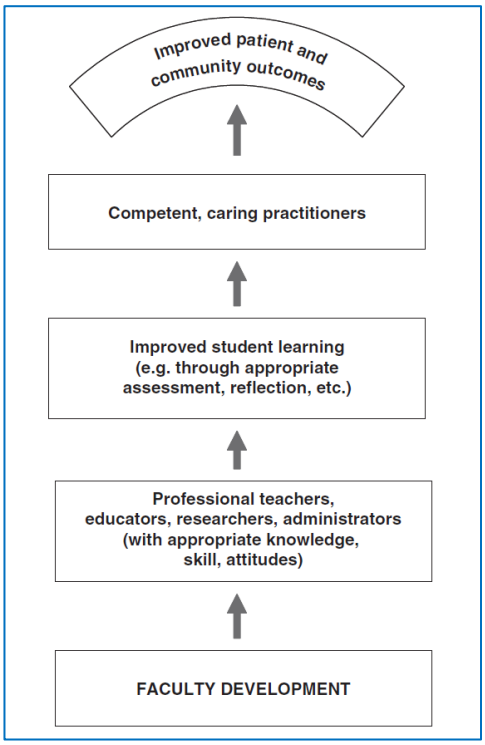


Figure 1. *Linear relationship between Faculty Development and outcomes of medical education (McLean et al. 2008)*

C. Conceptual Framework

The 3-P model (Presage-Process-Product) conceptualizes teaching and learning from the perspective of the learner (Biggs 1989). The general concept of the 3-P model is that learning outcomes result from interactions between the presage, the student and teacher context; and the process, the educational intervention (Boet et al. 2012).

Using this model as framework for our "Registrar-as-Teacher" FD program study design (Figure 3), FD is not seen as a linear relationship between input and outcome, but as a cyclical model where the interaction between learner and teacher contextual factors (presage) and learner interaction (process), determine the successful implementation of new knowledge and skills gained (product). Understanding the contextual factors and implementation "success" should inform subsequent FD program strategies.

Learner context refers here to registrar motivation, values, expectations, perceptions, prior knowledge and skills, and the 'operating' or working environment (Boet et al. 2012). FD programs, which usually pull participants out of their work environment, rarely address the challenges of translating the new learning into the workplace (O'Sullivan & Irby 2011). According to the workplace learning framework (Sheehan et al. 2005), different factors affect participation in the workplace and consequently, learning and practice. Social factors like relationships within the practice community can enhance participation and engagement by creating a positive environment and providing guidance and encouragement (Mann 2010). The structure of the work, time pressures, workload, and work flow also influence participation.

Most registrars feel unprepared for their teaching task and studies exploring the performance, conceptions, motivations and needs of registrars as teachers pointed to a multilayered phenomenon of both privilege and burden (Gil et al. 2009; Gough & Beckett 2006). This has however not been studied in our setting.

Teacher context refers to the institutional teaching environment, structure and content of the course, instruction methods and assessment.

Although twelve teaching roles have been described by Harden and Crosby (2000), the Stellenbosch University "Registrar-as-Teacher" workshop focused specifically on

those applicable to registrars as teachers in the clinical setting, namely the information provider, role model and facilitator.

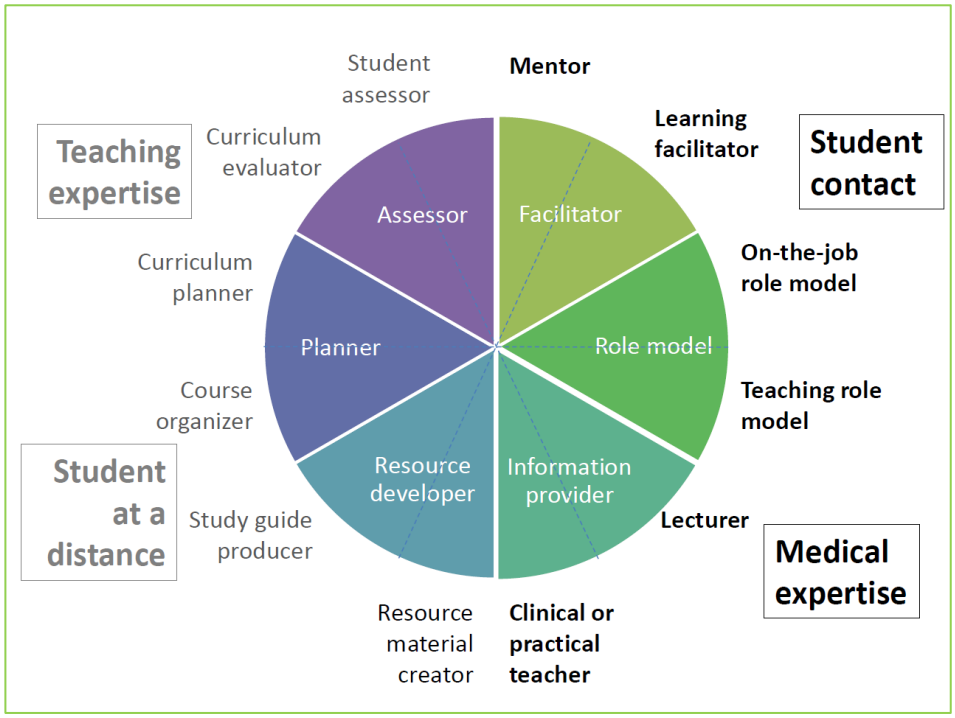


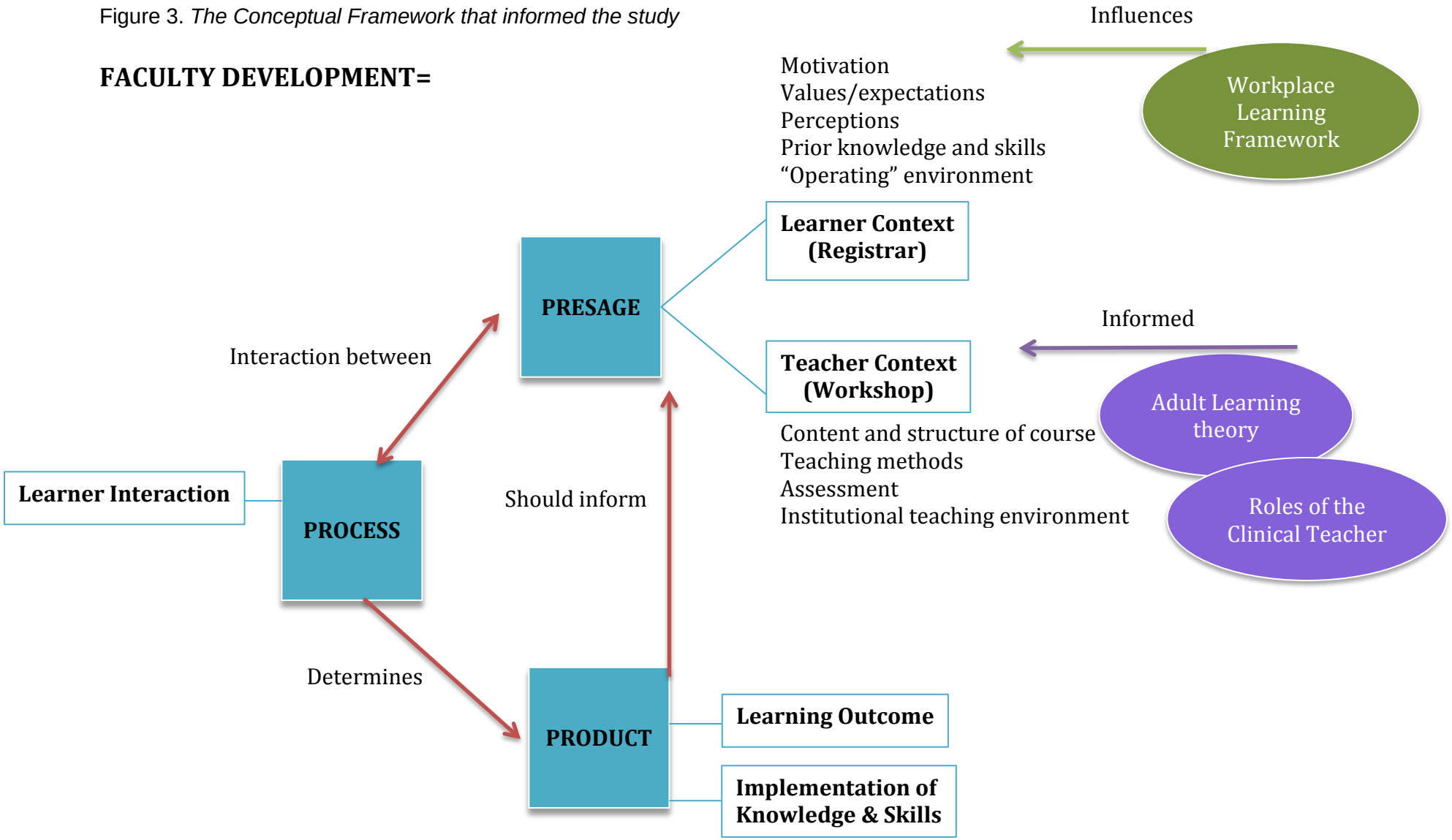
Figure 2. *The Twelve Roles of the Teacher (Harden & Crosby 2000)*

As educational strategy, Knowles' adult learning theory (1980); viewing the registrars as autonomous, self-directed learners who have accumulated a wealth of life experiences, and who are practical, goal and relevancy-orientated, was applied.

D. "Registrar-as-Teacher" Faculty Development Program Evaluation

Based on the Kirkpatrick framework, an objective assessment of the utilization of teaching strategies taught during the workshop will point towards translation of knowledge and skills into implementation in the workplace. Exploring the contextual factors influencing the outcome of these programs is however essential to provide a more complete picture of the impact of a FD program. Both quantitative and qualitative data are needed to evaluate this pilot FD program and inform future strategies.

Figure 3. *The Conceptual Framework that informed the study*



Chapter 3: RESEARCH DESIGN AND METHODOLOGY

'To teach is to learn twice.'
~Joseph Joubert, Pensées, 1842

A. AIM & OBJECTIVES

The overall aim of this study was to evaluate the outcome of a pilot "Registrar-as-Teacher" workshop at the University of Stellenbosch. The specific objectives include:

1. To evaluate registrar perceived relevance of workshop content
2. To evaluate registrar self-evaluation of teaching practices
3. To identify factors affecting the teaching practices of registrars
4. To observe and evaluate registrar teaching practices in the clinical setting
5. To increase the "Registrar-as-Teacher" workshop's effectiveness

B. METHODOLOGY

a. Study design

A two-phased mixed method design was used, using semi-structured interviews and observation of registrars. Phase one comprised of semi-structured interviews to elicit both numerical and text-based data. Phase two included observer ratings to further explore the application of knowledge, skills and attitudes gained.

The positivist paradigm drives a quantitative approach in research, with a focus on determining cause and effect, selecting variables and generalizing it to a population with the assumption that a 'truth' exists and that the goal of science is to discover this truth (Bunniss & Kelly 2010). Constructivism, with its emphasis on understanding the meanings articulated by participants who hold various worldviews, is typically associated with the qualitative perspective which is a more interpretative stance (Kuper et al. 2008). The constructivist assumption is that learners actively build knowledge based on previous learning and on the affordance or hindrances of the learning situation. The constructivist view attempts to understand and not erase different perspectives.

Even though based on 'contradicting' philosophies, the use of a mixed method approach, combining qualitative and quantitative methods, can provide more in depth/ detailed understanding of the processes and outcomes associated with a medical education activity (Lavelle et al. 2013; Lingard, Albert, Levinson 2008; Goldie 2006; Greenhalgh & Taylor 1997). Lavelle and colleagues (2013) describes this

mixed methods approach as 'pragmatism', where the focus is on the utility of research.

The mixed method methodology was thus chosen for this study, using multiple data gathering techniques to explore the multiple factors that impact the successful implementation of our FD program. Table 1 outlines the theoretical framework of the study.

Table 1. *Schema outlining the theoretical framework of the study*

Methodology: Mixed method		
	Qualitative element	**Quantitative element**
Epistomology	Constructivist orientation	Positivist orientation
Theoretical perspective	Phenomenology. A theoretical framework that focuses on exploring how individuals make sense of the world and that aims to provide insightful accounts into the subjective experiences of these individuals (Husserl SD 2007).	Kirkpatrick framework. Categorizes the impact levels of an education intervention; with level 1: reaction, level 2: learning, level 3: behaviour and level 4: results (Kirkpatrick 1994).
Data collection instruments	1.Participant interviews 2.Observation in clinical teaching setting (field notes)	Post course design using 1. Participant self-rating (Kirkpatrick level 1 & 2) 2. Observer rating in clinical setting (Kirkpatrick level 3)
Data analysis	Thematic analysis, inductive process allowing meaning to emerge	Descriptive statistics

b. Setting, Study population and Sampling

The study was conducted at Tygerberg Hospital, a Stellenbosch University Faculty of Health Sciences affiliated teaching hospital in Cape Town, South Africa.

The study population included newly appointed registrars (year 1 and 2) studying at the University of Stellenbosch who have attended the pilot "Registrar-as-Teacher" workshop.

A variety of clinical disciplines were included; Internal medicine, Paediatrics, Obstetrics and Gynaecology, Surgery, and Orthopaedics. These disciplines were purposefully selected because they are responsible for a large amount of the time undergraduate medical students spent in clinical rotations.

Head of Departments nominated participants to attend the workshop based on their year of study, with no random selection process. Workshop attendance was compulsory, but participation in the study was entirely voluntary.

Inclusion criteria:

- Year 1 and 2 registrars from the departments of Surgery, Internal medicine, Obstetrics and Gynaecology, Paediatrics, and Orthopaedics.
- Attendance of the workshop.

c. Intervention

A half-day workshop (4.5 hours) was conducted on the 11th of October 2013 at the Centre for Health Professions Education, Stellenbosch University. Experienced consultants covered content on orientation/overview of the Stellenbosch University undergraduate medical program, role modelling, clinical supervision, formative feedback and e-learning in the clinical setting (Table 2).

Table 2. *Program Agenda with Learning Outcomes*

	AGENDA	LEARNING OUTCOMES
13h00-13h15	Welcome	To understand the role of teacher in the clinical setting
13h15-13h30	Overview of the MBCHB program	To understand the outline of the MBCHB curriculum – specifically as it pertains to the thread of each discipline through the theory and practical "modules" and the rotations
13h30-14h00	Role modelling	To understand the responsibilities of being a role model in the clinical setting (knowledge, skills, attitudes and behaviour) To be able to reflect and identify own learning needs
14h00-15h00	Clinical supervision	To be able to use the one minute preceptor / SNAPPS models To identify and use informal teaching/learning opportunities
15h00-15h20	TEA	
15H20-15H45	Formative feedback	Ability to diagnose the student's gap between current and expected performance To give constructive feedback about how to close that gap
15h45-16h10	E- learning in the clinical setting	To be able to access e- resources in the clinical setting. (Handy hints) e.g. 'up to date', text books from the library, you tube clips, etc.
16h10-16h20	Closure	

d. Data Collection

Registrars were informed about the study on the day of the pilot workshop. After the workshop they were invited to participate in the study via email (with reminders) and telephonically.

The data collection period was from February till August 2014. Informed and written consent was obtained from registrars (see Appendix A).

Sources of data included 1) post intervention semi-structured individual interviews with registrars at least 3 months after the intervention, and following this 2) direct observation of registrars as teachers in the clinical setting. This order and timing of data collection was to ensure that sustainable changes in teaching perceptions and practices were captured.

Data collection instruments used (see Appendix B):

1) Individual semi-structured interviews. In our study, the semi-structured interviews collected quantitative data on registrars' rating of the workshop and qualitative data exploring their experiences, conceptions of their role and value as clinical teachers, teaching activities and barriers to implementing teaching in the clinical setting.

   The interview guide was informed by a review of the literature, but the interviewer also explored themes further during the interview process as deemed necessary. The registrars' rating of the workshop used a Likert scale and was reviewed by two experienced clinical educators who participated in the workshop.

2) Observer rating. To evaluate registrar' teaching practices after attendance of the workshop, voluntary participating registrars were observed during one clinical interaction with students by the investigator as a post intervention assessment. The registrars were aware that they are being observed and recorded.

   The rating instrument was informed by the content of the workshop and evaluated whether the registrar demonstrated specific knowledge, skills and attitudes covered during the workshop. The rating instrument was not validated.

Interviews were audiotaped and transcribed using standard rules of transcription. All names and identifiers were removed from the final transcripts which were reviewed by the investigator for accuracy. All recordings were labelled with a number. Data including the date, site of the clinical teaching (e.g. ward, clinic, etc), the discipline and student year of training were recorded. An electronic copy of the transcript was annotated by the investigator to include comments on the nature of the teaching episode (e.g. ward round), the number of students in the group, whether this was a

group that had students from more than one year of study, any explanations required for silences in the transcription (e.g. demonstration of a skill), or any other comments relevant to the clinical teaching.

e. Data analysis

An inductive approach was used to analyze the qualitative data (Pope, Ziebland, Mays 2000). Themes that emerged from the interviews were identified and grouped together in categories. This allowed for the identification of key issues and concepts, and drew on questions derived from the objectives of the study as well as issues raised by the respondents themselves.

Demographic, registrar self- evaluations and workshop evaluation data was analyzed using descriptive statistics.

f. Ethical Considerations

This study was approved by the Health Research Ethics Committee of Stellenbosch University (protocol number S13/10/177).

g. Researcher influence, insider position

As primary investigator, I work as a consultant in the Department of Paediatrics & Child Health, the same working environment as the registrars; and was involved with the development of the pilot workshop. This could potentially make it difficult to interpret the data in a neutral manner, but both the qualitative results and thematic analysis were reviewed and validated by both supervisors. At the same time, I am well placed to understand the context of clinical education and can contribute to the development of future FD initiatives.

Chapter 4: RESULTS

'Tell me and I will forget. Show me, and I may remember. Involve me, and I will understand.' ~Confucius, 450BC

We grouped our findings into four main categories based on the stated study objectives and ordered it sequentially; presenting phase 1 results (semi-structured interviews) first followed by the phase two results (observer ratings).

Fifteen registrars attended the pilot training, with representatives from the Departments of Internal Medicine (5 participants), Paediatrics and Child Health (5 participants), Surgery (3 participants) and Obstetrics & Gynaecology (2 participants).

Seven registrars agreed to take part in the study; five registrars from the Department of Paediatrics and Child Health, and one from Surgery and Obstetrics & Gynaecology respectively. Most registrars were at the start of their training as specialists, with five registrars in their first year of studies at the time of the workshop, and two in their second year. None have received any previous formal training on clinical supervision or teaching; with one participant previously engaged in student training as a medical officer.

Table 3. *Summary of Participating Registrar Characteristics*

Gender, Female (%)	5/7 (72%)
Mean Age (range)	32 years (31-33)
Year of study (%)	5 in Year 1 (72%) 2 in Year 2 (28%)
Specialty	
Paediatrics and Child Health	5 (72%)
Surgery	1 (14%)
Obstetrics & Gynaecology	1 (14%)
Average % of time spent teaching students (mean and range)	40% (20%-50%)
Prior training in medical education? Number 'yes' (%)	1/7 (14%)

Student teaching formed a large part of the participants' daily activities, with a reported average of 40% of time spent teaching students; although some wards or sub-disciplines had less or no students.

> "…I mean there are students all the time, almost every day of the year, apart from holidays, apart from December actually, then from mid-January every single day." (Participant 1)

> "…you are surrounded by not only students all the time, but junior doctors. So besides having to teach the students, there are interns or community service doctors that come to you and ask for assistance all the time. So it feels like most of your day is spent either helping people or teaching junior doctors." (Participant 4)

All participants were involved in teaching both students and junior doctors.

> "I think our teaching is kind of across the board in that you have got everything from third year students up to community service doctors or new medical officers that work with us." (Participant 4)

A. Participant perceived relevance of workshop (Objective 1)

Overall, the participants experienced the workshop as a positive learning experience. The workshop met the participants' needs and it was seen as time well spent.

> "I think most of the topics were very beneficial, because definitely of every topic I think there was something that I found oh, I didn't know that, that's interesting." (Participant 7)

> "I think the way the workshop was presented was complete in its entirety. You know, one step led to the next, one thought trend led to the next." (Participant 4)

> "…It was interactive and it was fun. It was nice, and it was not too long. It was perfect." (Participant 1)

> "I think it was a concise workshop that was effective and with good variety, so I think it was very well done." (Participant 5)

Participants found the sessions on role modeling and the MBChB undergraduate curriculum most useful.

> "…how important your role actually is on a daily basis and you don't even realize it, that you as a role model have a big influence on every single student, no matter what you think." (Participant 1)

> "…it was …to sort of give us an idea of how the student teaching program works. How it's structured, I think that would make it easy in your head to sort of know what to expect." (Participant 3)

> "…going through the curriculum…for me it was nice to understand where the students fit in." (Participant 2)

Other key concepts taken away by participants were the importance of good communication in a teacher, the realization that teaching is a specific skill that everyone can learn, and the supportive role of technology.

Participants reported that the workshop impacted positively on their clinical teaching knowledge, skills and attitudes; although confidence to teach effectively on ward rounds has not improved much and the use of the one minute preceptor model (Neher & Stevens 2003) shared as clinical teaching model during the workshop, was not implemented afterwards.

Table 4. *Participant rating of workshop outcomes.*

Participant's rating of statements after attending the workshop using the Likert scale: 1=totally disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree	No. (%) who chose "agree" or "strongly agree"	Mean score for item (range)	Mode
I understand the role of a teacher in the clinical setting	7 (100%)	4 (4-5)	4
The provided instruction was relevant for my clinical responsibilities	6 (86%)	4 (3-5)	4
I understand the responsibilities of being a role model in the clinical setting	7 (100%)	5 (4-5)	5
My commitment to teaching medical students has increased on the basis of this workshop	7 (100%)	4 (4-5)	4
I feel more confident teaching by the bedside	5 (72%)	4 (3-5)	5
I am using the one minute preceptor model	1 (14%)	1 (1-4)	1

I feel more confident in teaching effectively on ward rounds	4 (57%)	4 (3-4)	4
I am able to identify and use informal teaching/learning opportunities	7 (100%)	4 (4-5)	4
I have the skills to give feedback to students	5 (72%)	4 (2-5)	4
I access e- resources in the clinical area	6 (86%)	5 (3-5)	5
I need more support in teaching and clinical settings	5 (72%)	4 (3-5)	5
I would like to learn more about educational theory	5 (72%)	4 (3-5)	4

Some participants suggested that the availability of reading material would have been beneficial for quick reference, and student assessment was suggested as an additional topic to be discussed in future workshops.

> "Handouts…just to have a quick reference back to something, because now you vaguely remember one of the things that was discussed, and at the time you also thought oh, this is good, you want to use it, but now due to whatever happening in between to the point where you want to use it, you're like what was that again, and it would actually just be a nice quick reference back to oh yes, that's it, and then implement it." (Participant 7)

> "I don't know if that's something that you can teach, but how to rate a student, assessment, because that's always very difficult. Yes, we are often asked, like every time asked to assess the students, because we are the ones that have the most contact with them, and you have to think okay, but how do you do that? You can't just give the one you like the most the highest marks, because he's probably not the one that... So, sort of to give you an idea how do you mark, how do you assess someone..." (Participant 3)

Most participants asked for regular or follow up training where they could reflect on their development and also receive feedback on progress made.

> "I think another one (course) will be nice. Like maybe yearly to have something like that for us, just to remind us. Like I've forgotten the one-minute preceptor [laughs]…" (Participant 2)

> "…you have it in the beginning for the registrars coming, but … just to have follow up and say … have them give feedback and say listen, what have you done before and what you are doing now, is there a difference in how students are responding…, because for me, I feel that is a good indicator of how you are doing." (Participant 7)

Participants also requested guidance from their respective departments on the discipline specific curriculum content to be taught to specific student year groups.

> "Maybe just from a senior registrar to actually tell us what we are supposed to teach them. So I mean maybe it's not part of this workshop, but I mean you always just, like I say, get a time and a date and you have to teach them, and you're like what am I supposed to teach? So, just maybe from a departmental side to try and incorporate that (guidance)…" (Participant 1)

> "I think it's always nice to know what level the student is at and what is expected of you to bring across to them. I don't know if this workshop is such a place for it, because it's a multidisciplinary workshop." (Participant 2)

B. Participant perceptions, conceptions and self-evaluation of teaching practices (Objective 2)

The registrars generally had a positive view on their contribution to student learning. They saw it as a formative influence on how students view the profession and discipline.

> "How you do things has got a major influence on what they (students) might think about a certain specialty, for example, or even about doctors in general." (Participant 1)

> "The students look up to the registrars in the different disciplines, and they sort of inevitably find a role model...and that will influence their like or dislike for the discipline." (Participant 7)

Apart from being a role model, participants also highlighted that they as clinical teachers create positive learning environments for students and are able to point out key concepts and information to students.

> "…it's easier to learn if you are relaxed and you like the person, and … you're not worried someone is going to scold you or yell at you if you don't know something." (Participant 4)

> "Because when you start working (as a registrar), you know what's important and what's not important, and I think as a student it's difficult to know that." (Participant 2)

Only one participant reflected on the value of teaching on his own professional development and learning.

> "The nice thing is with you teaching them, you are revising the work yourself. …also to prepare yourself for when you finish, that suddenly you do have to play a larger role in teaching." (Participant 6)

Most participants rely on observed teaching methods and their own experiences as students when deciding what not to do as a clinical teacher.

> "…Well, there is something that I picked up as a student, and it's something I strive to not be like, because I just found that I am on a ward round and the Prof is standing in front of you and asking you all these questions, you sort of don't know and you are afraid to answer, and you want to say but you also don't. I just realized I don't want to be like that. I want to be the person that you are free to answer and you can ask questions, and you're not afraid." (Participant 3)

> "I am using the experience that I had as a student, and using that to sort of highlight the, or now when I look back, the teaching that we got that I didn't like, that I think wasn't appropriate, and I'm using that..." (Participant 7)

Registrars highlighted the unique aspects of registrar teaching as being more informal and more focused on the practical aspects of the profession.

> "When you're on call, when you're in the clinic, when you're doing the ward rounds with the students, then you teach, and you also try and teach them like obvious stuff that no one teaches you in medical school, like how to prescribe Panado, and how to…do silly things that no one knows, how to write a prescription chart …how to write notes." (Participant 4)

Interestingly, the unique relationship with students was mentioned often. Some saw this as a protective role or an apprenticeship role; and a complementary role to that of the consultant.

> "I feel sort of as the barrier between the students and the consultants…" (Participant 3)

> "…because they are often more afraid to ask the consultants sometimes…" (Participant 5)

> "I don't particularly like bombarding them with questions because they get that in (consultant) ward round every single day" (Participant 1)

> "…you have a better relationship with them, you know them better… often it's the closest bond that a student has...and they tend to work hand in hand with the registrars more." (Participant 3)

> "The registrars will take more responsibility for teaching clinical skills and especially procedural skills…Consultants teach more theoretical and academic knowledge." (Participant 6)

When asked about the use of specific teaching roles, registrars reported that of the 'information provider' and the 'facilitator of learning' as described by Harden & Crosby (2000) most often.

> "So I more like to tell them about it, and then now and again will ask a question, but generally I like to teach them what I know and not to ask them all the time, because sometimes you need teaching and not just badgering." (Participant 1)

> "…if there is an interesting diagnosis we will maybe talk about that, but I don't really spend a lot of time, I will tell them to read up on something like that…" (Participant 2)

> "You can ask someone maybe the day before okay, let's read about this and then tomorrow we can talk about it, or you can tell me what you want to talk about before you have your round." (Participant 3)

> "I like them to see a patient and then to understand, I like to see that they understand what was wrong with the patient, and what their assessment will be and how they will manage their patient." (Participant 4)

> "…Because of time constraints I would give them the crux and say listen, you need to just read a little bit further around the topic, and if you have any questions, come back to me…" (Participant 7)

Registrars recognized that they are still developing their clinical teaching skills and confidence to teach. They thought consultants to be more comfortable with student teaching than themselves due to both their additional clinical and teaching experience.

> "…we are not that used to teaching, especially the beginning of your rotation, and the more you teach the more comfortable you get…" (Participant 5)

> "It might just be that they are more aware of what the students need to be taught if they are responsible for the lectures or looking at the programme, and they might be more confident with teaching it, whereas a registrar you might not want to teach something you're not confident on." (Participant 6)

Their still developing role as clinical teachers was further highlighted when participants were asked if they see themselves as good teachers. Answers varied from "yes", to "I am not sure" and "I try", and "I know I can do much better".

> "I know what I want to teach them, but I don't actually think about am I actually a good teacher. I know I can do better, especially after the workshop that we attended; I know I can do better." (Participant 2)

> "I think I'm a good example. I don't know if I'm necessarily a good teacher. So in terms of academic knowledge, I think there is always more for me to learn, but I use my weaknesses by asking them to tell me." (Participant 5)

> "I might not always know the answers, I may not be the cleverest teacher, but I think I'm nice and non-judgmental enough to have that environment where people feel free to ask questions. So, I'm not a Prof, but I can still teach them what I know…" (Participant 3)

> "I would like to think so [laughs]. Yes, I actually do enjoy it quite a lot. I didn't think I would [laughs]." (Participant 7)

They based this self-assessment mostly on their personal views that mirrored their conceptions of a good teacher.

> "...there are also quite a lot of students who I see in the corridors who are always waving hi, and always stopping to ask just a random question, be it work related or whatever. They would stop and ask a question. I would like to think that you are doing something right [laughs]…if you are approachable (you are a good teacher)...because it's always the guys that I felt were good teachers were the ones that were enthusiastic and that I could approach and easily ask a question without feeling scared of this person biting my head off [laughs]. (Participant 7)

> "My idea of a good teacher would be somebody that can communicate the knowledge that they have. Despite how much you know, if you can translate that to somebody that knows nothing, that to me would be a good teacher, and I try. Even like I acknowledged earlier, I don't always know the answers to all their questions, but what I do know I try to communicate to them in a way that they then can understand." (Participant 4)

> "Yes, it sounds silly to say, but they seem to like me. They seem to really find – what's the word I'm looking for – I don't know how to say this. Accord, they find that there is something in common, you are also just a normal person, you talk to them as if they are people, and yes, they all were very positive. There is no one who has said I don't want to be in her group or so…I don't make fun of them and I don't mock them if they don't know stuff, and I don't screw with them if they don't know it. It's nice, just like we are having tea and we are chatting about something." (Participant 3)

Attributes of a good teacher mentioned by participants were thus enthusiasm, being a good clinical expert, creating a positive learning environment, establishing a good teacher-learner relationship, good communication and being approachable. Interestingly, attributes not mentioned were the ability to take advantage of teaching opportunities, observation and reflective practice, problem solving, and giving and receiving constructive feedback.

Participants also reported that their view of teaching expanded because of the workshop.

> "I think before the workshop and after the workshop my opinion of that (the role of Registrar-as-Teacher) actually changed. So before I thought more the old school way of thinking, that when you stand in front of them and talk about a topic, that's your clinical teaching role, and since, after the workshop I have noticed that it's a lot of other things as well, even just other people examining how you go about working with patients. So I think that in essence changed after the workshop, my idea of what the role is." (Participant 7)

> "…there are different teaching opportunities, and that not everybody teaches necessarily the same, but everybody can be a good teacher." (Participant 5)

> "…what really came to light in the workshop was how much the students actually hang on every word the registrar says. You don't always realize that while you are busy with students and while you're teaching them, because often with my colleagues, they see it more as time spent elsewhere than where it's needed. But definitely I have noticed a difference mainly because having that now in mind I could actually see it with the students. Yes, and I have also subsequently learnt to think of what I am saying to them, because I think it does make a difference…" (Participant 7)

Few participants however ask for feedback on their teaching skills to shape their own learning or performance as clinical teachers, even though they recognize the value of feedback.

> "No, I don't (ask for feedback). I haven't thought about it actually. (Students) … all just say thank you, we learnt a lot [laughs], we enjoyed it." (Participant 2)

> "Not directly (ask for feedback), but more sort of a feeling that you find that they come to ask you, rather than the next person, but not formal feedback." (Participant 5)

> "No, I don't ask them to give feedback. I think it would be tough to get an honest answer out of them face to face I think if you are giving them teaching, but if I can I will try." (Participant 6)

> "…in the beginning I used to always ask them is it fine, did you want to know anything more, anything less, did you understand everything, otherwise it's an absolute waste of my time again, and then they will usually give you feedback." (Participant 1)

C. Factors affecting the teaching practices of registrars (Objective 3)

Even though all participants enjoyed teaching students, reported barriers to effective teaching were many. Clinical workload with resulting lack of time for teaching was the main barrier reported.

> "Well, the main thing, the biggest thing is the patient load, because a good place you can teach is the …clinic…and we don't have the time. It's like a sausage machine. You just have to try and get them out before four (pm) because sometimes we have 180 patients in the … clinic, and you just can't take the time to actually teach…you don't listen to them (students) when they present them (patients). You actually just grab the book and have a quick look yourself and make the plan and run to the next one. So the biggest thing is patient load. It would be lovely to be able to actually listen to them and help them, you know, you need this with the history, and did you ask about that, and then go through the examination…it's also so overwhelming that sometimes there are so many students and the patients just add up. That's the biggest thing actually, is that there is just no time." (Participant 3)

> "Time and patient load … the responsibility of whatever goes on in the ward is still at the end of the day the registrar's, and sometimes you have to do all your work and then teach them as well. So I don't think the registrars necessarily dislike teaching, it's just the time restraints… and patients unfortunately come before students." (Participant 5)

> "…you always feel like your clinical responsibility to patients outweighs everything else, and so you feel obligated to sort your ward out from a clinical point of view, and then all these other things that you also have to attend to, like stats and admin and the nurse's problems and teaching. Somehow you need to squeeze that in." (Participant 4)

Even though the clinical environment offers many teaching opportunities, the nature of the clinical environment can negatively impact student teaching.

> "But I mean our teaching is in the ward where everything is happening, even when you are teaching, people are walking in, they are coming and telling you quickly, there is a phone call, oh, and this happened…and I need to show you the blood gas. I feel like that impacts on the students, because in the middle of a train of thought, there you have to run off and take a phone call. It's just not optimal, and for me that's the biggest barrier. It's the environment, because we have to teach in the same environment that we work..." (Participant 4)

> "…you always have to schedule 10 minutes or 15 minutes or half an hour, or an hour here or there in between normal duties that you have between seeing patients and going to theatre and clinics and all of those, and your emergencies that rock up any time. " (Participant 7)

Despite the heavy workload and many responsibilities, no protected time is given for registrars to teach; which is further compounded by staff shortages.

> "…and often there is no cover. So if there is not a medical officer in the ward who can cover the ward for you, it becomes very difficult." (Participant 6)

> "…inevitably that maybe also play quite a big role just as much as time, because you are short-staffed, you have to cover a lot more areas at the same time, therefore you have less time for student teaching." (Participant 7)

In contrast, some participants felt that they do not get adequate opportunity to teach students in their departments.

> "I would actually like to give more TUTS (tutorials) and stuff, to be more involved with the students..." (Participant 3)

> "…you as a registrar never lead a ward round, there is always a consultant, (unlike) in the other subspecialty wards…´(Participant 6)

Students' enthusiasm and willingness to learn plays a major role in the time registrars would spend teaching them.

> "It depends on the students that you have as well. So eager students you would spend much more time (teaching)." (Participant 3)

> "It's always nice if you have keen, interested students, and then we are keener to teach them." (Participant 2)

> "You get students that you can see this person, they don't want to be taught, and then it's not nice for you to now sort of waste your time to try and teach someone you can see obviously doesn't want to be here." (Participant 1)

Registrars mostly felt unprepared, unsupported and undervalued as teachers by their various departments, with little guidance on the expected student teaching content/curriculum, process or learning outcomes.

> "…you just get told that here is the email and you have to give a TUT (tutorial) and there you go...or there is just a list up saying oh, you have got fourth years to teach at two o'clock … and you're like okay, so what must I tell them? Then you ask the students and they don't know either. So, what do you do, where do you start?" (Participant 1)

> "…sometimes I feel it's just something that they (consultants) don't have to do… So I don't know … if they actually think that we have a role to play in teaching the students. But I don't know if they see us as valuable." (Participant 3)

Although the expectation to teach is clearly communicated by the various departments, participants reported no specific training, supervision or appreciation of their teaching role.

> "I think it's just expected that it's done, and it's told to you when you start the programme and that's where it ends. There is no further input and no further help offered for teaching." (Participant 7)

> "The expectation (to teach) is there… They are definitely upfront about it…but I don't think there is maybe adequate support for that. I think that is where this pilot programme, or the workshop, is actually very beneficial, because that's the first formal sense of what it is that is expected, and sort of just a little bit of guidance on how to go about it." (Participant 7)

> "No, they don't know (know what you teach students), and for instance if you are going to teach them the wrong stuff, and then the poor student comes to

an exam and they say oh, this is how we palpate the liver. It's like okay, who taught you that? No, the registrar…" (Participant 1)

"…at this stage everyone teaches and we actually don't know firstly what they (students) are expecting, and secondly what they want to get out of it." (Participant 6)

"It's never well, thank you for doing the (teaching)...if you do it well then they (the students) will thank you, but no one else will thank you." (Participant 1)

"I think it's acknowledged as something that is expected of us, but in terms of allocated time to do that, that is really, it almost feels as if that's no one else's but your problem…but I mean when you find the time to do that, if you find the time to do that, nobody makes time for you. Nobody sets time aside for you. That really is just your problem." (Participant 4)

D. Participant observed teaching practices in the clinical setting

Five of the seven participants in the above data collection agreed to take part in the second phase of the study; all from the Department of Paediatrics and Child Health.

The Hawthorne effect could have provided possible biases in the observer ratings as awareness of being part of a study could have positively changed behavior or performance (Diaper 1990). At the same time it could be argued that even if the observed behavior demonstrated the best possible behavior, it still demonstrated the ability and competence of the participants, and thus remains a valid indicator of their potential to deliver these new skills.

Registrars involved in clinical activities ranging from informal ward work to formal undergraduate teaching, were observed. Students varied from 3rd year undergraduate to final year students; clinical activities also included junior doctors. Number of students ranged from 1 to 12.

Student teaching events included that of practical skills (phlebotomy), X-Ray interpretation, examination skills with clinical sign interpretation, clinical reasoning, presentation skills, theoretical topic discussions, exam tips and infection control principles. Apart from bio-medical aspects of patient care, participants also highlighted medico-legal, ethical and social aspects.

Participants generally demonstrated an understanding of the role of a teacher in the clinical setting, an understanding of the responsibilities of being a role model, confidence in teaching by the bedside, the ability to identify and use informal teaching opportunities and the ability to provide constructive feedback to students. Only one participant referred to e- resources in the clinical area when a student was advised to search ("google") a topic to be discussed at the next ward round. The same registrar was also the only participant who demonstrated the use of the one minute preceptor model.

Table 5. *Summary of Observer ratings (based on 1=totally disagree, 2=disagree, 3=neutral, 4=agree, 5=totally agree, NA=non applicable)*

	PARTICIPANT (numbers match the representative quotes above)					**Mean (range)**
	1	**2**	**4**	**5**	**6**	
Clinical supervision event observed	Ward work	Ward work	Ward round	Ward round	Tutorial	
Student and junior staff present (number)	6th year students (2), interns (1), medical officer (1)	6th year students (1)	Interns (2), medical officers (2)	4th year students (4)	3rd year students (12)	
During the student encounter, the registrar demonstrated the following:						
1. An understand of the role of a teacher in the clinical setting as:						
Facilitator (actively involves students, communicate effectively)	5	5	2	5	4	4 (2-5)
Role model (see below)	4	4	2	5	3	4 (2-5)
Information provider (clinical/practical)	5	4	3	4	4	4 (3-5)

Address student learning needs (assess & feedback)	3	5	2	4	2	3 (2-5)
Differentiate between student year groups' specific learning needs	4	5	2	4	4	4 (2-5)
2. An understanding of the responsibilities of being a role model in the clinical setting by demonstrating:						
Enthusiasm	4	4	3	5	4	4 (3-5)
Excellent clinical reasoning skills	4	4	2	5	NA	4 (2-5)
Establish close doctor-patient relationships	4	4	3	4	NA	4 (3-4)
View patient as a whole	4	4	4	5	NA	4 (4-5)
3. Confidence in teaching by the bedside/ ward rounds	5	4	2	5	4	4 (2-5)
4. Use of the one minute or other preceptor model	2	2	1	4	NA	2 (1-4)
5. The ability to identify and use informal teaching/learning opportunities	4	4	1	5	NA	4 (1-5)
6. Provide constructive feedback to students	4	4	1	5	3	3 (1-5)
7. Access/refer to e- resources in the clinical area	1	4	1	2	1	2 (1-4)

One participant rated poorly in the majority of areas assessed. No attempt was made to facilitate learning or identify possible learning opportunities despite junior staff asking questions about the interpretation of abnormal results and patient management. Questions were either met by silence or deferred to the next consultant ward round. This led to the junior doctors having their own clinical discussions as a side conversation whilst the registrar reviewed clinical notes. Even though only junior staff was present with no students; the opportunity for junior staff development was lost.

Chapter 5: DISCUSSION

'The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires.' ~William Arthur Ward

Our study confirmed the important role of registrars as teachers in the clinical setting. Apart from sharing theoretical and on-the-job knowledge, registrars teach practical skills and act as role models for the profession.

A number of other universities have implemented "Registrar-as-Teacher" FD programs. These FD programs covered a wide range of topics namely bedside teaching, qualities of adult learners, effective supervision, learner feedback and assessment, teaching physical examination and procedures, clinic precepting, small group teaching, large group teaching and lecture skills, facilitating the development of clinical reasoning skills, leadership, orientating learners, and the assessment of knowledge, attitude and skills (Foster & Laurent 2013; Reamy et al. 2012; Busari et al. 2006; Morrison et al. 2003; Bing-You & Sproul 1992). Interestingly, the participants in our study only suggested the addition of student assessment to the course content. This may speak to either their inexperience as clinical teachers or to the scope of teaching tasks currently being assigned.

Similar to other FD programs for registrars (Ostapchuk et al. 2010; Post et al. 2009; Post et al. 2009; Hill et al. 2009; Dewey et al. 2008; D'Eton 2004; Wamsley et al. 2004), participants attending our workshop reported satisfaction with the program and experienced the workshop as a positive learning experience. Our workshop met the participants' needs and it was seen as time well spent (Kirkpatrick level 1). Participants self-reported positive changes in attitudes, including motivation, self-confidence, enthusiasm, and conceptions of teaching. Knowledge and skills were gained, as self-reported and observed. Individual benefits such as increased self-awareness of teaching ability and increased awareness of student needs were reported (Kirkpatrick level 2). Participants self-reported behavior changes in their teaching practices and participating registrars, bar one, demonstrated appropriate educational practices and teaching skills in the clinical setting (Kirkpatrick level 3).

Based on the Kirkpatrick framework, this objective assessment of the utilization of teaching strategies taught during the workshop points towards translation of knowledge and skills into implementation in the workplace.

The contextual factors influencing registrar teaching practices emerging from our study, and discussed below, provides a different and more complete picture of the impact of our pilot “Registrar-as-Teacher” FD program however.

Participant conceptions, perceptions, and self-evaluation of teaching practices

Registrars’ beliefs and conceptions of teaching influence their approach to teaching, and hence influence student outcomes (Searle et al. 2011; Masunaga & Hitchcock 2011). Without an awareness of teaching and learning conceptions, teachers generally view their role as imparting knowledge only; with often a disconnection between their practice and beliefs (Thampy, Agius, Allery 2014; Norton et al. 2005).

Participants in our study reported their expanded conceptions of the roles of a teacher as one of the most useful aspects of the workshop. Role modelling was singled out as the most useful session. Medical students and junior staff learn by observation and imitation of the clinical teachers they respect. They learn not just from what is said, but from what is done in the clinical practice and the knowledge, skills and attitudes registrars exhibit (Paice, Heard, Moss 2002). This is critical in shaping, teaching, coaching and assisting future clinicians and is one of the most powerful teaching strategies available to clinical educators (Cruess, Cruess, Steinert, 2008, Kenny, Mann, MacLeod, 2003).

Other concepts that were strengthened were the importance of enthusiasm and good communication in a teacher, being a good clinical expert, creating a positive learning environment, the realization that teaching is a specific skill that everyone can learn, and the supportive role of technology. These conceptions, although not complete, mirrored the described characteristics of good physicians and teachers (Hatem et al. 2011; Harden and Crosby 2000).

Registrars are uniquely positioned to contribute to students’ learning as they work with them closely on a daily basis (Jack et al. 2010). The relational aspect of registrar and student interactions was highlighted by the participants as one of the unique aspect of their clinical teaching role. They saw their role as a formative influence on how students view the profession and discipline. Students were more comfortable with them as teachers in the more informal learning environment, increasing the likelihood of asking questions.

In addition to enhancing learning, relationship building allows teachers to emphasize the positive aspects of the learners' performance, to build on strengths, and to provide real-time feedback on performance (Brown et al. 1999). But despite feedback being a very important part of the teaching and learning process (van der Leeuw & Slootweg 2013; McAllister et al. 2001), few participants felt comfortable to give feedback to students compared to other aspects of clinical teaching. This is a missed learning opportunity for students that need attention in future FD initiatives.

The underutilization of feedback was further underlined by them neither getting nor asking for feedback on their teaching skills to shape their own learning or performance as clinical teachers; even though they reportedly recognized the value of feedback. Delva and colleagues (2013) described registrar feedback behavior as dependent on learning or workplace culture, relationships, purpose and quality of feedback and emotional responses to feedback. When asked about feedback practices, no registrar mentioned feedback from their supervisors on their teaching performance, which is another missed opportunity for their professional learning which also speaks to the workplace culture.

Participants viewed their role as clinical teachers as complimentary to those of the consultants. Balmer and colleagues (2012) calls this the "dance" between registrars and consultants as they negotiate shared teaching and supervision responsibilities. It is unclear from our study though if any teaching responsibilities are negotiated.

These findings also give us pause to consider learning as a social practice; inseparably tied to its context, culture and the social relations and practices (Vygotsky 1978; Lave & Wenger 1991). Social learning theory explains human behavior in terms of continuous shared interaction between cognitive, behavioral and environmental influences (Mann 2010). Learners become involved in a 'community of practice' which expresses certain beliefs and behaviors to be acquired (Barab et al. 2002). Bandura (1986) further highlighted the importance of observing and modelling the behaviors, attitudes and emotional reactions of others.

Factors affecting the teaching practices of registrars

As with previous studies (Thomas et al. 2002; Morrison et al. 2002; Goode et al. 2002; Bing-You & Tooker, 1993), participants often felt frustrated and overwhelmed by their teaching task. Limited time with competing responsibilities such as huge

service demands and administrative duties impacted negatively on participants' ability to teach students in our study.

Even though participants asked for "protected time" to teach, teaching must merge with work, otherwise it won't happen. Clinical teaching occurs in fast-paced and often chaotic clinical settings where simultaneous and often competing demands are placed on clinicians (Irby & Bowen 2004). Clinical teachers must be able to accomplish patient care whilst creating opportunities for learning. FD programs must thus offer registrars teaching strategies grounded within the real context of busy health care systems. The ability to take advantage of teaching opportunities, to deconstruct clinical reasoning or "thinking aloud", to observe and reflect, give constructive feedback, and use techniques like the simple five-step method for teaching clinical skills (Paulman 2001), and the 'one-minute preceptor' (Neher & Stevens 2003) or 'SNAPPS' (Wolpaw et al. 2009) models have been described as effective and efficient strategies for integrating teaching into day to day routines. None of this teacher attributes or skills were mentioned by our participants when asked about attributes of a good teacher. Our FD program's session on teaching in the clinical setting and the 'one-minute preceptor' thus worked less well. This speaks to how to increase the effectiveness of future workshops.

As participants recognized, becoming and being a clinical teacher is a developmental process and not an event (Higgs & McAllister 2007; Shannon 2003). Extended exposure with opportunities for application and critical reflection on learning and practice is necessary for changes in practice; allowing registrars as teachers to practice and teach while improving their educational knowledge, skills and scholarship. Learning occurs where clinical teaching occurs; and for our registrars this is in the workplace (Steinert 2011). Most participants in our study asked for regular or follow up training where they could reflect on their development and also receive feedback on progress made. "Registrar-as-Teacher" FD programs should thus move away from one-time workshops and instead adopt a longitudinal strategy, creating opportunities for application and reflection (Notzer & Abramovitz 2008).

Similar to other periods of transition in the medical profession, the transition from medical officer to registrar is stressful and new registrars often feel inadequately prepared for this new role (Westerman et al. 2013; Godefrooij et al. 2010; Austin 2002). Their main challenge involves handling the many new responsibilities that accompany the delivery of patient care, whilst simultaneously learning from the

process of delivering that care (Teunissen & Westerman 2010). Registrars need support in balancing these multiple responsibilities and learning new roles, which include the role of clinical teacher.

In our study the institutional support for registrars as teachers was sadly lacking. Participants reportedly felt unsupported and undervalued as teachers by their various departments, with little guidance on the expected student teaching content, process or learning outcomes. Although the expectation to teach was clearly communicated by the various departments, there was no training, no supervision structure, no formative feedback given on their performance, and little to no acknowledgement of their teaching contribution despite teaching being a key performance area of registrars' staff performance management agreements. For most, our workshop was the first acknowledgment of them as teachers and the first training as part of a faculty development program. This lack of orientation and communication was further highlighted by participants pointing to the explanation of the MBChB undergraduate curriculum structure as the second most useful component of the course after role modelling.

The institutional culture affects the value ascribed to teaching (Ash 2009; Richardson 2005, Norton et al. 2005). Whilst mission statements of most medical faculties generally advertise teaching as one of the pillars of education, research and clinical service often triumph (Clark et al. 2004; Steinert 2005). This undermines the importance of teaching and specifically the development of teaching skills of registrars as faculty members.

FD should be embedded and informed by the context in which teaching occurs. Current models of medical education FD fail to underscore the power of teaching communities and institutional relationships for supporting and strengthening teaching in the workplace (Wilkerson & Irby 1998).

For "Registrar-as-Teacher" FD programs to intervene at the level of the individual are thus not enough. Strengthening FD requires the adoption of a broader conceptual framework that does not just focus on the individual participant, but link FD to the development of the department or institution as a whole (Swanwick & McKimm 2012). Workplace communities that include departmental faculty members should be involved in FD programs; allowing for supportive and guided participation in new teaching activities, clarification of roles and responsibilities, assessment of individual

learning needs, evaluation of teaching achievements, and ultimately ongoing learning and professional development of registrars as clinical teachers (O'Sullivan & Irby 2011; Steinert et al. 2010; Webster-Wright 2009; Hunter et al. 2008; Thorndyke et al. 2006).

By reframing FD in this broader context we can recognize and address the contextual factors influencing registrars' ability to implement new knowledge and skills gained in the workplace, whilst simultaneously adapt our FD program content and structure to address registrar's development as clinical teachers in collaboration with their respective departments.

Limitations

Our study has several limitations. The study sample is small and we do not know if non-participants held a similar view of the workshop as no evaluation sheets were completed by the other participants on completion of the pilot workshop. Similarly, study participants were not representative of all registrars as they came only from the Departments of Paediatrics, Obstetrics and Gynaecology, and Surgery.

Post-course design studies do not collect baseline data to account for reported changes convincingly. Retrospective pre/post self-assessment ratings in which pre and post self-rating occurs only after the teaching intervention was shown to be more accurate than collecting baseline self-rating followed by post intervention self-ratings (Davis et al. 2006). Our study however simply wanted to see if registrars did what was taught, and we were not looking for causation.

Post-course questionnaires have been described as 'happy sheets' because they capture little more than participants' immediate reaction to a learning experience (Skeff, Stratos, Bergen 1992). Data collection, which included self-rating and observation, did occur at least three months after the workshop in our study though, pointing to the longer-term impact of the program. This is a strength of our study.

Chapter 6: CONCLUSIONS AND RECOMMENDATION

"If you want to change medicine, you have to change those who teach medicine, and you can achieve this with specific educational strategies for Faculty Development."
~Searle et al. 2011

The FD conceptual framework presented in this study view FD as a cyclical model where the interaction between learner and teacher contextual factors and learner interaction determine the successful implementation of new knowledge and skills gained. Understanding the contextual factors and implementation "success" should inform subsequent FD program strategies.

Through the use of both qualitative and quantitative methods to evaluate the pilot "Registrar-as-Teacher" FD program at the University of Stellenbosch, contextual factors influencing our registrars' ability to implement new knowledge and skills gained in the workplace were recognized.

Participants perceived the workshop content as relevant and the workshop shaped their teaching conceptions and practices. But workplace barriers like limited time with competing responsibilities impacted negatively on participants' ability to teach students. A reported lack of guidance and support from the respective departments further undermined their ability to develop as clinical teachers.

Future "Registrar-as-Teacher" FD initiatives at Stellenbosch University should provide registrars with optimal approaches and best teaching practices for busy clinical settings; enabling them to merge teaching with work.

Strengthening FD further requires the adoption of a broader conceptual framework that does not just focus on the individual participant, but incorporates their workplace communities (O'Sullivan & Irby 2011). Departmental faculty members should be involved in FD programs; allowing for ongoing learning and professional development of registrars as clinical teachers in the workplace (Steinert et al. 2010; Webster-Wright 2009; Hunter et al. 2008; Thorndyke et al. 2006).

This requires a longitudinal strategy. Our "Registrar-as-Teacher" FD program should thus move away from the one-time workshop and instead create multiple learning events with opportunities for application and reflection.

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APPENDICES

APPENDIX A- Participant information leaflet and consent form

TITLE OF THE RESEARCH PROJECT:

Evaluating the Outcome of a Pilot "Registrar-as-Teacher" Training Program at Stellenbosch University.

REFERENCE NUMBER: S13/10/177

PRINCIPAL INVESTIGATOR: Dr Liezl Smit

ADDRESS: Department of Paediatrics, Faculty of Medicine and Health Sciences, Stellenbosch University, PO Box 19063, Tygerberg 7505, South Africa

CONTACT NUMBER: 021 9386527

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 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?

- Studies have shown that registrars play a significant role as teachers for undergraduate medical students and junior doctors in the clinical setting. In order to teach effectively, registrars need to be familiar with the basic learning principles and teaching techniques; but they are rarely taught how to teach!
- Similarly, at Tygerberg Hospital, education is a key performance area of registrar's staff performance management agreement but no formal training program for registrars as teachers exists.
- The Centre for Health Professions Education at Stellenbosch University is piloting a half-day clinical supervision workshop for newly appointed registrars from various disciplines.
- A variety of clinical disciplines will be included; Internal medicine, Paediatrics, Obstetrics-gynaecology, Surgery, and Orthopaedics. These disciplines were purposefully selected because they are responsible for a large amount of the time spent in clinical rotations.
- The purpose of this study is to evaluate the outcome and effectiveness of this pilot training program and to identify any teaching barriers and gaps you may be experiencing as registrars.

- This training program will become an annual event for all newly appointed registrars at the University of Stellenbosch and you will be able to contribute to the content and presentation of future training workshops.
- The study is to be conducted at Tygerberg Hospital.
- Head of Departments will nominate participants to attend the workshop based on their year of study.
- The data collection period for the study will be from February to August 2014.
    - Semi-structured interviews will be held with participating registrars (who have given written consent). The interview will collect information on gender, age, previous training courses, current year of training and discipline. It will further ask you to tell us about your teaching practices, and the relevance of the workshop content to your own teaching. Questions on barriers to effective clinical supervision and further training needs will be included.
    - To evaluate registrar' teaching practices after attendance of the workshop, one observers will shadow participants for a morning in their clinical setting. The observer will be issued with an audio-recorder and note pad and will record student teaching/clinical supervision sessions facilitated by the registrar whilst noting teaching practices such as the use of learning opportunities, feedback practices etc. The registrar will be informed that they are being observed and recorded.

Why have you been invited to participate?

- The training program is only presented to newly appointed registrars studying at the University of Stellenbosch as we think that most of you would not have had previous formal training in teaching (but we may be wrong!).

What will your responsibilities be?

- To reflect on your teacher responsibilities after the workshop and be honest in your assessment of the value of the workshop.

Will you benefit from taking part in this research?

- Teaching will contribute to your professional development. A better understanding of teaching and learning principles also improve personal learning; as 'to teach is to learn twice'. If clinical teachers understand the learning process, it reinforces and improves their own didactic, cognitive and clinical skills.
- You may also wish to pursue an academic career in future, where you will be expected to teach in diverse settings.

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

- None.

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

- Your participation is **entirely voluntary** and you are free to decline to participate.

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 also be no costs involved for you, if you do take part.

Is there anything else that you should know or do?

- You can contact Dr Liezl Smit at tel 021 9386527 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 your study doctor.
- 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 'Evaluating the Outcome of a Pilot "Registrar-as-Teacher" Training Program at Stellenbosch University.'

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*) ……...…….. 2014.

....
Signature of participant **Signature of witness**

Declaration by investigator

I *(name)* ……..…… declare that:

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

Signed at (*place*) .....…….. on (*date*) ……...…….. 2014.

....
Signature of investigator **Signature of witness**

APPENDIX B- Data collection instruments

Semi-structured Interview Guide

Section I

1.Gender				Male	Female
3.Age (years)					
4.Discipline	Internal Medicine	Paediatrics	O&G	Surgery	Orthopedics
5.Year of post-graduate studies				1	2
6.Have you received any previous formal training on clinical supervision/teaching?				Yes	No
Details:					

Section II

1.How do you view the importance of your role as clinical supervisor of undergraduate students?
What do you think the role is / roles are?
2.How do you think your department value your clinical teaching?
3.As an estimated average, what percentage of time do you spend teaching/supervising undergraduate students or junior staff per day?
Which group do you teach most often – students; interns; COSMOs; other medical officers?
4.Do you see yourself as a good teacher?
How do you judge this?
5.Please describe any barriers to effective teaching which you are experiencing currently.

Section III

Please rate the following statements using the scale: 1=totally disagree, 2=disagree, 3=neutral, 4=agree, 5=totally agree.

After attending the workshop:

1.I understand the role of a teacher in the clinical setting	1	2	3	4	5
2.The provided instruction was relevant for my clinical responsibilities	1	2	3	4	5
3.I understand the responsibilities of being a role model in the clinical setting	1	2	3	4	5
4.My commitment to teaching medical students has increased on the basis of this workshop	1	2	3	4	5
5.I feel more confident teaching by the bedside	1	2	3	4	5
6.I plan to use the one minute preceptor model	1	2	3	4	5
7.I feel more confident in teaching effectively on ward rounds	1	2	3	4	5
8.I am able to identify and use informal teaching/learning opportunities	1	2	3	4	5
9.I have the skills to give feedback to students	1	2	3	4	5
10.I will be able to access e- resources in the clinical area	1	2	3	4	5
11.I need more support in teaching and clinical settings	1	2	3	4	5
12.I would like to learn more about educational theory	1	2	3	4	5
13.What was the most useful part of the workshop?					
14.What can be improved?					
15.Please name specific needs that you might have for future training in your educational role if applicable.					
16. Was there an aspect of the workshop that you did not understand?					
17. Was there an aspect of the workshop that you would suggest be left out in future?					

Observer Rating

Participant: _____

Clinical supervision event: _____

During the student encounter, the registrar demonstrated the following:
Scale: 1=totally disagree, 2=disagree, 3=neutral, 4=agree, 5=totally agree.

							Comments
1. An understand of the role of a teacher in the clinical setting as:	1	2	3	4	5	NA	
Facilitator (actively involves students, communicate effectively)	1	2	3	4	5	NA	
Role model (see below)	1	2	3	4	5	NA	
Information provider (clinical/practical)	1	2	3	4	5	NA	
Address student learning needs (assess, feedback)	1	2	3	4	5	NA	
Differentiate between student year groups' specific learning needs	1	2	3	4	5	NA	
2. An understanding of the responsibilities of being a role model in the clinical setting by demonstrating:	1	2	3	4	5	NA	
Enthusiasm	1	2	3	4	5	NA	
Excellent clinical reasoning skills	1	2	3	4	5	NA	
Establish close doctor-patient relationships	1	2	3	4	5	NA	
View patient as a whole	1	2	3	4	5	NA	

3. Confidence in teaching by the bedside/ ward rounds	1	2	3	4	5	NA	
4. Use of the one minute or other preceptor model	1	2	3	4	5	NA	
5. The ability to identify and use informal teaching/learning opportunities	1	2	3	4	5	NA	
6. Provide constructive feedback to students	1	2	3	4	5	NA	
7. Access/refer to e- resources in the clinical area	1	2	3	4	5	NA	

Additional field notes:

APPENDIX C- Summary Table of Thematic analysis

Main theme	Sub-themes	Quote	Participant #
Importance of student teaching (why)	Volume/occurrence/range (big part of daily activity)	because I mean there are students all the time, almost every day of the year, apart from holidays, apart from December actually, then from mid-January every single day.	1
		because you are surrounded by not only students all the time, but junior doctors. So besides having to teach the students, there are interns or community service doctors that come to you and ask for assistance all the time. So it feels like most of your day is spent either helping people or teaching junior doctors.	4
	Role-modelling profession/discipline	how you do things has got a major influence on what they (students) might think about a certain speciality, for example, or even about doctors in general.	1
		the students look up to the registrars in the different disciplines, and they sort of inevitably find a role model...and that will influence their like or dislike for the discipline.	7
	Influence student career decisions	It's just to actually interact with them (students) and for them to see how you do things might play a role in what they decide to do one day.	1
		and that will influence their like or dislike for the discipline.	1
	Distil information	because when you start working, you know what's important and what's not important, and I think as a student it's difficult to know that.	2
	Create conducive learning environment	it's easier to learn if you are relaxed and you like the person, and … you're not worried someone is going to scold you or yell at you if you don't know something.	3
	Own professional development/future career	and also to prepare yourself for when you finish, that suddenly you do have to play a larger role in teaching.	6
		the nice thing is with you teaching them, you are revising the work yourself. So I mean you are just reiterating stuff, and in the process you sort of, other than revising the work yourself, it helps you study as well because the more you have to repeat it to the students, it sticks a little bit better and you just carry on more.	6

Perception of department value	Negative	Lack of support and guidance	but other times you just get an email … and you're like okay, so what must I tell them? Then you ask the students and they don't know either. So, what do you do, where do you start?	1
			I think it's acknowledged as something that is expected of us, but in terms of allocated time to do that, that is really, it almost feels as if that's no one else's but your problem. You know, it's in your logbook that you have to do this, and it's in your job contract that this is part of the expectations of you as registrar, but I mean when you find the time to do that, if you find the time to do that, nobody makes time for you. Nobody sets time aside for you. That really is just your problem.	4
			I think it's expected of us. I don't think people generally think about how much we do or don't do.	2
			I think it's just expected that it's done, and it's told to you when you start the programme and that's where it ends. There is no further input and no further help offered for teaching.	6
			I think the Department must commit to helping the registrars teach, and whether that is giving protected time and giving some more formal teaching in that regard, and that we see it as an essential part of our job. I think until it gets to that, it's always going to be something which gets pushed aside for other responsibilities.	6
			The expectation (to teach) is there… They are definitely upfront about it…but I don't think there is maybe adequate support for that. I think that is where this pilot programme, or the workshop, is actually very beneficial, because that's the first formal sense of what it is that is expected, and sort of just a little bit of guidance on how to go about it.	7
		Poor communication and formalisation of teaching role	...you just get told that here is the email and you have to give a TUT and there you go...or there is just a list up saying oh, you have got fourth years to teach at two o'clock in neonates	1
			I think the Department must decide what they see the registrar's function as because on the one hand it's said that the registrar should be responsible for teaching, but I think often that is neglected, and the day to day function of a registrar and a medical officer is not clearly differentiated.	6

		No supervision	No, they don't know, and for instance if you are going to teach them the wrong stuff, and then the poor student comes to an exam and they say oh, this is how we palpate the liver. It's like okay, who taught you that? No, the registrar [laughs]. Okay [laughs].	1
		Lack of acknowledgement	It's never well, thank you for doing the TUT	1
			...if you do it well then they (the students) will thank you, but no one else will thank you.	1
	Unsure/neutral		I don't know, to be quite honest. I don't know. I think sometimes I feel it's just something that they (consultants) don't have to do then, because students can be annoying sometimes, especially if you are trying to do your job. So I don't know if they actually see it as a job that they then don't have to do, or if they actually think that we have a role to play in teaching the students. I would actually like to give more TUTS and stuff, to be more involved with the students, a sort of protected time. But I don't know if they see us as valuable.	3
			I think it varies also, largely depending on which consultant is involved. Some of them are very keen for you to teach the junior staff, and others I think see the function, the clinical work outweighs everything else, and their primary concern is that the registrar gets the work done.	6
	Positive	Guidance	...sent out a nice template for how to teach the third years and that was really nice. It was actually something that we could learn from as well.	1
			I think you are expected to, and also when you enter the department, it's part of your responsibilities. It's outlined before you start. So you get a booklet that says this is what the programme is about, these are the rotations that you will do, and their expectations of you as a registrar because you teach in hospital, and one of the expectations is that you will be involved with student teaching and training. So I think all of us should be aware of that when we start [laughs].	7
		Being utilized	Definitely. I see that we get to do more and more teaching, even just through my year that I have been here, the role of the registrar has been utilised more to do teaching. So I think they do value our role in it.	5
Unique aspects of	Informal teaching		I feel it's more of an informal area to teach students…	3

registrar teaching	Content	When you're on call, when you're in the clinic, when you're doing the ward rounds with the students, then you teach, and you also try and teach them like obvious stuff that no one teaches you in medical school, like how to prescribe Panado, and how to, I don't know, do silly things that no one knows, how to write a prescription chart, how to write a TTO, how to write notes. You know, stuff like that, it doesn't necessarily have to be academic, but mostly it is.	3
		Clinical skills, examination techniques, daily running of ward, bedside tutorials, role modelling	all
	Relationship with students	I feel sort of as the barrier between the students and the consultants	3
		So it's nice because you have a better relationship with them, you know them better	3
		often it's the closest bond that a student has...and they tend to work hand in hand with the registrars more.	5
(Differ from) consultant clinical teaching	Learning environment	and it doesn't give as much pressure as for example when you are on a formal academic ward round (with consultant)	3
		because they are often more afraid to ask the consultants sometimes	5
		I don't particularly like bombarding them with questions because they get that in (consultant) ward round every single day	1
	Content (Practical vs theory)	It's just the content that differs.	1
		I think we start with more basic, basic stuff, how to write up feeds, how to work out feeds. The consultant expects you to do that, but I think it would be more basic stuff, and the consultants will teach more academic stuff I think.	2
		I think the registrars might actually teach them the more practical stuff. like what you need in practice, not necessarily like clinical skills, but how to be a doctor, whereas I think consultants more focus on textbook stuff. They won't teach the students how to prescribe something, or how to write your doctor's instructions and what you need to write. They won't teach the students that. It's more textbook stuff.	3
		consultants teach more theoretical and academic knowledge.	6

		They will kind of rely on the registrar to teach procedures or basic examination, but when it comes to like the knowledge base, and it could be pulling signs together and coming up with an assessment which maybe we were struggling with, or making a diagnosis, or just the management.	4
		The registrars will take more responsibility for teaching clinical skills and especially procedural skills. So to try and teach them basic stuff, putting up drips, drawing blood to putting in drains or long lines or whatever else we do.	6
	Experience/comfort with teaching topic	we are not that used to teaching, especially the beginning of your rotation, and the more you teach the more comfortable you get,	5
		It might just be that they are more aware of what the students need to be taught if they are responsible for the lectures or looking at the programme, and they might be more confident with teaching it, whereas a registrar you might not want to teach something you're not confident on.	6
		I'm not sure if there is truly that big of a difference, because it also depends on the level of student that you get, if it's a third year versus a final year student.	7
	From a student perspective	I don't find that they ask the consultants particularly different questions from what they would ask me, except they would ask me for help, physical help, and they would never do that. They would never ask the consultant to help them put up a drip, or if they struggled with a drip or whatever. But academic knowledge they would ask me what they ask the consultants. I just can't answer all the time.	4
		I think the students see the consultants as their primary source of teaching, especially if it's a formal round, and they seem to have a formal teaching session which is scheduled. Then obviously the registrars give formal teaching sessions which I also view as essential because I think they have to attend it. But I'm not sure if they really see the registrars as a source of teaching outside of that.	6
Teaching strategies employed by registrars	Facilitator of learning	...try to probe the students to maybe go and read a little bit more than what is expected	6
		if there is an interesting diagnosis we will maybe talk about that, but I don't really spend a lot of time, I will tell them to read up on something like that.	2

			You can ask someone maybe the day before okay, let's read about this and then tomorrow we can talk about it, or you can tell me what you want to talk about before you have your round.	3
	Information provider		I don't particularly like bombarding them with questions because they get that in ward round every single day, and you can only take so much in one day of someone telling you so why don't you know this? So I more like to tell them about it, and then now and again will ask a question, but generally I like to teach them what I know and not to ask them all the time, because sometimes you need teaching and not just badgering.	1
			But I also like chatting to students, and when you see that there is something, maybe there is something they don't know then you can go through it, or you see here is a big subject that you actually know is quite important for them to know, and you see when they see a patient, they don't have it down, then you go through it	3
	Clinical reasoning		I like them to see a patient and then to understand, I like to see that they understand what was wrong with the patient, and what their assessment will be and how they will manage their patient. So from that it's like all the old problems, current problems, just so they can actually even make a problem list.	2
			Sometimes I will, if there is time, I will say to them present this patient to me, and I will help them with the presentation, because that's also a skill. It's difficult to order your thoughts like that.	3
	Differentiate between student years/experience		I think you always have to differentiate between them because they are on a different level...like the fourth years will come and say we don't know how to examine a baby, whereas the sixth years will just start seeing their patients.	2
	Why	Past experiences	Well, there is something that I picked up as a student, and it's something I strive to not be like, because I just found that I am on a ward round and the Prof is standing in front of you and asking you all these questions, you sort of don't know and you are afraid to answer, and you want to say but you also don't.	3

			I just realised I don't want to be like that. I want to be the person that you are free to answer and you can ask questions, and you're not afraid.	3
			I am using the experience that I had as a student, and using that to sort of highlight the, or now when I look back, the teaching that we got that I didn't like, that I think wasn't appropriate, and I'm using that to improve and to make a change there.	7
Average % time spent on student teaching	Depends on department		probably 20% of the day	1
			I would think it's about a third or less	2
			About 30%.	3
			So 50% of the day?	4
			I wouldn't say... more than 40% of your time.	5
			I think it varies largely between the wards. In some wards such as neonates there is very little teaching, whereas in some of the other wards you can spend maybe half your day with junior staff teaching, whether it's clinical skills or theory or on a ward round.	6
			...other than your surgery days and your clinic days, percentage wise for the day, easily 40% to 50% of the day involves student teaching because you've got two ward rounds a day, and during clinic days we allow the students to see the patients and we go through the patients that they have seen with them. So, it's actually a majority of the time is actually, we are involved with teaching students.	7
Groups taught by registrars			All of them (students) from third year up. We do teach our interns,	3
			We have had fourth years and sixth years this week, and it worked quite well actually.	2
			I think our teaching is kind of across the board in that you have got everything from third year students up to community service doctors or new medical officers that work with us.	4
Perception as teacher?	Good	Affective feedback/good rapport with students	Yes. They generally like me. When they leave they go oh, this was cool doctor. So, whatever that means [laughs]. I don't know if it's a good thing or a bad thing [laughs].	1

		Conducive learning environment/ good rapport with students	I might not always know the answers, I may not be the cleverest teacher, but I think I'm nice and non-judgemental enough to have that environment where people feel free to ask questions. So, I'm not a Prof, but I can still teach them what I know and I 'm not a nasty person. I don't make fun of them and I don't mock them if they don't know stuff, and I don't screw with them if they don't know it. It's nice, just like we are having tea and we are chatting about something.	3
		Relate to students, rapport	I would like to think so [laughs]. Yes, I actually do enjoy it quite a lot. I didn't think I would [laughs]. I'm not sure why. I think I can relate to the students.... I think feedback as well, there is also quite a lot of students who I see in the corridors who are always waving hi, and always stopping to ask just a random question, be it work related or whatever. They would stop and ask a question. I would like to think that you are doing something right [laughs].	7
		Enthusiasm, learning environment	enthusiastic about their discipline and who is always eager to want to teach you something, not necessarily shouting at you,	7
		Approachable	Also, if you are approachable...because it's always the guys that I felt were good teachers were the ones that were enthusiastic and that I could approach and easily ask a question without feeling scared of this person biting my head off [laughs].	7
	Unsure		I try, and I know I can do much better. I know what I want to teach them, but I don't actually think about am I actually a good teacher. I know I can do better, especially after seeing that workshop that we attended; I know I can do better.	2
		Communication of information	so what makes a good teacher? My idea of a good teacher would be somebody that can communicate the knowledge that they have. Despite how much you know, if you can translate that to somebody that knows nothing, that to me would be a good teacher, and I try. Even like I acknowledged earlier, I don't always know the answers to all their questions, but what I do know I try to communicate to them in a way that they then can understand.	4
		Role model or academic knowledge	I think I'm a good example. I don't know if I'm necessarily a good teacher. So in terms of academic knowledge, I think there is always more for me to learn, but I use my weaknesses by asking them to tell me.	5

			I'm not sure. I try and be a good teacher [chuckles].	6
Use of feedback	Yes	Content	Yes, in the beginning I used to always ask them is it fine, did you want to know anything more, anything less, did you understand everything, otherwise it's an absolute waste of my time again, and then they will usually give you feedback.	1
		Relational/enjoyment	Yes, it sounds silly to say, but they seem to like me. They seem to really find – what's the word I'm looking for – I don't know how to say this. Accord, they find that there is something in common, you are also just a normal person, you talk to them as if they are people, and yes, they all were very positive. There is no one who has said I don't want to be in her group or so.	3
	No	Enjoyment	No, I don't. I haven't thought about it actually. (Students) … all just say thank you, we learnt a lot [laughs], we enjoyed it.	2
			Not directly, but more sort of a feeling that you find that they come to ask you, rather than the next person, but not formal feedback.	5
			No, I don't ask them to give feedback. I think it would be tough to get an honest answer out of them face to face I think if you are giving them teaching, but if I can I will try.	6
		Content, baseline knowledge, expectations	But I think it would be good for the registrars to get general feedback from the students to say what do they like to get out of it so we make sure we cover those grounds, because at this stage everyone teaches and we actually don't know firstly what they are expecting, and secondly what they want to get out of it. And I think we forget with the third years, is to teach the really, really basic stuff. They want to know the fancy stuff, but they really just need the basics, and you forget that at some point you also didn't know the really basic stuff.	6
Transition to registrar			...something you will only appreciate once you are in the reg programme…	4
			I feel those things make a big difference to how, well now I'm on the other side, how a student would view me as a teacher	7
			It's part of our learning as registrars, is time management.	4
Barriers to teaching	Conflicting Priorities and/or responsibilities (time)	Clinical workload (patients first)	but I do think that us as registrars overlook our role as the teacher, because we get busy with other stuff.	5
			...because sometimes it can be so busy that you, not willingly, but sometimes the students do get a little bit neglected.	7

			Time, time and workload...If you are busy you're not going to teach them because obviously the patient comes first.	1
			workload…sometimes when you are so busy, you kind of don't give them all the attention that they deserve,	2
			Well, the main thing, the biggest thing is the patient load, because a good place you can teach is the high risk clinic, and our gynae clinic, and we don't have the time. It's like a sausage machine. You just have to try and get them out before four because sometimes we have 180 patients in the high risk clinic, and you just can't take the time to actually, because you don't listen to them when they present them. You actually just grab the book and have a quick look yourself and make the plan and run to the next one. So the biggest thing is patient load. It would be lovely to be able to actually listen to them and help them, you know, you need this with the history, and did you ask about that, and then go through the examination. The consultants are there, they try, but it's also so overwhelming that sometimes there are so many students and the patients just add up. That's the biggest thing actually, is that there is just no time.	3
			you always feel like your clinical responsibility to patients outweighs everything else, and so you feel obligated to sort your ward out from a clinical point of view, and then all these other things that you also have to attend to, like stats and admin and the nurse's problems and teaching. Somehow you need to squeeze that in.	4
			I feel time is the biggest barrier to adequate teaching because you always have to schedule 10 minutes or 15 minutes or half an hour, or an hour here or there in between normal duties that you have between seeing patients and going to theatre and clinics and all of those, and your emergencies that rock up any time.	7

		Clinical environment	But I mean our teaching is in the ward where everything is happening, even when you are teaching, people are walking in, they are coming and telling you quickly, there is a phone call, oh, and this happened, and now, and I need to show you the gas. I feel like that impacts on the students, because in the middle of a train of thought, there you have to run off and take a phone call. It's just not optimal, and for me that's the biggest barrier. It's the environment, because we have to teach in the same environment that we work, and time is probably the biggest constraint.	4
			time and patient load because the responsibility of whatever goes on in the ward is still at the end of the day the registrar's, and sometimes you have to do all your work and then teach them as well. So I don't think the registrars necessarily dislike teaching, it's just the time restraints… and patients unfortunately come before students.	5
			the clinical work overrides everything else so it becomes difficult	6
		No protected time	and often there is no cover. So if there is not a medical officer in the ward who can cover the ward for you, it becomes very difficult.	6
		Staff shortage	and I think short-staff, because inevitably, that maybe also plays quite a big role just as much as time, because you are short-staffed, you have to cover a lot more areas at the same time, therefore you have less time for student teaching.	7
	Less opportunity	Consultant driven service	you as a registrar never lead a ward round, there is always a consultant, (unlike) in the other subspecialty wards	6
			I would actually like to give more TUTS and stuff, to be more involved with the students, a sort of protected time.	
	Student	Abilities	Their skills are probably a bit better and they are more comfortable with the larger children, and the junior doctors, there are more special skills you can teach them, and more clinical signs you can show them.	6
			(time spent teaching depend on) ...how functional the students are	1
			and the students obviously don't have any ability to really work with the young babies.	6

		Enthusiasm	It depends on the students that you have as well. So eager students you would spend much more time (teaching).	3
			you get students that you can see this person, they don't want to be taught, and then it's not nice for you to now sort of waste your time to try and teach someone you can see obviously doesn't want to be here.	1
			It's always nice if you have keen, interested students, and then we are keener to teach them.	2
Conception of 'role of teacher'			I think before the workshop and after the workshop my opinion of that (the role of registrar as teacher) actually changed. So before I thought more the old school way of thinking, that when you stand in front of them and talk about a topic, that's your clinical teaching role, and since, after the workshop I have noticed that it's a lot of other things as well, even just other people examining how you go about working with patients. So I think that in essence changed after the workshop, my idea of what the role is.	5
Conceptions of 'good doctor'	Communication, respect		communication with the mother and with the patient...respect...Whatever theory or how clever you are has got actually nothing to do with it, according to me.	1
	Holistic approach		really care for your patients, like holistically. It's not just about the diagnosis and treatment of that particular problem that you identified, but more sure that everything else is sorted out.	2
	Kind, non-judgemental, like people		kind and non-judgemental...Like you really like people and really want to help them, you like talking to them, you like finding out their stories, you like helping them with the problems they have. You can't be a doctor if you don't actually like talking to people and you are going to judge when they come to you	3

	Safe, self-aware (knowledge, skills), authenticity	you need to be a safe doctor...But I think as a doctor you need to know when you need to ask for help, as opposed to pretending like you know, or just kind of lingering on and not asking for help, because even if you don't know what to do, you can always ask someone, but you need to take that step and acknowledge that you don't know what to do next...I have got no problems acknowledging that I don't know and that I will ask, and I even say to them that if they read it up and they find the answer, that they should come and tell me, because sometimes maybe I forget to go home and go and read up on that one question.	4
		good, safe, reasonable doctor...being a doctor is not what it's all about. You need to have a well-balanced life, and there is a life outside of what you are doing.	7
	Time-management (professional and personal)	I think as a doctor you need to somehow learn time management, because you never ever only have one thing to do...you never only have the responsibility of managing patients. There is always other stuff that you need to manage, and besides just managing your time as a doctor, a clinical doctor, you need to manage your life, and being a doctor is only one aspect of your life, and even that too can be difficult sometimes, balancing family and relationships and work and studying. It's also something you must learn. It's not something that comes easily when you are a junior.	4
	Clinical and theoretical knowledge/ patient rapport	central basic clinical skills and diagnostic ability, and without that you can't really function...But I think what's lacking, especially in the high pressure situations, is the basic personal contact with people. You need to establish that rapport and the trust, and that doesn't take much time if you know how to do it. But again, you can't have that without the good diagnostics, so you need the personal relationship and the clinical skills.	6