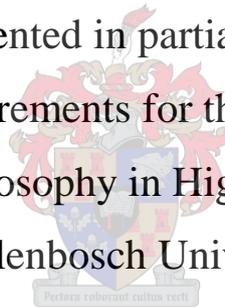


Experiences of feedback on medical students' clinical skills performance in a clinical skills centre

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Thesis presented in partial fulfilment
of the requirements for the degree of
Master of Philosophy in Higher Education
at Stellenbosch University



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DECLARATION

By submitting this thesis I, Charmaine van der Merwe, declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Charmaine van der Merwe

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God is good

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SUMMARY

Feedback is critical to learning, especially learning of clinical skills, even in simulation. Students are often not satisfied with the feedback they receive on their learning, while lecturers generally report they do provide feedback to students. This imbalance between feedback received and feedback provided may be evident at this Clinical Skills Centre (CSC), where medical students from Stellenbosch University learn clinical skills in the safety of a simulation area. The aim of this study was therefore to determine how fourth-year medical students experience the feedback they receive and how lecturers experience the feedback they provide about the learning of clinical skills in the CSC. As the researcher, I was specifically interested in this study to help guide my own practice as a lecturer in this CSC.

This study followed an interpretative approach and used non-numerical data to understand the feedback experiences of the students and their lecturers. A case study design was used which involved the fourth-year medical students and the lecturers involved in learning sessions at the CSC of Stellenbosch University as a particular setting for learning and teaching. The student group, as well as the lecturers were purposefully selected for the case because of their specific experiences in the learning and teaching of clinical skills in the CSC.

Non-numerical data were generated through three methods, namely the observation of ten learning sessions, individual interviews with four lecturers and five focus group interviews with 35 fourth-year medical students. From the data analysis it became apparent that medical students generally associate feedback with the information they receive after summative assessments and do not experience guidance during learning sessions in the CSC as feedback.

The findings further indicated that students possibly do not receive sufficient feedback in terms of the traditional notion of feedback. This is mainly because of limited follow-up opportunities whereby a change in students' behaviour can be evaluated and information can be provided on multiple observations of students' performance of clinical skills. There is however evidence that opportunities may be enhanced in the learning of clinical skills, especially in a CSC where an alternative self-regulated feedback model can be incorporated.

Key words: feedback; learning clinical skills; Clinical Skills Centre; self-regulated feedback model

OPSOMMING

Terugvoer vorm 'n belangrike deel van leer, veral die leer van kliniese vaardighede, selfs in simulاسie. Dit gebeur gereeld dat studente nie tevrede is met die terugvoer wat hulle oor hul leer ontvang nie, terwyl dosente aandui dat hul wel voldoende terugvoer aan studente gee. Hierdie wanbalans tussen terugvoer wat verskaf word en terugvoer wat ontvang word mag voorkom in die Kliniese Vaardigheidsentrum (KVS) waar mediese studente van Stellenbosch Universiteit kliniese vaardighede in die veiligheid van 'n gesimuleerde area aanleer. Die doel van hierdie studie was dus om te bepaal hoe vierdejaar mediese studente die terugvoer wat hul ontvang ervaar, asook hoe dosente die terugvoer wat hul oor die leer van kliniese vaardighede in die KVS verskaf, ervaar. As navorser, het ek spesifiek belanggestel in hierdie studie om my as dosent in die KVS te lei.

Hierdie studie het 'n interpreterende benadering ingesluit en het gebruik gemaak van nie-numeriese data om sodoende die ervarings van terugvoer van beide dosente en studente te verstaan. 'n Gevalle-studie ontwerp is gebruik wat vierdejaar mediese studente ingesluit het, sowel as die dosente wat betrokke is by die leersessies in die KVS van Stellenbosch Universiteit as 'n spesifieke opset vir leer en onderrig. Die studentegroep en die dosente is doelbewus gekies vir hierdie studie as gevolg van hul spesifieke ervarings in die leer en onderrig van kliniese vaardighede.

Nie-numeriese data is verkry deur die gebruik van drie metodes, naamlik die observasie van tien leersessies, individuele onderhoude met vier dosente en vyf fokusgroep-onderhoude met 35 vierdejaar mediese studente. Nadat data-analise gedoen is, was dit duidelik dat mediese studente geneig is om terugvoer met die inligting wat hul na summatiewe assesserings ontvang te assosieer, en nie met die leiding wat hul gedurende hul leersessies in die KVS ontvang nie.

Data het verder aangedui dat die moontlikheid ontstaan dat studente nie genoegsame terugvoer in terme van tradisionele wyses ontvang nie. Dit is grootliks as gevolg van beperkte opvolg geleenthede waartydens 'n verandering in gedrag van studente evalueer kan word en inligting verskaf kan word op grond van verskeie observasies van studente se uitvoer van kliniese vaardighede. Daar is egter bewyse dat geleenthede ontstaan waar die leer van kliniese vaardighede bevorder kan word, veral in die KVS waar 'n alternatiewe self-regulerende terugvoermodel ingestel kan word.

Sleutelwoorde: terugvoer; leer van kliniese vaardighede; Kliniese Vaardigheidsentrum; self-regulerende terugvoermodel

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Figure 2.1: Self-regulated feedback model

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LIST OF ACRONYMS AND ABBREVIATIONS

AED	automated external defibrillator
BLS	basic life support
CPR	cardiopulmonary resuscitation
CSC	Clinical Skills Centre
DVD	digital video disc
ECG	electrocardiogram
GPs	general practitioners
HREC	Health Research Ethics Committee
MChB	Bachelor of Medicine and Bachelor of Surgery
MCQ	multiple choice questionnaire
OSCE	Objective Structured Clinical Examination
ZPD	zone of proximal development

CHAPTER 1

ORIENTATION AND BACKGROUND

1.1 INTRODUCTION

Feedback is an important factor in the learning process, especially the learning of clinical skills. As it is essential for medical students to develop competence in clinical skills, lecturers often report that they provide feedback, but that students do not always recognise this as feedback, nor do they perceive it as being helpful. Students' clinical performance thus does not necessarily improve because of the feedback provided by lecturers.

This study explored the experiences of feedback received and provided on the performance of clinical skills in a clinical skills centre. The target population was fourth-year medical students busy with the six-year MBChB programme in the Faculty of Health Sciences at Stellenbosch University. The aim was to develop an improved understanding of feedback practices, which if better understood, may potentially contribute to improved students' learning of clinical competences.

1.2 BACKGROUND

Medical students must be competent in clinical skills and many such skills are learned, practised and assessed in the clinical setting as well as in simulation in clinical skills centres. Clinical skills centres provide safe environments for the learning of clinical skills. The learning of clinical skills in clinical skills centres can be even more effective than traditional learning in the clinical setting (Lund, Schultz, Maatouk, Krautter, Möltner, Werner, Weyrich, Jünger & Nikendei, 2012), and it is widely accepted that feedback forms an integral part of the learning process (Hattie & Timperley, 2007), especially in the learning of clinical skills (Ende, 1983; Hesketh, Bagnall, Buckley, Friedman, Goodall, Harden, Laidlaw, Leighton-Beck, McKinlay, Newton & Oughton, 2001; Irby & Bowen, 2004; Leinster, 2009). This includes the learning of clinical skills in simulation (Issenberg & Scalese, 2007; Ker, 2009; Herrmann-Werner, Nikendei, Keifenheim, Bosse, Lund, Wagner, Celebi, Zipfel & Weyrich, 2013; Hatala, Cook, Zendejas, Hamstra, & Brydges, 2014).

There are various definitions for the term 'feedback' in the literature. In education, feedback is about identifying the gap between the student's current observed performance and the expected performance in the specific activity and then helping the student to reflect on their performance and working on a plan to move from the current to the expected performance (Cantillon & Sargeant, 2008). The term feed forward is also used, where the feedback provided on the current activity also focuses on the encouragement of the student and on improvement of performance, or the closing of

the gap, specifically for future performance (McGonigal, 2006; Beets, 2009; Koen, Bitzer & Beets, 2012).

Clinical skills centres offer excellent opportunities for students to practise clinical skills without potential harm to patients. Here students can be observed by lecturers or even by their peers and formative feedback can be provided. Medical students at Stellenbosch University have a compulsory clinical skills module where they attend learning sessions facilitated by staff from the clinical skills centre, or lecturers and clinicians from other departments within the health sciences faculty, and even from outside the institution. The lecturers facilitating specific sessions are generally experienced in the specific clinical skills students need to learn during these sessions. The learning of clinical skills are best done through deliberate and repetitive practise with feedback (Issenberg & Scalese, 2007; Herrmann-Werner et al., 2013). Unfortunately, this may not always be the case at this clinical skills centre, as students are sometimes taught clinical skills by means of a lecture in a short time period with a large lecturer to student ratio, not allowing individual practising of the skills by the students. It is therefore possible that students do not always receive feedback on their performance of clinical skills, especially if they do not have the opportunity to practise the skill while being observed. Students may practise their clinical skills in the clinical setting after a clinical skills centre session, but even there they may possibly not be observed or receive feedback on their performance.

Some barriers to providing feedback in the clinical setting can be attributed to time constraints, especially due to the dual role of clinicians, which comprises both providing patient care and teaching students (Irby & Bowen, 2004). In addition, lecturers and clinicians may not be trained in the provision of constructive feedback, or they may not provide adequate feedback out of fear of emotional responses from the students or of offending or embarrassing students in the presence of patients (Cantillon & Sargeant, 2008). In the clinical skills centre there are no patients requiring attention, but time constraints are still a potential barrier. Additionally lecturers not trained in providing feedback and fear of emotional responses from students can be barriers. Students are only assigned to the sessions for a specific time, and the lecturer to students ratio can aggravate the problem, which could sometimes be 1:20. It is therefore not practically possible for the lecturer to observe every student practising every skill. Some initiatives to overcome the time factor are peer feedback (McGonigal, 2006), which is also promoted in this clinical skills centre. Students are encouraged to come to the clinical skills centre during free time to practise their skills, preferably with a peer who can provide feedback. There are also specific activities that aim to provide individual feedback to students to counter the effect of the high lecturer to student ratio. Each student has to make at least one appointment with a lecturer during their early clinical (third) year

and middle clinical (fourth to fifth) year rotations for a formative assessment of specific clinical skills in simulation, and this can be as an individual or in a small group. In addition, the students have to submit a video recording of themselves performing a specific clinical skill, on which they receive audio feedback concurrent with their procedure, or written feedback at the end. The current fourth-year students had to perform catheterisation in their third-year video. The feedback provided on the specific skill was also aimed at the general skills related to sterility, which can be applied to many other clinical skills requiring sterility. Grierson (2012) refers to this as “specificity of feedback, variability of practise”.

Lecturers generally recognise the importance of providing feedback (Ernstzen, Bitzer & Grimmer-Somers, 2009) and the lecturers at this specific clinical skills centre agree that they provide feedback during learning sessions. The most common type of formal feedback is summative feedback, and usually written feedback in response to written assessments, which is not applicable to the clinical skills centre, as no written assessments are conducted. Formal feedback related to students’ clinical performance is provided during summative assessments, but this may be limited to a mark or a grade only. This may also not encourage learning, as no feed forward is provided (Beets, 2009: 196). Informal or formative feedback is provided when students are observed practising the clinical skills in simulation in the clinical skills centre, and feedback, or rather feed forward, is provided to guide them in their learning. It is this formative feedback or feed forward that can play an important role in the students’ learning (Ende, 1983; Issenberg & Scalese, 2007; Koen et al., 2012).

The way in which feedback is provided can influence its usefulness. Some reasons for the failure of feedback, even when provided, may include that it is teacher-centred rather than learner-centred and focuses too much on positive comments rather than constructive comments aimed at bridging that identified gap (Bing-You & Trowbridge, 2009). Because of students’ preference for positive comments and lecturers’ fear of emotional responses from the students, many lecturers use the so called sandwich technique, where comments related to the student’s problem areas or areas that can be improved on, are ‘sandwiched’ between positive or constructive comments. This kind of feedback may however not lead to improved performance (Parkes, Abercrombie & McCarthy, 2013).

Additionally, students are often unsatisfied with the feedback they receive (Boehler, Rogers, Schwind, Mayforth, Quin, Williams & Dunnington, 2006; Murdoch-Eaton & Sargeant, 2012) or even unaware of feedback provided (Bevan, Badge, Cann, Willmott & Scott, 2008), especially verbal feedback (Murdoch-Eaton & Sargeant, 2012). One of the lecturers at the CSC recently asked

students about the feedback in a learning session. The first student replied that they definitely had not received any feedback. During this specific learning session, student participated in a computer-based learning activity on electrocardiogram (ECG) rhythm analysis. The computer programme immediately indicated if a student's answer was correct or not, together with an explanation of the characteristics of the ECG rhythm in each answer. This may be seen as feedback as the information provided by the computer may help guide the student's ability to recognise the rhythms in future. Additionally a lecturer was also available, providing guidance and assistance. Why is it that students did not perceive all of the above as feedback? Should the lecturer be more explicit when providing feedback? Are the students not open to feedback? Additionally, even when feedback is provided, there are some suggestions that feedback does not necessarily lead to improved performance (Prins, Sluijsmans & Kirschner, 2006; Boud, 2007: 18; Beets, 2009: 196; Voelkel & Mello, 2014). Satisfaction with feedback also does not necessarily mean improved performance, which is ultimately the aim of feedback. In one study it was found that students were more satisfied when they received general compliments as opposed to specific feedback on their performance, but the students who received the specific feedback improved significantly when tested on the skill (Boehler et al., 2006). Poor student satisfaction therefore does not necessarily imply poor quality of feedback.

According to Hattie and Timperley (2007), students need specific skills to receive feedback, including the ability to reflect. Students might not understand what feedback or feed forward is and therefore would be unable to use it effectively. Students also might not be aware of the value of feedback. When the students at this CSC record their videos, they constantly ask the lecturers to view their recordings before submission, with the sole purpose of indicating if their video is satisfactory to pass. Students are often only motivated by the marks they receive and not focused on the learning that occur during the exercise. For feed forward to occur, the student must take on an active role in feedback by making sense of what the learning gap is and what can be done to improve his or her learning (Sadler in Hounsell, 2007: 106).

Students who are not clinically competent may fail their examinations, leading to an increased financial burden on the system, as well as the students and possibly their families. Worse still, incompetent students may enter the workplace as incompetent medical practitioners, affecting the health system and patients' outcomes. The MBChB students at Stellenbosch University have a clinical skills practical examination (OSCE) at the end of the third and middle of their fifth year, where they are assessed on various clinical skills. Students receive only a mark for the clinical skills module and there may not be opportunities to receive specific feedback regarding their competence and safety in the individual skills. It is the experience of the researcher that students do not seek

specific feedback on their performance after these examinations. Only those students who have failed (with an average of less than 50% for the examination) and need to prepare for a supplementary examination seek feedback on individual skills performance. For the fifth-year students, a multiple choice questionnaire (MCQ) test on the theoretical aspects of the clinical skills contributes a percentage towards their mark and this leads to some students passing the module on average, but failing up to three of their five clinical skills stations. These students do not return for feedback or feed forward regarding the procedures failed. According to Murdoch-Eaton and Sargeant (2012) this is more typical of junior students, but in the experience of the researcher this also seems to be the case with some of the more senior students at the CSC.

If feedback is critical to learning, and especially learning of clinical skills, then lecturers may need a better understanding of what feedback is and how and when it should be provided to enhance students' learning and clinical performance. The students' experiences of feedback in the CSC could provide such a better understanding of how students process feedback and when it matters to them (Bing-You & Trowbridge, 2009; Koen et al., 2012; Hatala et al., 2014).

1.3 RESEARCH PROBLEM

There seems to be a mismatch between the feedback lecturers think they provide and the feedback students think they receive, as well as the students' reaction to the feedback (or lack thereof) at the CSC. Although there are many guidelines in the literature regarding feedback, there is evidence that much feedback may not be appropriate or effective. Although the provision of feedback is essential for the learning of clinical skills, feedback does not seem to be well incorporated in all learning sessions at the CSC. Moreover, students hint at the fact that they are not always aware of or interested in feedback.

The research question that was thus addressed in this study in order to better understand and deal with feedback deficiencies was: *How is feedback on learning of clinical skills experienced as provided by lecturers and received by students in a clinical skills centre?*

1.4 AIMS AND OBJECTIVES

The aim of this study was to determine how lecturers and the fourth-year medical students experience the feedback they provide and receive about learning of clinical skills as practised at a clinical skills centre.

To achieve this aim the following objectives were set for this study:

- To describe feedback practices essential to learning and specifically the learning of clinical skills in a clinical skills centre;
- To describe current feedback practices used to facilitate the learning of clinical skills at one clinical skills centre;
- To determine lecturers' experiences of feedback provision in a clinical skills centre;
- To determine how students experience the feedback they receive in a clinical skills centre;
- To explore a framework for potentially improving feedback practices for medical students in a clinical skills centre.

1.5 METHODOLOGY

The methodology used in this study included a descriptive case study design.

1.5.1 Study design

A case study design within an interpretivist view was employed for this study as the research was concerned with meaning within a specific social context (Henning, Van Rensburg & Smit, 2007: 20). A descriptive case study design was used with the focus on the 2015 fourth-year MBChB students at Stellenbosch University as well as the lecturers teaching them in the clinical skills centre. A case study design is appropriate when the research question requires an in-depth, detailed and holistic explanation of a phenomenon (Yin, 2009: 4; Denscombe, 2010: 52).

1.5.2 Research context

A specific case to study is never randomly selected, but specifically chosen for its defining characteristics (Denscombe, 2007: 39). The class of fourth-year medical students were selected specifically to share their experiences as they were exposed to various learning sessions within the CSC centre in the preceding 18 months. The lecturers who teach the class of fourth-year students and participated in the study were also purposefully selected due to their experience of teaching in the CSC.

1.5.3 Data collection

Data were collected from three data sources, including observation in ten different clinical skills learning sessions, focus-group interviews with 35 students in five groups, and individual interviews with four lecturers from the clinical skills centre.

1.5.4 Data quality measures

The aim of a research study is to present results that are as true as possible a reflection of the real event (Plowright, 2011: 135). The ecological validity was ensured by collecting the data on the phenomenon of feedback on learning of clinical skills in its natural occurring state. No artificial clinical skills learning sessions were created for the purpose of the study, and participants were encouraged to reflect on their experiences in previous learning sessions, also occurring as part of their every-day life. Measures were taken to increase the credibility, transferability, dependability and confirmability of the study, which will be discussed in detail in Chapter 3.

1.5.5 Data analysis

Data analysis “requires analytical craftsmanship and the ability to capture understanding of the data” (Henning et al. 2007: 101). The analytical process was required to make sense of the non-numerical data collected from the observation of clinical skills learning sessions, individual interviews and focus group interviews. This will be highlighted in more detail in Chapter 3.

1.6 ETHICAL CONSIDERATIONS

Ethics is part of a moral philosophy and “addresses issues of human conduct” (Pera, Van Tonder, Oosthuizen & Van der Walt, 2011: 5). Throughout the research process, the researcher should respect the participants and consider ethical issues such as informed consent and confidentiality and anonymity (Plowright, 2011: 155).

During this study the nature of the research and the participants’ rights were explained to all the participants before the observations of learning sessions, the focus group interviews as well as the individual interviews. All attempts were made to be honest about the aim of the research and not to deceive participants, especially when observing them.

Written consent was obtained from all participants (Addendum A). Participation in the research was voluntary and it was explained to all prospective participants that they could decide to take part or not, and that there would be no implications if participants chose to not take part. Furthermore, participants were informed that they could withdraw from the research at any time, without any implications. Confidentiality and anonymity was safeguarded by removing any identifying words from the transcripts and ensuring participants could not be identified from the report.

Data collection were only commenced once the relevant consent was obtained from the MBChB programme coordinator, the Stellenbosch University Health Research Ethics Committee

(Addendum C) and the Stellenbosch University Institutional Research and Planning Division (Addendum D).

1.7 STRUCTURE OF THESIS

Chapter 2 explores theoretical perspectives on feedback practices, starting with an overview of general concepts and then moving to how these relate to learning and especially the learning of clinical skills. The specific feedback model that was explored describes feedback as a self-regulated feedback model within a student-centred learning environment.

The research design and methodology are described in Chapter 3. The descriptive case study design is discussed, including the methods for data collection and analysis. In addition, the chapter describes measures to enhance the quality of the study as well as the ethical considerations.

In Chapter 4 the results of the study are presented. This includes a discussion of the analysis and interpretation of the data. The data collected from the observations of learning sessions, the focus group interviews and the individual interviews are first presented separately and then discussed in combination with references to relevant literature.

Lastly, the conclusions based on the data generated in the study are discussed in Chapter 5. Specific implications for feedback in a clinical skills centre are presented and the chapter includes a brief section on the limitations of the study.

1.8 CONCEPT CLARIFICATION

The final section of this chapter provides a brief description of key concepts that feature in this study. These concepts will be discussed in more detail in Chapter 2 where applicable.

Clinical setting

This refers to any area where students interact with real patients, for example hospitals and clinics.

Clinical skills

This term includes procedural skills learned in simulation in clinical skills centre.

Clinical Skills Centre (CSC)

This refers to the specific area where students learn clinical skills in simulation on manikins. Students and lecturers also refer to the CSC as the skills lab.

Feedback

Feedback refers to information provided to students on their performance of clinical skills. The information is usually provided by the lecturer and aims to identify the gap between the student's current performance level and the expected level of performance, as well as providing information to bridge that gap (Cantillon & Sargeant, 2008). This concept will be discussed in detail in Chapter 2.

Lecturer

In this study the term 'lecturer' is used for any individual responsible for facilitating a learning session in the CSC. Throughout the literature, other terms referring to such a person include teacher, facilitator, educator, clinician and supervisor. At this specific CSC the learning sessions are facilitated by registered nurses, doctors and paramedics.

Objective Structured Clinical Examination (OSCE)

This refers to the clinical summative examination at the end of a clinical skills module. It usually consists of multiple stations where students are assessed on the performance of skills. The focus is on the doing, rather than the knowing of the skill (Harden, 1988).

Peer assessment sheets

This provides written information in the form of a systematic step-by-step guide on how to perform the clinical skills. The sheets generally provide only the most important steps and a reference is usually provided for further reading. Students are encouraged to use these sheets to guide their own performance and to provide feedback to peers.

Simulation

This involves learning and assessment of clinical skills in a safe environment, with no patients; therefore, no potential risks to patients exist (Nestel, Bello & Kneebone, 2013: 141). The clinical skills centre provides an environment where clinical skills can be learned in simulation.

Self-regulated feedback model

A feedback model with the student as central to the model, developing internal feedback and seeking external feedback when needed. One specific model (Molloy & Boud, 2013) will be discussed in more detail in Chapter 2.

Student centred learning

This refers to an approach where students take on a central role in their own learning, where they have to participate actively in deciding what, when and how to learn, as well as when they feel ready for assessment (Harden, Sowden & Dunn, 1984).

SUNLearn

This is Stellenbosch University's web-based learning platform. Students registered for clinical skills modules can access learning content here and participate in learning activities.

The next chapter outlines an investigation into literature relevant to the research question with the aim of developing the theoretical perspectives of the researcher to inform the empirical part of the research.

CHAPTER 2

THEORETICAL PERSPECTIVES

2.1 INTRODUCTION

Clinical skills are best learned through demonstration (Ende, 1983) followed by deliberate practice and feedback (Issenberg & Scalese, 2007; Herrmann-Werner et al., 2013) and, with feedback being the most important factor promoting learning in simulation-based medical education (Issenberg & Scalese, 2007). In many reported instances there seems to be an imbalance between the feedback lecturers say they provide and the feedback students say they receive.

This chapter investigates some aspects related to the learning of clinical skills and feedback, including a conceptualisation of what feedback is in the context of learning. It also looks at previous research on students' and lecturers' experiences of feedback, as well as theories and models relevant to feedback practices. One model (Molloy & Boud, 2013), is of particular importance as it describes feedback as a self-regulated activity within a student-centred curriculum. This model will be discussed and further explored in relation to the application thereof in the learning of clinical skills in settings such as clinical skills centres. Relevant references from 1983 until 2015 were consulted for this chapter.

2.2 LEARNING OF CLINICAL SKILLS

2.2.1 Simulation-based learning

Learning in simulation has a specific place in medical education. It provides a space for medical students to practise clinical procedures in a safe environment where they can make mistakes, and learn from them, without causing harm to any patients (Ziv, 2005: 215). The environment is more student-centred compared to learning in the clinical setting (e.g. hospital) as there are no patients in the simulation areas needing the attention of the lecturer, and therefore the lecturer can focus solely on the student's learning needs.

Various studies explored different aspects of clinical skills training programmes. There is evidence that a medical programme with a longitudinal clinical skills training programme included in the curriculum prepared students better for internship (Remmen, Scherpbier, van der Vleuten, Denekens, Derese, Hermann, Hoogenboom, Kramer, Van Rossum, Van Royen & Bossaert, 2001). Learning clinical skills in simulation may even be more effective than learning to perform these skills in the clinical setting at the patient's bedside. Lund et al. (2012) found that students who learned the clinical skill (intravenous cannulation in this study) in the CSC outperformed the

students who learned in the clinical setting in terms of technical and communication skills when the same skill were later performed in the clinical setting. The students from the CSC group were able to perform more of the steps of the skill, took less time to perform the procedure, and were more successful in inserting the intravenous cannula. These results were not just limited to the simulation situation as these students were able to transfer their efficiency to the clinical setting, inserting the intravenous cannula on real patients (Lund et al., 2012). In the Lund et al. study, the students in the clinical setting as well as those in the clinical skills centre were trained by doctors. There is however evidence suggesting medical students can effectively learn clinical skills in simulation when the sessions are facilitated by nursing faculty (Elms & Chumley, 2006).

A systematic literature review on factors positively influencing learning in simulation cites feedback as the most important (Issenberg & Scalese, 2007). These authors found that students learn more effectively by repeatedly practising the skills, while their learning is further enhanced by scaffolding from a low to a higher level of complexity. It was also found that simulation activities should be part of the standard curriculum and not an optional activity, and should incorporate multiple learning strategies and a variety of clinical cases. The importance of the controlled environment is also emphasised, as well as the ability to individualise learning, depending on the student's needs. In addition, the simulation activities should have well defined criteria against which students can measure their performance (Issenberg & Scalese, 2007).

2.2.2 Methods for learning clinical skills

Traditionally medical students learned clinical skills as part of an apprentice model in the clinical setting. This is commonly referred to as a 'see one, do one, teach one' method, and are still common practice (Mason & Strike, 2003; Herrmann-Werner et al., 2013). When using this method, the student will watch a clinician or lecturer perform the clinical skill, while the lecturer may explain it and ask questions. Thereafter students may have an opportunity to perform the skill themselves. Learning clinical skills in a clinical skills centre may also follow this approach, but there is evidence that other methods may be more effective. In the study by Lund et al. (2012), the learning sessions in the clinical skills centre were conducted using Peyton's four-step method. This method has the following steps (Peyton in Lake & Hamdorf, 2004: 327):

1. Demonstration: the lecturer first demonstrates the skill in silence at a normal pace
2. Deconstruction: the lecturer repeats the demonstration with an explanation of the steps
3. Comprehension: the lecturer demonstrates the skill again allowing the students to explain the steps
4. Performance: the students perform the skill themselves

In a study specifically comparing Peyton's method to the traditional method, students in the Peyton four-step method group scored better results on global procedural and communication performances (Krautter, Weyrich, Schultz, Buss, Maatouk, Jünger & Nikendei, 2011). The authors also reported that there were no significant difference in time taken to teach the skills when comparing the two groups, although the students in the traditional method group reported that their session were too short. The third step in Peyton's method may be the key to superior results as the comprehension step is not part of the traditional method. This step may allow students to have a better understanding of the steps of the clinical skill before they need to perform the skill themselves. Herrmann-Werner et al. (2013) also compared the traditional method to a best-practice method that includes Peyton's four-step method and found better performance results for the best-practice group of students, not just at immediate assessments, but also at repeat assessment three and six months later. Peyton's four-step method therefore seems to be an effective and time efficient approach to teaching clinical skills in a clinical skills centre.

Since Peyton's model was developed in 1998, there has been some adaptations, with George and Doto (2001) adding an initial step of providing an overview before the demonstrations start to ensure the students understand the importance of the skill. This is in line with one of Knowles's adult learning principles that adult students are problem-centred and need to know how they will be able to apply what is learned (Merriam, 2001).

Although Peyton's model do not explicitly list feedback as a step, it was developed with a lecturer to student ratio of 1:1, therefore feedback from the lecturer is possibly part of step four. There has since been adaptations to the model to allow for larger student groups learning skills in simulation. Nikendei, Huber, Stiepak, Huhn, Lauter, Herzog, Jünger & Krautter (2014) adapted the model to accommodate more students. The authors combined the demonstration and deconstruction as the first step, where after more time is spend with each student on the comprehension step. First, the lecturer performs the skill with student one explaining the steps. Thereafter student one performs the skill with student two explaining the steps. All other students observe student one and provide peer feedback where after the lecturer also provides feedback. This process is then repeated with student two performing the skill while student 3 explains the steps, and so forth until it is the last student's turn. The last student then performs the skill without anyone explaining the skill, where after feedback is first provided by the peers and then the lecturer (Nikendei et al., 2014: 2-3). In this study, the lecturer to student ratio was still only 1:3, so there may be more challenges when trying this adapted model in a class with the lecturer to student ratio of 1:15, or even more. It may take excessive time and students may become bored if everyone has to watch while all 15 students practise individually.

Archer, van Hoving & de Villiers (2015) conducted a study with a lecturer to student ratio of 1:20, where they compared the effectiveness of learning a clinical skill (defibrillation) of Peyton's four-step method to an adapted George & Doto (2001) five-step method. With this adapted method, the lecturer still provided the context and two demonstrations, one silent and real-time, the second with an explanation. Then students could ask questions, followed by practise time in groups, with peers explaining the steps to each other and providing feedback to each other, with the lecturer providing supervision. There was no significant difference in performance between the groups (Archer et al., 2015), indicating that peer feedback may be utilised effectively during learning of clinical skills in a clinical skills centre.

Intrinsic to all of the methods described above is opportunities for students to practise the clinical skills. Students cannot receive feedback on their performance if they do not perform the clinical skill while being observed by either a lecturer or a peer. There is evidence that it may take third year medical students up to eight practise opportunities before they reach a learning curve plateau, where no more improvement is observed (Loukas, Nikiteas, Kanakis, Moutsatsos, Leandros & Georgiou 2010). Lecturers should therefore ensure adequate practise opportunities, no matter which method is used to teach the clinical skills.

2.3 FEEDBACK AND LEARNING

It is widely accepted that feedback forms an integral part of learning (Hattie & Timperley, 2007), especially in the learning of clinical skills (Ende, 1983; Hesketh et al., 2001; Irby & Bowen, 2004; Leinster, 2009). This includes the learning of clinical skills in simulation (Issenberg & Scalse, 2007; Ker, 2009; Herrmann-Werner et al., 2013; Hatala et al., 2014). Feedback in classroom learning is rated as one of the activities that have the most significant influence on students' achievement (Hattie & Timperley, 2007) and it is also perceived by students and lecturers (physiotherapy in this particular study) to be one of the important factors influencing students' learning in clinical practice (Ernstzen et al., 2009).

One important goal of teaching a medical programme is for students to achieve competence in clinical skills. This can happen by exposure to clinical situations, having specific learning objectives and competent role models, and also by the interaction and direction provided by feedback, when the 'role models' observe the students (Ende, 1983). Ende (1983: 777) compares the learning of clinical skills to ballet, which "is best learned in front of a mirror". In simulation, medical students can perform some of their skills in front of a 'mirror' when practising and they can even record themselves performing the required skills to watch again at a later stage. During both of these kinds of events, they can judge their own performance, but students are not always good

judges of their own performance because they might not know what they do not know. The recording adds the possibility of it being viewed by the lecturer, or a peer, who can then provide feedback. The ‘mirror’ can also be represented by the clinician in the clinical setting and the lecturer in the clinical skills centre, observing the skills and providing feedback in such a way that the students can understand how their performance compares to set learning objectives.

2.4 CONCEPTUALISING FEEDBACK

2.4.1 Defining feedback

The meaning of feedback can be interpreted in different ways, depending on the context within which it is described. Mosby’s Medical Dictionary (2009a) defines feedback as a “return of some of the output so as to exert some control in the process”. The Oxford Corpus (2007) definition for feedback is “comments about... a person’s performance, used as a basis for improvement”, which is similar to the educational sense of “...criticism or praise about a student’s performance” (Grierson, 2012: 2). Hattie and Timperley (2007) add that it is also about the student’s understanding. In a clinical medical education context, it is the “information describing students’...performance in a given activity that is intended to guide their future performance in that same or in a related activity” (Ende, 1983). Feedback is therefore more than merely criticism or praise; it is about identifying the gap between the student’s current observed performance and the expected performance in the specific activity and then helping the student to reflect on their performance and working on a plan to move from the current to the expected performance (Cantillon & Sargeant, 2008). According to Ramaprasad (1983), this process of identifying a gap can only be called feedback when the information is used to alter the gap. The term ‘feed forward’ is also used to emphasise the use of the information or plan for future performance (McGonigal, 2006; Koen et al., 2012). This idea of ‘feed forward’ could provide a suitable definition for the specific study, where the emphasis in learning sessions is on the learning of practical skills that will be used in the clinical setting. It could also apply to certain principles that can be transferred to other skills, such as aseptic techniques and management of sharps, which are applicable to a range of clinical skills.

The working definition of ‘feedback’ for this study, based on the previous definitions from the literature, refers thus to the information provided to students during the learning of clinical skills that helps them to firstly identify gaps between their current performance and the set criteria. The information should secondly empower the students to change their behaviour or performance and thirdly to apply the learned skills in future practice.

2.4.2 Learning theories related to feedback

From the definition of feedback as discussed, it may be derived that feedback is often seen as part and parcel of the learning process. Thus, many definitions of learning include the importance of feedback. For instance, Schunk (2004: 2) sees learning as “...an enduring change in behaviour, or in the capacity to behave in a given fashion, which results from practise or other forms of experience”. The ‘change in behaviour’ seems to be a critical component or even a consequence of both learning and feedback. This section will explore learning theories that can provide a framework for explaining how feedback is relevant to the learning process.

According to Schunk (2004: 17) learning theories can broadly be divided into behavioural and cognitive learning theories. Behavioural theories explain learning in terms of environmental influences, where changes in behaviour occur in relation to positive or negative reinforcement (Schunk, 2004: 17). Cognitive theories, on the other hand, explain learning as an internal mental process that is influenced, but not regulated, by the environment and especially others in the environment (Schunk, 2004: 18).

Examples of behaviourist theories include Thorndike’s *connectionism* theory that explains how students can learn by trial and error, Pavlov’s *classical conditioning* theory, which elicits a learned response from conditional stimuli, and Guthrie’s *contiguous conditioning* theory that explains how behaviour will occur again if a stimulus and a response previously paired occur again (Schunk, 2004: 30; 36; 44). Behaviourist theory is often linked to the learning of technical or psychomotor skills such as clinical procedural skills (Torre, Daley, Sebastian & Elnicki, 2006).

If a behaviourist theory is used to explain how feedback influences the learning of a clinical skill, the feedback should act as a stimulus to ensure a certain response in a student. On some basic level, this may be achieved, for example, when a student practises obtaining blood from a simulator or manikin. The flashback of blood into the cannula (feedback from the simulator) will serve as positive reinforcement or a connection that the cannula was inserted correctly and this can then contribute to learning of the skill. When no flashback is seen, it will signal to the student that the desired response was not achieved and the student will need to adjust their behaviour. The adjustment will however need cognitive input from the student to know how to adjust their behaviour. Even if a lecturer provides information like “change the angle of the needle”, it cannot automatically change the student’s behaviour. The student can still decide what to do with the feedback information, as they are human beings who make choices depending on their own interpretation of the situation and the information (Molloy & Boud, 2013: 21). Behaviourist theory

may therefore not explain how feedback leads to a change in the student's behaviour, which seems to be the ultimate goal of feedback.

Cognitive theories may offer a more suitable framework for learning through feedback. Bandura's *social cognitive* theory views learning as a reciprocal process with interaction between the student's personal and cognitive processes, behaviours and the environment (Schunk, 2004: 85). According to this theory, learning can occur through observation or participation. Scaffolding is also part of this theory, where the lecturer initially provides a great deal of support, but decreases the amount of support as students are able to function independently (Schunk, 2004: 298). Clinical skills can be learned through a combination of these, where the students learn both by observing the lecturer demonstrating or modelling the skill and then through practising the skill and receiving feedback. There is therefore interaction between the environment (demonstration and feedback), behaviour (student practising) and the student (thinking about the skill and reacting to feedback). Students will remember behaviour that leads to positive results, but discard unsuccessful behaviour (Schunk, 2004: 134). The cognitive learning theories are more student-centred, as the focus is on the students reflecting on their behaviour, with the lecturer facilitating this process (Torre et al., 2006). This theory can explain how feedback can allow students to become more self-directed learners, where they can use the feedback they receive on their performance to change their performance.

Another theory that explains students as self-directed learners is the *humanist learning* theory. Within this theory, students learn because of a personal objective to grow and improve (Torre et al., 2006). The students can be seen as their own change agents within this learning theory as their learning is driven by personal motivation towards self-actualisation (Torre et al., 2006). In a changing higher education environment where more students enter the system, the lecturer in the clinical skills centre may not be able to watch each student perform their clinical skill within a session. Even if the lecturer guided the student during a learning session, this does not necessarily lead to changing behaviours in the long term. Students will ultimately be performing the skills on patients in the clinical setting, probably without any guidance or feedback from a lecturer. It is therefore crucial for students to develop the ability to evaluate their own performance and create their own internal feedback processes, or seek external feedback, possibly from a peer if a lecturer is not available. The humanist learning theory may therefore be helpful to explain how students can use feedback for learning that changes behaviour.

The role of peers in learning can further be guided by *social learning* theory. According to this theory, students learn by observing others, a lecturer or even peers, and interacting within a social environment (Torre et al., 2006). Again, this theory can be used to explain the learning of clinical

skills as students observe the lecturer or even a peer demonstrating a skill, and then practise the same skill while feedback is provided. The interaction within this social environment can explain how the feedback can encourage learning. The interaction should allow for dialogue between the student and the lecturer, or even the student with peers. This dialogue can help the student to clarify exactly why the skill is performed as it is, and how to interpret the feedback received from others.

Constructivist learning theories explain learning as a process of meaning making from experiences (Torre et al., 2006) and that learners create their own learning (Schunk, 2004: 286). Critical reflection is key in constructivist learning (Torre et al., 2006) and lecturers may assist students better by questioning them and stimulating them to question their own understanding. This can assist students to develop self-evaluation skills necessary for self-regulated learning. Again, these self-evaluations can help students to seek and use feedback to construct their understanding and facilitate learning. A constructivist understanding of learning can therefore also be helpful in guiding the feedback for learning process.

Vygotsky's *socio-constructivist* theory of learning is also exemplary of a constructivist learning theory. According to this theory, cognitive development is stimulated by interaction between individuals in a social environment, with influences from the cultural-historical context (Vygotsky in Swan, 2005; Schunk, 2004: 294). The cultural-historical context refers to how meaning and learning change in relation to the context, while the social environment influences learning through for example the language that is used. The social interaction with other individuals within the specific context is also crucial to learning, as learning according to this theory occurs when knowledge is co-constructed between individuals and internalised (Schunk, 2004: 295-296). Vygotsky's zone of proximal development (ZPD) describes the learning that can potentially occur when an individual is involved in a learning activity assisted by a more knowledgeable person, either a lecturer or a peer, who all bring specific and individual experiences with them (Vygotsky, 1978). Even if the peers are students on the same educational level, for example the same year of study, they have been exposed to various and different situations in the clinical environment, providing prior knowledge and different perspectives. This interaction assists students to master knowledge or a skill, which may not have been possible on their own. Scaffolding is used as part of this theory to assist the student to develop at a higher level (Newman & Holzman, 1993: 66-70). With the learning of clinical skills, students are in a specific learning environment (the context), interacting with the lecturer demonstrating the skill, guiding them and providing feedback, and with their peers who can guide them and provide feedback. Within this interaction, students also watch their peers perform skills and they potentially compare their own performance of the skill with that of their peers, thereby developing self-evaluation and self-regulatory processes.

Self-regulation is an important part of Vygotsky's socio-constructivist learning theory and involves processes such as planning, checking and evaluation (Schunk, 2004: 297). Within the sociocultural environment the student will learn what constitutes acceptable or desirable behaviour and then use this knowledge to plan how to perform in the same way, monitor own actions and evaluate how own behaviour compares to those believed to be acceptable. Self-regulation allows students to develop certain beliefs about their own learning ability through learning interaction with others and reflecting on their own knowledge and skills (Schunk, 2004: 316).

A socio-constructivist view on learning also fits well in with the *self-regulatory feedback model* from Molloy and Boud (2013). This will be described in more detail in a next section. In the case of the CSC, students attend learning sessions in groups, learning from the lecturer, but also from peers who may already have performed the skill in the clinical setting. Within this learning environment, students have opportunities to evaluate their own performance and compare that to what they believe to be acceptable. Furthermore, students may perform these skills in the clinical setting, possibly with peers, thereby extending the self-regulated learning and peer feedback beyond the boundaries of the CSC. The focus is thus on the engagement of students in learning activities which allows for the construction of knowledge and understanding (Biggs, 2012).

2.4.3 Different kinds of feedback

There are different kinds of feedback, but not all kinds of feedback may be effective in improving performance. When referring to the physiological meaning of feedback, positive feedback causes "an increase in response to a stimulus" and negative feedback a "decrease in function in response to a stimulus" (Mosby's Medical Dictionary, 2009b & 2009c). In educational feedback, the words 'positive' and 'negative' are also used, especially by students. Generally, the connotation to positive feedback is what the student did well, and negative feedback is what the student did wrong or can improve on. Could it be possible that students also perceive feedback to be positive or negative in a similar way to the physiological meaning, where some feedback will encourage them to improve, and others will have no effect on their performance? Students can become defensive when the feedback only focuses on what they did wrong (Pendleton, Schofield, Tate & Havelock, 1984: 68). When referring to educational feedback, words such as 'critical' and 'constructive' feedback may avoid possible negative connotations.

The sandwich method of providing feedback is well known to many lecturers. With this method, feedback related to the student's problem areas are 'sandwiched' between positive comments. Parkes et al. (2013) found that students perceive 'sandwiched' feedback positively and that they prefer feedback with positive comments, as opposed to critique. However, the sandwich feedback

did not lead to improved performance in these same students. Although positive comments increase students' satisfaction with the feedback, it could cloud the students' perceptions of their own competence and decrease their ability to evaluate their own performance (Parkes et al., 2013). Prins et al. (2006) showed that students (general practitioners [GPs] in training in their study) know what kind of feedback they prefer, but that the preferred feedback might not always be effective in improving performance. Students also rate audio feedback (as opposed to written feedback) positively because it provides in-depth explanations and not only corrections; it is motivational in that it provides the student with suggestions on improvement; and it is a more personal experience (Voelkel & Mello, 2014). The audio feedback however also did not lead to improvement in performance in this specific study.

Assessment is often seen as the main way of providing feedback to students on their theoretical and clinical performance. Unfortunately, it may not mean much to the student in terms of providing a specific plan for improvement if the feedback after assessment merely indicates a pass or fail, or a percentage obtained. The student's "strengths and weaknesses" should be pointed out if the student is to learn from the assessment (Beets, 2009: 185). Students might not even consider the feedback provided on summative assessments, because they have already received a rating or mark and there might not be an opportunity to improve. Formative feedback could be of more value because it can be applied to future learning, which will then be considered as feed forward (Beets, 2009: 196).

According to Boud and Molloy (2013b: 4), feedback is not about "the inputs of teachers and others ... in terms of content or style or timing, but in terms of whether they make a difference to what students can produce". It therefore seems that the focus for improving feedback practices should not be on what the lecturer does within the feedback process, but rather on the student, and what can allow the student to participate actively to change their behaviour or performance.

2.4.4 Feedback guidelines for clinical skills learning

Ende's (1983) guidelines for providing feedback suggest that it involves teamwork between the lecturer and the student. It should be timed close to what is directly observed and expected by the student, it should not be overwhelming for the student, and it should be focused on actions that the student can change. Feedback should be very specific but it should also allow the student to use the feedback in a variety of situations where the specific skill is used. As mentioned previously, Grierson (2012) refers to this as "specificity of feedback, variability of practise". It is the applicability of the feedback for future learning, which fits in with the feedback definition for this study. This is very important in relation to learning of clinical skills in a clinical skills centre, as the

learning that occurs in the simulated setting must be transferrable to the clinical setting where real patients are involved.

Similarly, Irby and Bowen (2004) suggest that for feedback in the clinical setting to be most helpful, clinicians must explicitly indicate when feedback is provided, do this close to the actual activity on which feedback is provided, base the feedback on the student's actual behaviour that identifies the student's strengths, and provide areas for improvement. This can also be applied in the clinical skills centre, where feedback can be provided immediately after the student performs the skill to identifying the gap in the student's behaviour related to the performance of the skill.

Milan, Parish and Reichgott (2006) suggest a guide for providing feedback in education, based on clinical communication skills. A trusting and empathetic relationship, similar to that between a clinician and a patient, is important between the lecturer and the student for feedback to be effective. They further refer to Proschaska's *transtheoretical / readiness to change* model, and suggest that lecturers should adapt their feedback according to students' readiness to change their behaviour in response to the feedback provided. Students, similar to patients who must change their behaviour in response to illness, go through stages of change in response to feedback. These stages include pre-contemplation, contemplation, determination, action, maintenance, or relapse. The lecturer should employ different strategies to encourage change in students' behaviour depending on the stage they are in.

Pendleton and co-authors' rules on providing feedback are widely used in clinical education. The rules are (Pendleton et al., 1984: 69-71):

- Briefly clarify matters of fact, referring to some crucial details.
- The doctor in question goes first, allowing the student to first express how they experienced the assessment and feel more in control of the situation.
- Good points first, to reinforce positive behaviour. This can also be seen as encouraging, and it can decrease anxiety.
- Recommendations, not criticisms, allowing the student to develop a plan for improvement.

With all of the above-mentioned guidelines, there is a great deal of emphasis on what the lecturer can do to improve feedback practices. The attention is therefore on what the lecturer does and not on what the student does. If the attention is focused on how the lecturer provides feedback, it implies the lecturer is able to observe all students performing their skills on numerous occasions, judging their performance and application thereof, even in future tasks. Such a lecturer-focused

feedback model may not be feasible in a CSC where the lecturer to student ratio is far from the 1:1 scenario for which Peyton's method for learning clinical skills was designed. For feedback to be more successful, it may be necessary to adopt a more student-centred approach where the student is a self-regulated producer of his or her own feedback.

2.5 SELF-REGULATED FEEDBACK MODEL

The traditional notion of feedback involves information provided by the lecturer about the student's performance in an attempt to identify the gap between the student's current performance level and the expected level of performance, as well as providing information to bridge that gap (Cantillon & Sargeant, 2008). Feedback may only be useful, leading to a change in a student's behaviour, if a lecturer can evaluate the student's development over time while providing regular comments to the student regarding his or her performance (Boud & Molloy, 2013a). The authors further argue that this is not a feasible model for feedback in the changing higher education arena. Increased student numbers and decreased assessment opportunities will not allow sufficient attempts to assess if students' behaviour changes in response to the information provided. Information provided on a student's performances may only be "hopefully useful information" if there is no change in the student, and therefore it may not be called feedback (Molloy & Boud, 2013: 18). A new feedback model, proposed by Molloy and Boud (2013), emphasises the importance of self-evaluation by students in a student-centred curriculum. Learning in such a student-centred curriculum involves active learners; therefore, feedback as part of learning cannot be a process where the lecturer transmits information to students, but must rather be a process involving the students (Nicol, Thomson & Breslin, 2014).

Similarly, Nicol and Macfarlane-Dick (2006) argue that formative assessment and feedback should be provided in a way that involves the student as part of a student-centred approach, and that it should encourage students to take control of their own learning and become self-regulated learners. Their model of feedback to support self-regulated learning focuses on the internal feedback generated by the student in response to a task set by the lecturer. The students draw on their own knowledge and motivation to set their own goals and work out strategies to accomplish the task. They then measure their own performance against their set goals to produce internal learning outcomes. The lecturer or a peer can provide external feedback, but this can only influence the student's learning if the feedback is "interpreted, constructed and internalised" by the student (Nicol & Macfarlane-Dick, 2006: 203-204). Their feedback model are similar to the model from Molloy and Boud (2013) where it also emphasises clarification of what good performance is, the development of self-assessment in learning and the delivery of high quality information to students

about their learning to enable closing of the gap between the current and desired performance (Nicol & Macfarlane-Dick, 2006). They further accentuate the importance of dialogue as between the student and the lecturer, but also between peers, as an important component of the feedback process, as well as encouraging positive motivational beliefs and self-esteem with students (Nicol & Macfarlane-Dick, 2006).

To implement a self-regulated feedback model, it is important that students take on an active role in their learning. This implies not only actively participating in class, but also that students take responsibility for their own learning and become their own change agents (Boud & Molloy, 2013a). Opportunities should exist where students are allowed to “seek, interpret and use” feedback to enhance their learning (Boud & Molloy, 2013a: 705), and self-assessment can be used to generate the feedback (Koen, 2011). To create this learning environment, it is important that students are aware of the importance and meaning of feedback, not just as information on performance, but also as information that will lead to change in subsequent performances. It is essential that students seek this information for themselves. They will then be more likely to accept and act on it. They should also know exactly what the standards are against which to measure themselves and they should use peers, not only teachers, to confirm or improve on their own self-assessments (Boud & Molloy, 2013a). The components of this new feedback model include the following (Molloy & Boud, 2013: 24):

1. Students are orientated to the standards of performance and the purpose of feedback
2. Students are encouraged to judge their own work and articulate their self-evaluations
3. Students should seek feedback on areas unclear or important to them
4. Lecturers and peers should provide information on student's performance
5. Students should compare and interpret their own judgements with the information from lecturers and peers
6. Students should work on a plan of action considering the compared judgements and the standards of work
7. This plan should be implemented in subsequent activities

The components of this model will be discussed in more detail, specifically exploring the application thereof in learning clinical skills in a setting such as a clinical skills centre. Orientating students to the standards of work fits in well with the demonstration components of learning clinical skills. During the practise opportunities, students may evaluate their own performance, seek feedback from the lecturer and peers and compare judgements. These first components may allow students to identify their gaps, which could lead to the development of an action plan, which is

crucial when looking at the feedback definition for this study. Lastly, students should have opportunities to implement this action plan to ensure the application of the skills in the clinical setting, which matches the last part of the feedback definition for this study. This model is presented in the figure below.

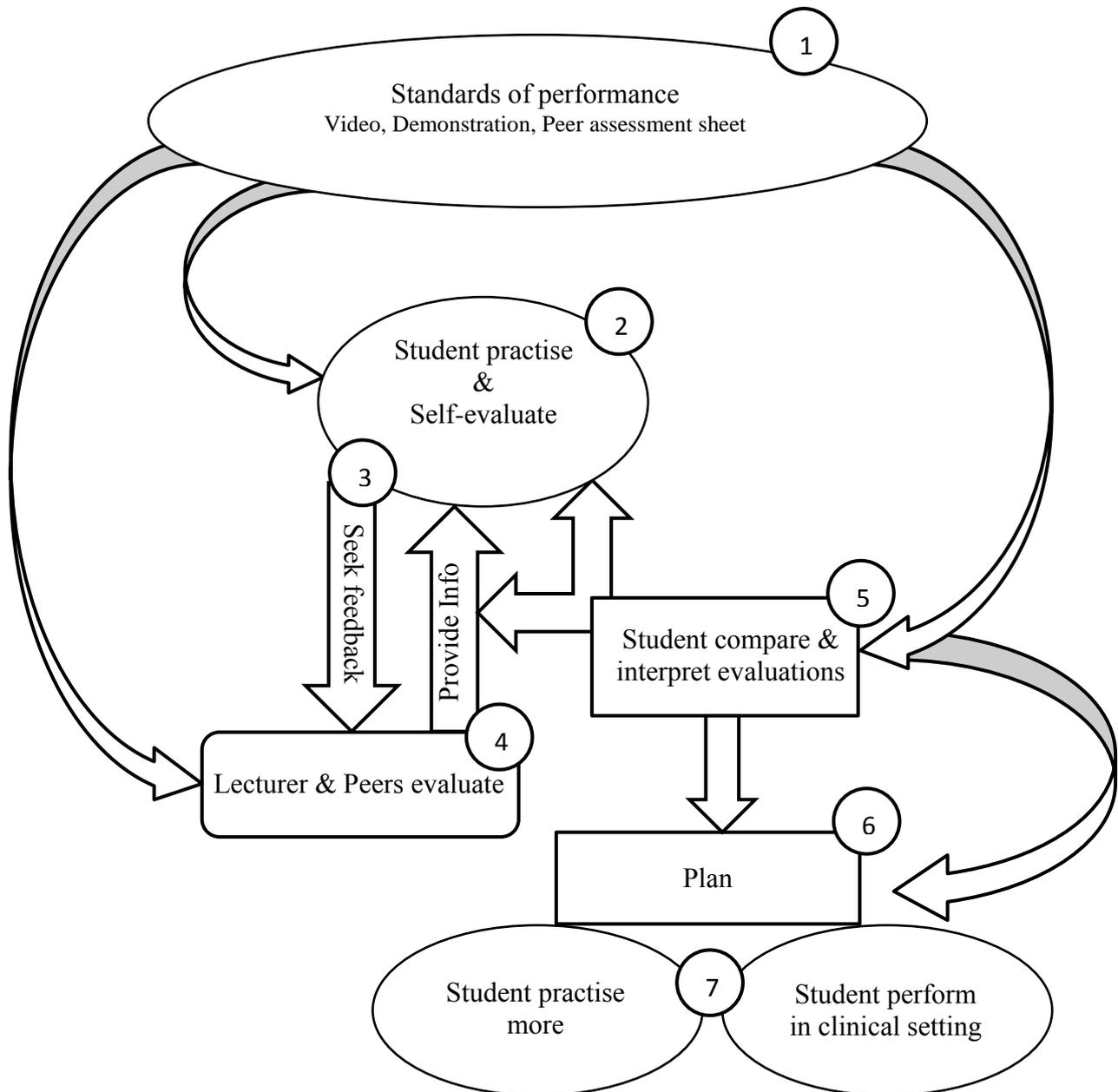


Figure 2.1: Self-regulated feedback model (adapted from Molloy & Boud, 2013)

2.5.1 Orientation to the standards of performance and feedback purpose

The first component of this self-regulated feedback model indicates the need to ensure that students know exactly what is expected of them, firstly in terms of the criteria for good performance, and secondly in terms of the process of feedback. Students may develop their own goals for a task and there can only be a good correlation between the student's goals and those of the lecturer if the student understands the goals for the task (Nicol & Macfarlane-Dick, 2006).

Firstly, the performance goals can be clarified by providing written criteria and examples of good performances. Issenberg and Scalese (2007) cite well-defined criteria as an important aspect of learning skills in simulation. The traditional method for teaching clinical skills allows students to observe what good performance should be when they 'see' the clinician or lecturer performing the skill (Mason & Strike, 2003: 664). Peyton's four-step method, as well as all the adapted versions of this method include various steps where the good performance is demonstrated to the students (Peyton in Lake & Hamdorf, 2004: 327; George & Doto, 2001; Nikendei et al., 2014). At the CSC at Stellenbosch University written peer-assessment sheets that provide the minimum standard and critical points for each clinical skill are available to students and video recordings of demonstrations of the performance of most of the skills are available on SUNLearn, the electronic learning platform of Stellenbosch University.

Nicol and Macfarlane-Dick (2006) suggest that the clarification of goals can improve by including discussions and reflections on the set criteria during class. This is included in all the versions of Peyton's model (Peyton in Lake & Hamdorf, 2004: 327; George & Doto, 2001; Nikendei et al., 2014), where students discuss the steps of the procedure (or the criteria) as part of the learning session. Nicol et al. (2014) argue that students can develop a better understanding of these criteria if they use them themselves to review a peer's performance and for self-assessment. Students only truly understand criteria when they "can make sound judgements about (the criteria in) their own work and those of others..." (Sadler, 2010: 545). The process of understanding involves a "deductive" process where they compare the peer's performance to the criteria set by the lecturer, and an "inductive" process where they compare the peer's performance to their own work, or own criteria (Nicol et al., 2014: 117). It is however important to be exposed to producing a number of reviews, not only one (Sadler, 2010; Nicol et al., 2014). Students may also only truly benefit from this learning experience if they are in the process of using the same criteria in producing the same assignment that they are reviewing (Nicol et al., 2014). The student will then simultaneously engage with the teacher-set criteria and their own to make meaning of the peer's work, as well as of their own.

Sadler (2010) warns that the use of checklists or rubrics as criteria could not be beneficial for the student's ability to develop skills needed for lifelong learning, where they will need to judge the quality of many things in future without specific rubrics. Orsmond, Maw, Park, Gomez and Crook (2013: 245) refer to the "objectives or purpose of learning" and emphasise the importance of ensuring students understand exactly what is expected of them in terms of the criteria and specific standards. This entails more than a list of steps. Students can follow a list of steps, but still miss the main objective of a learning activity. This can well be illustrated by an example at the CSC where the researcher works. One student was questioning the feedback he received on an assignment where he had to make a video of himself performing catheterisation of a manikin. He failed the procedure due to his failure to maintain sterility during the procedure. The student's response was that he managed to get the catheter in, so he did not understand why he failed. Clearly, he did not understand the objective of the learning task, which was not merely to get the catheter in, but to do so in a way that did not harm the patient. He needed to be made aware of the implications of a lack of sterility, namely health complications for the patient and a financial burden on the health system if a catheter-related infection occurs. It cannot be assumed that students will make such connections if it is not explicitly indicated as a learning goal.

The criteria should therefore focus on the main objective of the learning activity. Any feedback should be guided by the set criteria, and students should be encouraged to use the criteria as a reference point to evaluate their peers' performances, as well as their own performance

The second part of the 'standards of performance' component focuses on the orientation of students to the feedback process by ensuring that students understand how the feedback may be useful in their learning as they are co-responsible for their learning (Molloy & Boud, 2013: 24-25). This should include specific instructions on the process of developing judgements, especially by collaborating with peers, as well as the importance of active participation in learning sessions (Molloy & Boud, 2013: 26). Active participation requires evaluating their own performance and furthermore seeking feedback from the lecturer and their peers.

2.5.2 Students' self-evaluation of performance

In a traditional model of feedback the student will perform a clinical skill with the lecturer judging the performance and providing comments to the student. The comments by the lecturer may be ineffective due to the student just ignoring them, or the student being unable to understand the comments, or not being able to see the relevance of the comments in relation to their own performance (Nicol, 2013: 36-37). According to the self-determination theory of Deci and Ryan (Ten Cate, 2013), feedback from lecturers may even interfere with students' intrinsic motivation to

improve, due to it having a negative effect on their perceptions of competence, autonomy and relatedness or belonging to a group (Ten Cate, 2013). On the other hand, students may become reliant on the lecturer's feedback and not being able to perform the clinical skill without it (Hatala et al., 2014). This may necessitate a shift away from the role of the lecturer to the role of the student in the feedback process. Feedback from the lecturer is however not seen as redundant, but the focus of the lecturer feedback need to focus on the student's self-evaluation capability (Nicol, 2013: 38).

According to Nicol (2013: 34) students are developing their own intrinsic feedback when they perform a task, based on their own goals and the criteria set by the lecturer, and that students should be taught how to do this effectively. Students could be provided with opportunities to reflect on their own work, self-assess their own performance in relation to set criteria for the task, and apply the same criteria when performing peer assessments (Nicol & Macfarlane-Dick, 2006). These tasks, together with feedback from the lecturer, could help students to understand the performance criteria and develop their ability to identify gaps between their current and expected performance. A practical application in learning clinical skills would be for the lecturer to observe the student performing the skill without providing feedback at first. The lecturer can then ask the student questions about their own performance of the skill, allowing students to compare their own performance with the given standards. Only then should the lecturer provide their feedback, which can further stimulate the student to compare their own performance to the standards (Boud & Molloy, 2013a).

Nicol et al. (2014) showed that students experienced the process of reviewing a peer's work and generating feedback as a means of reflecting on their own work. This involves comparing the peer's performance to their own performance, with the specific performance criteria as a guide, eventually leading to "learning transfer" (Nicol et al., 2014: 116).

The student's ability to perform self-assessment with feedback is not only crucial for the improvement of the current skill, but it is also needed for future functioning in the world of work, where students have to be able to assess their own performance of clinical skills and their learning "gaps" as life-long learners (Boud & Molloy, 2013b: 2).

2.5.3 Students seeking feedback

Students' seeking of feedback should follow naturally after a self-evaluation activity. When students become aware of their own deficiencies, they may specifically seek information regarding that part of their performance from a lecturer or a peer.

During a learning session students should specifically be assigned feedback seeking and producing roles. In this way the student is forced to take on a more active role during the learning process, as they can no longer just sit back and wait to receive information on their performance (Molloy & Boud, 2013: 25).

This process of seeking, as well as generating feedback, allows students to engage with the standards of performance (Molloy & Boud, 2013: 25). It is crucial for the student to know the performance criteria well and practice evaluating the performances of peers to enable them to know what part of their performance they still need feedback on (Molloy & Boud, 2013: 26).

The seeking of feedback is therefore firstly strongly connected to the standards of performance. When students are exposed to the expert performance of the lecturer, they start to form an idea of what is expected of them and then they can compare their own performance with those standards. Within the context of learning a clinical skill, the lecturer should allow students to practise and evaluate themselves before intervening and providing information. If the lecturer hovers over the student and provide running commentary, the student may not have the opportunity to firstly, evaluate their own performance, and secondly, to seek feedback, as they have already been told by the lecturer how they performed.

The seeking of feedback is secondly connected to producing feedback to peers. When a student practises evaluating a peer's performance against the standards of performance set by the expert or lecturer, the student may develop an even deeper understanding of the performance standards, and thereby being able to identify more areas of their own performance that they need to seek feedback on (Molloy & Boud, 2013: 25).

Peer assessment and peer feedback, specifically formative feedback, can play an important role in the learning of clinical skills. Peers are often more readily available for feedback and learning (Ladyshevsky, 2013: 175), as they attend learning sessions together and work together in the clinical environment. There is therefore already a bond with a potentially trusting relationship and such a trusting relationship is important for peer evaluation and feedback to be effective. Students may be more willing to accept feedback from another person if they trust the other person has their "interest at heart" (Boud & Molloy, 2013a: 709). Both parties will benefit from the peer assessment, as the peer reviewer also potentially learns from the exercise (Ladyshevsky, 2013: 175). Nicol et al. (2014) explain that the peer producing the feedback is simultaneously using the set criteria or performance standards from the lecturer to measure the peer's performance, and using the peer's performance as criteria against which to measure their own performance.

Nicol et al. (2014) found that students were generally positive about peer review activities, but it was important to the students that the peer review activity was anonymous. The authors argued that the students' positive attitude towards the peer review and feedback activity could be because the activity did not include peer assessment and students giving each other marks, but only review for providing feedback (Nicol et al., 2014). Students do not like the idea of giving marks to each other due to concerns of fairness and not having the expertise to provide accurate marks (Nicol et al., 2014). However, some students in this study were not satisfied with the quality of the peer feedback and suggested receiving reviews from more than one student and also that the lecturer should mark the peer feedback to ensure better quality (Nicol et al., 2014).

Students can learn both from receiving feedback from peers and providing feedback to peers (Nicol et al., 2014). The benefits of receiving feedback from peers include increased motivation and realising one's mistakes, which could lead to learning (Nicol et al., 2014). The provision of feedback, on the other hand, helps students to develop skills needed for self-assessment because they can relate and compare the peer's performance to their own (Nicol & Macfarlane-Dick, 2006). This helps them to reflect on their own work and identify deficiencies, to think critically, to transfer ideas, and to have a better understanding of assessment criteria (Nicol et al., 2014). There is evidence that the process of reviewing a peer's work and producing feedback is much more valuable for learning than receiving feedback from a peer, and could even decrease the need for receiving feedback from the lecturer (Nicol et al., 2014). This notion of enhanced learning with the production of feedback fits in with the idea that students should be active participants in the feedback process as self-regulated learners.

Sadler (2010) also argues that students can learn more and develop a deeper understanding of learning tasks when they are exposed to reviewing peers' tasks. When students are exposed to peer reviews, they build specific "tacit knowledge" similar to that of the lecturer, which includes knowledge regarding quality as well as the ability to compare performances with each other (Sadler, 2010: 546). This knowledge then enables them to judge the quality of peers' as well as their own work, even while the work is still in progress (Sadler, 2010).

In summary, students may be in a better position to seek feedback from lecturers or peers when they are engaged with the performance standards, and they practise applying these performance standards when evaluating and producing feedback on a peer's performance.

2.5.4 Lecturers providing information on students' performance

Lecturers still play an important role in the feedback process by creating learning environments where students can practice self-evaluation and where peers can collaborate to validate each other's self-assessments. Furthermore, lecturers can still provide information on performance that students can use to measure their own progress. Lecturers may point out mistakes better than peers do and help validate students' self-regulation (Nicol & Macfarlane-Dick, 2006).

Nicol and Macfarlane-Dick (2006) argue that external feedback should include information that can assist students in identifying how their current performance relates to the specified goals or criteria and help them to close that gap. The feedback should enable students to evaluate their own performance and develop a plan to match their current with their intended performance. Some suggestions for achieving this include that feedback should (Nicol & Macfarlane-Dick, 2006: 209-210):

- be provided in relation to pre-determined criteria.
- be provided timely before submission time to allow students to use the feedback for making changes to their performances.
- provide corrective advice, not only strengths and weaknesses.
- be limited to a few comments that can be useful to the student, rather than a long list that is overwhelming.
- prioritise areas for improvement.
- be easily accessible to students.

Bosse, Mohr, Buss, Krautter, Weyrich, Herzog, Jünger and Nikendei (2015) specifically explored the timing and frequency of feedback during clinical skills practice sessions and found that students benefit more when they receive intermittent feedback rather than concurrent feedback as this allows self-controlled practice. This is in line with evidence confirming the 'guidance hypothesis', which refers to the effect of constant feedback during the student's performance that can lead to the student developing a dependence on the feedback, without which he or she does not perform optimally over time (Hatala et al., 2014). Additional to a dependence on the feedback, concurrent feedback can increase the student's cognitive load (Hatala et al., 2014). Cognitive load can have a positive effect where it ensures the student has a better understanding of the task, or it can have a negative effect where it causes 'information-overload', decreasing the effectiveness or outcomes of the student (Hatala et al., 2014). These authors found that the student's cognitive load was reduced

when feedback was received from multiple sources and specifically when feedback was received from the instructor as opposed to a simulator, specifically related to clinical training in simulation (Hatala et al., 2014). Li, Zhou, Liu, Lin, Ma, Liang, Shi, Fang & Xiao (2013) found medical students who receive terminal feedback compared to concurrent feedback have higher competence and retention rates of basic life support (BLS) skills. Terminal feedback, which is feedback at the end of the procedure, therefore seems to be more beneficial than concurrent feedback, which is constant feedback throughout the procedure.

It is further argued that feedback should focus on motivating the student and building self-esteem by ensuring feedback has a formative rather than a summative role (Nicol & Macfarlane-Dick, 2006). Students tend to react more to the feedback when no mark has been allocated to the task. Students in the study by Nicol et al. (2014) reported being motivated when receiving feedback from peers, but also when producing feedback, because it stimulated them to improve their own efforts. It was also important to the students in Nicol's study that it was a formative process and no marks were allocated to each other.

There is also evidence that students perform better when they receive high frequency feedback, meaning feedback after repeated practice opportunities. In the study by Bosse et al. (2015), the two study groups both had five practise opportunities after which they were assessed during a sixth opportunity to perform the skill. The one group of students received feedback after every practise opportunity (high frequency) and the other group only after their first and fifth practises (low frequency). Although both groups showed an improvement in skill performance, the group receiving the high frequency feedback performed even better (Bosse et al., 2015).

2.5.5 Student compare and interpret judgements

Interaction with peers and lecturers is needed to allow comparison of different judgements about the performance of a clinical skill and dialogue forms a key component of these interactions (Boud & Molloy, 2013a). The feedback process should not be a one-way conversation where the lecturer tries to transmit information to the student (Nicol & Macfarlane-Dick, 2006; Boud & Molloy, 2013a). Feedback can be frustrating for both the lecturer and the student if there is no dialogue to clarify ideas from both sides (Orsmond et al., 2013). The student needs to understand the feedback information to enable action, and this can only occur when the student and lecturer engage in a two-way conversation where information, performance and criteria can be clarified. This fits in with the notion of a student-centred approach to learning. The student cannot absorb information from the lecturer as diffusion of ideas and meanings do not occur from the lecturer to the student. Students need to be in a position where they can develop their own meaning, and dialogue with lecturers can

help with this development of better and or new understandings. Molloy (2009: 141-143) suggests that it is crucial for students to receive explicit instruction on receiving and providing feedback for feedback practices to be effective. She recommends that a two-way conversation in feedback can be encouraged when the students as well as the lecturers understand the value of developing students' ability to self-evaluate, as well as adopting a questioning style along with sufficient pauses for students to respond. She further suggests the encouragement of students to seek feedback from multiple sources, including self and peers.

Blair and McGinty (2013: 466-467) define feedback dialogues as “a collaborative discussion about feedback, between lecturer and student or student and student, which enables shared understandings and subsequently provides opportunities for further development based on the exchange”. Dialogue around feedback can however be difficult, especially with large classes and time constraints of both lecturers and students. Lecturers often only provide written feedback retrospective to the performance of the task, e.g. after submission of an assignment. It is especially difficult then to have a two-way conversation if the student does not go back to the lecturer for clarification of ideas.

Although Pendleton's rules (Pendleton et al., 1984) already highlighted the importance of allowing the student to interact in the feedback process, Molloy (2009: 132-134) found that the feedback process is usually a one-way conversation. In her study looking at clinical teaching of physiotherapy students, she describes how clinical lecturers said that they allowed students to participate in the feedback discussion, but that in reality this was not the case. Even though the clinical lecturers asked students' opinions on their own performances, they did not allow or explore the students' views and mostly continued with unidirectional conversations. From the clinical lecturers' view, time constraints were reported as the main reason for the lack of two-way feedback conversations, as well as insufficient skills to elicit self-assessment from students, and a tendency to want to diagnose and fix the students' problems (Molloy, 2009: 137). Students can be reluctant to participate in the two-way feedback process due to fear of embarrassment, not wanting to challenge the lecturer who has an additional assessor role and is seen as the expert, and also when the student has an interest in assessment outcomes only and not learning (Molloy, 2009: 137). A challenge to such a student-centred self-regulated approach to learning and feedback could be that many lecturers are still more comfortable in a teacher-centred role and therefore may resist change (Harden, Sowden & Dunn, 1984). Students who are also not used to the student-centred approach at school level may find it challenging and as consumers of higher education may demand that they be taught (Boud & Molloy, 2013a).

Blair and McGinty (2013) warn of the power relationship between lecturers and students, which can impair the lecturer-to-student feedback dialogue, and can inhibit participation on the side of the student as the lecturer will be seen as the expert. Lecturers should nevertheless try various strategies to encourage active participation from students regarding the feedback they receive. The use of peers in this dialogue around the feedback process may provide a solution.

Discussions with peers can help with this meaning-making process (Orsmond et al., 2013) as peers are often able to help each other grasp concepts because they use terms that may be more understandable, and they offer different perspectives (Nicol & Macfarlane-Dick, 2006). Twenge (2013) also suggests that feedback from peers can be beneficial to students, although there is evidence that it is more beneficial for students with below average performance (Kamp, Dolmans, Van Berkel & Schmidt, 2013).

2.5.6 Students' plan of action from judgements and standards of performance

Nicol and Macfarlane-Dick (2006) refer here to the need for feedback to lead to a change in the student's performance and argue that it can only occur if the feedback is provided concurrently with the performance of the task, to allow students to use the information to close that gap between the current and intended performance. They suggest that this can occur when students are allowed to re-submit work after feedback is provided. Students can then have the opportunity to use the feedback and demonstrate a change in behaviour or performance. This was also demonstrated in the study by Nicol et al. (2014), where the students were able to make changes to their assignment after the process of peer review (producing and receiving) and before final submission for summative assessment. The students reported enhanced ability to change behaviour, or to close the gap after the production of feedback, compared to the receiving of feedback from peers (Nicol et al., 2014).

2.5.7 Implementation of performance plan in subsequent activities

Central to this self-regulated feedback model is the notion that feedback should not be about "telling" a student where they can improve, but rather the student "acting" on the information received (Boud & Molloy, 2013a: 706). When looking from a curriculum perspective, this fits in with Barnett and Coate's (2005:48) concepts of "knowing, acting and being" that enables a student to be more prepared for real-life situation after graduation.

The importance here is to allow the student to perform activities subsequent to the initial performance where information on performance was received. These follow-up activities should include, at least in part, similar outcomes than the previous one, and allow students to act on the feedback received (Boud & Molloy, 2013a). It is crucial to allow sufficient time in between

activities to allow students to self-assess, seek feedback, and interpret the information from different sources before follow-up activities should be performed. In terms of learning clinical skills, it may therefore not be sufficient time during a learning session to allow multiple practise opportunities with the incorporation of feedback information. Follow-up activities need to be incorporated in the curriculum and should not be left up to the student for when they have extra free time.

With subsequent performance of the specific clinical skill, the process should start again, with the students self-evaluating their own performance against the set performance standards, where after they should seek feedback from peers or the lecturer on specific performance areas, compare the information received from everyone with their own judgments, develop a new action plan, and perform the skill again. This process could then continue in their future professions as medical practitioners where they continuously need to stay up to date with their skills and new developments.

2.6 STUDENT AND LECTURER PERCEPTIONS OF FEEDBACK

A study investigating students' perceptions of feedback was done by Weaver (2006). Her findings indicate, amongst other things, that some students do not understand the written feedback they receive and will not be able to act on it. The students in Weaver's study realised the value of feedback in learning, but did not always find it helpful because the feedback was too vague, not related to specific assessment criteria, or did not have clear assessment criteria at all, and did not show a good balance between positive and negative feedback, which could be discouraging. Another reason why students did not find feedback beneficial was that it was provided too late to be useful. In another study (Glover & Brown, 2006), students also confirmed that they were not able to use the feedback or apply it to future work because it was not applicable to future topics. Hounsell (2007: 103-110) writes about "high-value" feedback when it influences students' learning. Feedback must be understandable for the students, guide them on how to improve, and it must be presented in time to have an influence on future tasks.

Bevan et al. (2008) looked at staff and students' perceptions of feedback. They found that students generally perceived written comments as feedback, but did not necessarily see interactions where verbal feedback was provided (according to staff) as receiving feedback. Murdoch-Eaton and Sargeant (2012) found that junior students specifically did not perceive verbal accounts of feedback as feedback. Students mostly agree that the purpose of feedback is to help them to improve on their future work (Bevan et al., 2008; Murdoch-Eaton & Sargeant, 2012). Bevan et al. (2008) use the term "feed-forward" to explain how feedback can be applied to future work. They found that

students did look at and use the feedback on what they did wrong (the negative feedback), and some even found it more useful than the positive feedback, although the positive feedback was also important to boost their confidence and to ensure they continued with practices that would lead to good marks. Nevertheless, some students felt that there were insufficient recommendations on how to improve on the negative points. More than a third of the students in this study reported that feedback was too short or contained too little information. Students in this study did link feedback to learning, but the staff could not always find evidence of this.

A 2012 study shows that students are generally motivated by the feedback they receive, particularly by positive feedback and suggestions for improvement (Jones, Hoppit, James, Prendergast, Rutherford, Yeoman & Young, 2012). Feedback was perceived as de-motivating by students when negative words were used; furthermore, the colour in which written feedback was provided made a difference; red being perceived as negative. Murdoch-Eaton and Sargeant (2012) report that senior students value constructive critical feedback more than mere general positive feedback.

Although some of the authors above indicated that students see the purpose of feedback as developmental, there is evidence that students may only see the role of feedback as a justification of marks received, especially if feedback is only received on summative assessments (Price, Handley, Millar & O'Donovan, 2012). This may especially be true if after the specific summative assessment, there is no opportunity for the student to improve on their performance. If students should see the true function of feedback as a means to improve their performance, then the feedback should be delivered in a way that allows the student opportunities to show improvement.

2.7 SYNTHESIS

The relevant literature seems to point out various important aspects regarding the provision of effective feedback to enable students to use information to guide future learning. Firstly, students seem to know what they want from feedback, but there is evidence that students do not perceive the feedback they receive as effective and do not act on it. Much of the literature also relates to the provision of feedback on students' written performance. It is possible that the guidelines for feedback on written performance do not necessarily apply to feedback on clinical skills performance.

Secondly, the ineffectiveness of feedback may be due to students not recognising the value of feedback, which can be enhanced by the passive role of the student when receiving the feedback. In literature on student-centred learning approaches it is emphasised that students have to be active participants in the learning process. Similarly, students need to assume an active role in the

feedback process. The effectiveness of feedback in changing behaviour can be enhanced when students are willing to change their behaviour and they believe that the feedback is valuable

Thirdly, in the learning of clinical skills, literature points to the importance for students to know the required performance standards and to be exposed to good examples of such performance. They also need to practise the skills while being observed. Feedback on the observed practice sessions is most beneficial when it is aimed at identifying the gap between the student's current observed performance and their desired performance, using the performance standards as a guide. In a student-centred approach to learning, the focus may however not be so much on the information the lecturer provides to the student, but on the role of the students in formulating feedback for themselves.

Fourthly, the literature shows that students can learn to become more self-regulated learners who can generate their own feedback when they are exposed to activities that promote self-evaluation or reflection. During the process of self-evaluation, again against the performance standards, students can identify their gaps and aspects on which they need help or feedback from others. Peer evaluation and feedback can play an important role in the development of self-evaluation abilities. The role of peer feedback is two-fold. First, students can be motivated and realise their own deficiencies when they receive feedback from a peer. Second, and more important, the provision of feedback to a peer helps to develop the student's ability to evaluate his or her own performance. This happens through the process of comparing the peer's performance to the performance standards, and then comparing that to their own performance. The self-evaluation process may be further enhanced by the student seeking feedback from the lecturer, again comparing the lecturer's judgement with his or her own. This may then allow the student to plan for future performance.

Fifthly, as literature indicates, information on performance may only be feedback when it leads to a change in the student's behaviour. Students should therefore be allowed follow-up opportunities to perform these skills again, or build on the previous skill, to show evidence of improved performance. During follow-up performance of the task, the process of self-evaluation, seeking feedback from peers and lecturers, comparing judgments and devising a new plan of action may be beneficial.

Lastly, the definition of feedback as used in this study seems to be strongly supported by the self-regulated feedback model. Students may be able to identify the gaps in their performance when they self-assess their performance against the performance standards and the judgments of peers and lecturers. From a comparison of the different judgements students can develop an action plan that

my empower them to change their behaviour. Opportunities provided to students as part of the daily curriculum to perform their skills again, can assist in applying the skills learned in future practice.

2.8 CONCLUSION

The aim of Chapter 2 was to explore various theoretical perspectives related to feedback. A definition for feedback was provided and specific aspects of feedback related to the learning of clinical skills in a clinical skills centre were described. A self-regulated feedback model was identified that may be beneficial in the context of learning clinical skills. In the chapters that follow the experiences of feedback of the students and lecturers at a specific clinical skills centre will be described. Additionally the possibility of applying the self-regulated feedback model within the learning of clinical skills at this CSC is explored.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

The methodology of a research study is guided by the research question and the objectives of the study. It is evident from the literature consulted in Chapter 2 that feedback plays a major role in learning and especially the learning of clinical skills in simulation. In Chapter 1, the dilemma was discussed that there may be discrepancies between the feedback that lecturers think they provide and students' perceptions of the feedback they receive. This was also evident from the literature discussed in Chapter 2.

The research question of interest here was the following: *How is feedback on learning of clinical skills experienced as provided by lecturers and received by students in a clinical skills centre?* The aim of this study was to determine how fourth-year medical students and their lecturers experience the feedback the lecturers provide and the students receive about performance of clinical skills as practised at a clinical skills centre.

To achieve this aim the following objectives were set for this study:

- To describe feedback practices essential to learning and specifically the learning of clinical skills;
- To describe current feedback practices used to facilitate the learning of clinical skills at one clinical skills centre;
- To determine lecturers' experiences of feedback provision in a clinical skills centre;
- To determine how students experience the feedback they receive in a clinical skills centre; and
- To explore a possible framework for potentially improving feedback practices for medical students in a CSC.

This chapter will outline the design and methodology used in this study to generate some empirical evidence for enhancing the better understanding of the use of feedback as a teaching and learning phenomenon in the CSC at Stellenbosch University.

3.2 AN INTERPRETIVIST RESEARCH FRAMEWORK

A theoretical research framework contributes to positioning one's research in a discipline or field of studies by providing a specific lens through which the researcher views the world (Henning et al., 2007: 25) and the way in which the researcher views the research (De Vos, Strydom, Fouché & Delpont, 2011: 41). A theoretical or paradigmatic lens guides the design of the research, which in this study fits in with an interpretivist view of understanding reality as opposed to explaining it (Crotty, 1998). In an interpretivist view on research the researcher does not have fixed ideas on what data to generate or use, but allows the research question to identify research participants to provide the best data applicable and meaningful to the research problem. All within the research participants' life worlds and within the limits of the phenomenon studied. Within an interpretivist worldview, research is concerned with meaning within a specific social context (Henning et al., 2007: 20). Deductive reasoning was employed in this study as the data collected were compared with existing theories and best practices as described in relevant literature (Babbie, 2010: 23).

3.3 STUDY DESIGN

A case study design was used for this study. According to Stake (1995: xi), a "case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances". Yin (2014: 16) further defines it as "an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-world context". It was therefore a study of a unique case within a specific context. In this instance the study involved a particular student group and their lecturers within a particular educational setting, namely the CSC at Stellenbosch University. A case study design is appropriate when the research question asks "how" or "why" questions related to a present-day event over which the researcher has no or little control (Yin, 2014: 14). There are three different types of case studies, namely exploratory, descriptive and explanatory (Yin, 2014: 8).

An exploratory case study design was used in this project, with the focus on the 2015 fourth-year MBChB students at Stellenbosch University as well as the lecturers teaching them in the CSC. A case study design is appropriate when the research question requires an in-depth, detailed and holistic explanation of a phenomenon (Yin, 2009: 4; Denscombe, 2010: 52).

Although a case study does not provide an overview across a broad spectrum of instances where students receive feedback, it can provide a much deeper and detailed understanding of the feedback practices within a particular context. The aim of this study was thus not to generalise, but as well

stated by Denscombe (2010: 53), a case study approach can “illuminate the general by looking at the particular”.

Furthermore, a case study design offers the opportunity to discover qualitative relations between different aspects within the feedback phenomenon (Denscombe, 2007: 36) which may not be possible with, for instance, a survey design. A case study can potentially explain why things happen and not simply that it happens (Denscombe, 2007: 36). From the relevant literature on feedback for learning (see Chapter 2), it became evident that students prefer certain kinds of feedback. With a case study it might be possible to explore why students prefer certain kinds of feedback in certain situations and not simply that they prefer this or that kind of feedback.

Another characteristic of a case study is that the research is conducted on a unit of analysis that was not artificially created for the purpose of the research, but it existed even before the research started (Denscombe, 2007: 37). The phenomenon of feedback in teaching and learning can therefore be studied as it occurs in its natural setting.

A specific strength of the case study approach is that it allows and encourages the use of multiple sources and types of data, as well as the use of multiple research methods (Denscombe, 2007: 37). In this study, data were collected from multiple learning session observations, focus group interviews with students and individual interviews with lecturers.

A case study design was thus used in this study for the following reasons: it could be used to describe the specific feedback practices occurring within this case; it could explain certain relationships within the case, such as why certain feedback practices are preferred or not preferred by students. It could also be used to illustrate how a particular model of feedback applies or not apply in a natural learning setting such as the CSC (Denscombe, 2007: 38).

3.4 RESEARCH CONTEXT

A specific case to study is never randomly selected, but is specifically chosen for its defining characteristics (Denscombe, 2007: 39). To justify the use of the specific case it is necessary to describe both the characteristics of the researcher’s own position in relation to the specific case study.

3.4.1 The researcher

The research was conducted from the point of view of a new lecturer in the clinical skills centre on a journey towards the scholarship of teaching. This journey requires the ability to reflect, not only at the level of “thinking, remembering and talking” about one’s teaching practice, but also at the level

of “new understanding and altered perspectives” about one’s teaching that may contribute to a change in one’s own teaching practice (Van Schalkwyk, Cilliers, Adendorff, Cattell & Herman, 2013: 140). As both researcher and lecturer involved in teaching the students their clinical skills, I have a personal interest in the students and their learning as well as in the CSC. As a researcher, I wanted to gain a deeper understanding of the experiences of feedback in order to improve feedback practices in the CSC that could assist with the development of clinically competent students.

The relationship between the researcher and the participants in the study should be explained to show awareness of the potential influences of this relationship on the research was conducted and its findings interpreted. As a lecturer in the CSC, I have been involved with the participants of the study by facilitating group and individual learning sessions, which probably also included some kind of feedback. I already had a good rapport with some of the students; an advantage was thus the trusting relationship that could encourage them to share their views and be honest and open during the focus group interviews. The disadvantage was that it could also have the opposite effect. My power relationship as lecturer and assessor of students’ performance could influence participants to be less open and honest for fear of being treated unfairly during learning sessions or examinations. There was also the possibility that they would provide only the information that they thought I wanted to hear (Denscombe, 2007: 184). To counteract this possibility, I made it clear to participants that their participation was voluntary. I encouraged them to be open and honest, and I reassured them that they would in no way be advantaged or disadvantaged because of their participation in the study. Denscombe (2007: 185) suggests presenting yourself as passively and neutrally as possible to decrease the ‘interviewer effect’ where self-identity influences the response of the participants. It would have been unnatural, however, suddenly to be neutral and passive with students with whom I was normally very caring and involved. I believe that the already trusting relationship and being myself, as well as my position as a nurse rather than a doctor allowed the medical students to be less threatened by me, both in class and in the interview situation. There is a possibility that only those students who already had good rapport with me agreed to attend the focus group sessions. I tried to overcome this by inviting the entire class on multiple occasions.

3.4.2 The specific case

The case study was conducted with fourth-year MBChB students at Stellenbosch University. The students in the first two years spend minimal time in the CSC and therefore do not have much experience of feedback regarding their clinical skills performance in the CSC. During the third year students have five clinical rotations in the hospital (in the five major specialities) of one month each and five corresponding rotations through the CSC. The fourth and fifth-year students have nine

clinical rotations over a period of 18 months, with six CSC rotations. At the time of data collection, the fourth-year students were on a clinical rotation at the CSC, which ensured the researcher to have easy access to the students. By this time, these students had rotated at least once through all the major specialities and an additional three to four rotations had been completed, which ensured that they were exposed to a variety of learning sessions in the CSC. The fifth and sixth-year students have even more exposure, but access to these students was limited during the time of data collection. The fifth-year students had already completed their final clinical skills OSCE and were away from campus on an elective rotation. The sixth-year students do not have a clinical skills module and spend minimum time in the CSC. The fourth-year students were therefore purposively selected as they were the group of students available with the most suitable experience that could assist the researcher in better understanding the feedback practices in the CSC (Creswell, 2009: 178).

The fourth-year MBChB students were approached during a clinical rotation while attending sessions in the CSC and were invited through the class representative to attend focus group sessions. Five focus groups were held with a total 35 students from a class group of 270 students. This was a convenience sample, dependent on the students' availability and willingness to participate (Babbie, 2010: 192). This was therefore a non-probability sampling, as the sample was not selected randomly (Plowright, 2011: 42). The students in this study only came from one year group and therefore the study did not observe the difference between how junior and senior students experience feedback. There may also be differences in how male and female students or how top-performing and poor-performing students respond to feedback (Kamp et al., 2013), which was also not the focus of this study. The researcher used the fourth-year MBChB students rotating through the CSC as unit of analysis as a single case that accounted for a typical group of any fourth-year undergraduate class of medical students (Yin, 2009: 52; Denscombe, 2010: 57). Of the 35 participants, 23 are female, with 16 students being 'coloured', 14 'white' and five 'black'. Both English and Afrikaans-speaking students attended the focus groups. Additionally, the lecturers and clinicians involved in the facilitation of learning sessions of these students in the clinical skills centre were deliberately selected (Yin, 2009: 52) for interviews and observation of their learning sessions because of their specific involvement in the CSC, which constituted purposeful selection (Maxwell, 2013: 97). The purposeful selection ensured inclusion of a range of learning providers. From the eight lecturers involved in the CSC learning sessions, five are registered nurses, four of which are full-time or part-time employees CSC. Furthermore, two specialist clinicians working in the clinical setting, and one paramedic were part of the group of lecturers involved in the learning session observations. These lecturers were observed because they were usually involved in the

learning sessions for the fourth-year MBChB students in the CSC at the time of the observations. The four lecturers involved in the individual interviews were four registered nurses, three from the CSC and one from another department. These four lecturers were invited to the individual interviews because they presented most of the learning sessions at the CSC, not only to the fourth-year students, but also to first to sixth-year students. All four lecturers are white females who had previously worked in different specialities in the clinical setting. Their teaching experience varied from one to more than ten years, two of them with a diploma in nursing education, one with a Master's degree in Health Sciences Education, and another studying towards the same qualification. The aim of the study was not to differentiate between the feedback practices of individuals but to take an overall view of feedback as a phenomenon in the learning of clinical skills.

3.5 DATA COLLECTION

Narrative data were collected using multiple methods, including observation, focus group interviews and individual interviews. The use of multiple methods of data collection is recommended in case study design (Yin, 2009: 114). This can ensure triangulation, where different methods are used to generate different types of data and thus strengthen the findings and conclusions of a study (Yin, 2009: 115; Maxwell, 2013: 102). In this study multiple data methods also contributed to examine different aspects of the feedback phenomenon in order to obtain a better understanding thereof (Maxwell, 2013: 102). Data collection for this study occurred over a period of five months, from March to July 2015.

Theoretical perspectives that were formed by exploring relevant literature, guided data collection and analysis thereof. The survey of relevant literature assisted in building a framework for the study before data collection by drawing attention to existing knowledge and potential gaps related to the phenomenon. It also provided a theoretical framework to which the empirical data could be compared (Delpont, Fouché & Schurink, 2011: 302-306).

3.5.1 Observations

Initial data collection included observations during learning sessions of MBChB IV students in the CSC. Observation as a data collection technique allows the researcher to observe the relevant phenomenon directly in real life situations. The researcher therefore does not have to rely on second-hand information of what people say they do or did (Denscombe, 2007: 206-207). Although this method allows the researcher to observe the phenomena directly, there are certain factors that influence how the researcher perceives and interprets the event. This may result in the researcher remembering selectively, seeing what is familiar, blocking certain negative stimuli and amplifying

positive events (Denscombe, 2007: 208). The use of systematic observation with an observation schedule (see Addendum B) can minimise these effects by providing a framework to ensure that the researcher looks thoroughly and consistently for the right things (Denscombe, 2007: 209).

To ensure a representative picture of feedback during learning sessions, the researcher conducted the observations in this study during ten different learning sessions with eight different lecturers involved. The observations were done for the full duration of the learning sessions, which ranged from 30 minutes to two hours. The observation schedule was developed from theoretical perspectives and relevant literature, with a section for field notes to gather additional data regarding the experiences of feedback in these learning sessions. The specific aspects observed related to the specific skills to be learned per session, including the time allocation as well as the ratio of students per lecturer. It also included the general structure of the learning sessions, which looked at the inclusion of theory, demonstrations and practise opportunities. In addition, it involved the feedback practices, including who was involved, what kind of feedback was provided, and how students reacted to feedback or the lack thereof. The last aspect observed was the involvement of peers in helping each other and providing feedback during the learning sessions.

Disadvantages of systematic observation are that only behaviour can be observed, not intentions; that it oversimplifies behaviour, and that it is not a holistic approach (Denscombe, 2007: 214-215). The data from the observations therefore serve a complementary role to the interviews, specifically to assist the researcher with the organisation of the work (Henning et al., 2007: 90).

It is important for the observer not to disturb the naturalness of the setting and to almost “fade into the wallpaper” (Denscombe, 2007: 213). To some degree, this was easy since I as researcher was familiar to the students in the learning sessions. However, I had to remind students of my role as they occasionally asked me questions related to the learning session and wanted me to check their skill performance, especially when the lecturer was busy attending to other students in the class. I therefore assumed the role of a participant-as-observer where I was usually part of the group and the participants were aware that I was observing them (Plowright, 2011: 67). My main role for the particular session was to observe (as a researcher) the phenomenon of feedback during a learning session in a natural occurrence of such a session and refrain from participating in the learning session. Some advantages of being a participant-as-observer include that I had easy access to the learning sessions and participants because of the already existing relationship and that I had a good understanding of the research setting. Another advantage was a decrease in procedural and personal reactivity (Plowright, 2011: 70). Participants can react differently or in a misleading way when they are aware of being observed, but this effect can possibly be decreased when the observer is well

known to the participants. A disadvantage may however be that the researcher could become too familiar to or involved with the participants. I thus assured the students of my role as researcher for the specific sessions.

3.5.2 Interviews

Additional data were collected through asking questions face-to-face (Plowright, 2011: 79) in one-on-one interviews with lecturers and focus group interviews with students. Interviews are specifically useful when the researcher wants to know more than just the facts, but also how the participants feel about, understand, interpret and experience the specific phenomena (Denscombe, 2007: 174).

3.5.2.1 Focus group interviews

Groups of students were interviewed comprising five different focus groups. Thirty-five students (as described in section 3.4.2) participated, with student numbers per focus group ranging from two to eleven participants. The students were not specifically grouped together for the focus groups as they voluntarily arrived in response to an open invitation. The invitation for the focus group sessions was sent to the entire class, stating the specific dates, times and venue. A semi-structured interview guide (see Addendum B) was used and based on relevant literature findings. With a semi-structured interview, the researcher still decides on specific questions to ask the participants, but the questions are usually open-ended, allowing participants to elaborate on their specific experiences (Denscombe, 2007: 176). During focus group interviews the researcher provides “guidance without interference” to allow participants to provide a narrative of their experiences (Henning, 2007: 53). Group interviews allow the researcher to gather experiences from a wider range of participants and can potentially, but not necessarily, be representative of a group. Such interviews also allow for group dynamics and the social interaction between the group members to influence the way in which participants react (Denscombe, 2007: 178). When participants are interviewed simultaneously in a group, the participants can elaborate more on each other’s responses and even challenge each other’s ideas, which can lead to new and different understandings. In this study student participants were allowed to give their views on what feedback entails and how they experience it. This method allowed the students to elaborate on their experiences, which fits in with a student-centred approach to learning. Although students answered questions individually, within (and with the backup of) the group of peers, they may have felt more inclined to share experiences (Barbour, 2005). Participants who were shy may not be that comfortable to speak in a group, but I experienced during the focus groups that the participants were comfortable with each other and not reluctant to share experiences. Participation in focus group interviews was voluntary, so it is

possible that the participant group excluded those students who are shy in class and unwilling to speak in a group. Many of the participants also seemed to be clinical partners who always attended all their sessions in the CSC together and worked together in the clinical setting, allowing them to elaborate on shared experiences. One participant may mention something that triggers the memory of some of the other group members and that can lead to further elaboration on the experience. This also meant that there was already a trusting relationship among the members of the group, which allowed them to talk more freely and openly. A trusting relationship can be further encouraged by reminding the participants to treat the information discussed in the group as confidential (Denscombe, 2007: 183).

3.5.2.2 *Individual interviews*

Individual interviews with lecturers, selected for their teaching role in the CSC with the specific group of students, were conducted with four of the lecturers involved during the observations (see 3.4.2). The individual interviews were done in an attempt to understand the lecturers' experiences of and perspectives on feedback. These interviews were conducted individually as it was easier to schedule appointments with individuals rather than getting them together as a group. The interviews followed a semi-structured approach (see Addendum B), with guiding questions developed from the consulted literature in Chapter 2.

The researcher facilitated and digitally recorded the focus groups and individual interviews. This was after consent was obtained from each participant, assuring them that they were free to participate and withdraw, and that anonymity would be ensured. The recordings were transcribed; three of the focus group interviews and two of the individual interviews by the researcher, and the rest by a professional. The researcher also made notes during and after the interviews of participants' emotions, reactions and any other observations not captured by the digital recorder.

3.6 DATA QUALITY MEASURES

Validity refers to the measure that the data collected was the right kind of data to answer the research question and that it was collected accurately (Denscombe, 2007: 296). Maxwell (2013: 121) argues that validity should be part of the planning and design phase of the research. Some of the actions suggested to prevent validity threats include the collection of data from repeated observations and interviews. This varies from using a variety of methods (triangulation) to collecting "rich data" by transcribing interviews and not merely making notes of what the researcher finds significant, to obtaining feedback from the respondents regarding the research data and conclusions (Henning et al., 2007: 149). It is also recommended to compare results with

previous literature and to search for and report on contradicting evidence (Maxwell, 2013: 126-12). The aim of research is therefore to present results that are as true as possible a reflection of the real event (Plowright, 2011: 135).

In this study, triangulation was accomplished by observing ten learning sessions and conducting five focus group interviews and four individual interviews. Transcripts were read again while listening to the recordings to ensure that no obvious mistakes were made (Creswell, 2009: 190). Transcripts were also sent to the participants to check for accuracy and to clarify what participants meant. Denscombe (2007: 201) further suggests that the researcher should check the plausibility of the data by ensuring the participants are in the position to provide an account of the phenomenon. In this case study the participants of the group interviews were all students of the specific programme. One could argue that it is possible that students joined the group interviews without having attended any of the learning sessions in the CSC. This proved highly unlikely as attendance of clinical skills sessions is compulsory and an attendance record is kept. The lecturers who participated in the individual interviews were specifically selected because they regularly facilitate learning sessions at the clinical skills centre. The observation of learning sessions also took place in sessions where the lecturers were regular facilitators.

The data were thus collected in an environment where the phenomenon of feedback on the performance of clinical skills occurs in its natural setting. This is referred to as ecological validity (Plowright, 2011: 30), which denotes how the research occurred in an everyday natural setting without the researcher creating an artificial setting for data collection. The participants in this study, both the students and the lecturers, are normally part of learning sessions at this CSC. The ecological validity is high when the research does not impose on the naturalness of the case (Plowright, 2011: 30). The degree of ecological validity can vary depending on the data collection methods. Therefore, during the observation of students in their naturally occurring setting (a learning session), the ecological validity would be high if the researcher did not impose on the learning session or the participants. When the students were later asked to participate in a focus group, the ecological validity decreased. Although the students are naturally part of the group being studied, the setting of a focus group is not an ordinary or natural occurrence.

In this study the observational data were generated from everyday learning sessions that would have occurred irrespective of the research. During these learning sessions, the researcher did not intervene in any way to disrupt the normal course of the sessions. Although the presence of the researcher in the sessions can lead to procedural and personal reactivity (as described in 3.5.1), this was limited by the researcher being known as a lecturer by the participants (students and lecturers)

within this same setting. The data collected through the focus group and individual interviews pertained to the participants' experiences of the naturally occurring learning sessions.

When qualitative or non-numerical data are generated, the term *trustworthiness* is preferred to reliability, as it may not be possible for another researcher to come to the same conclusions when repeating the study. Trustworthiness is that which makes it worthwhile for the research community to take note of your study (Lincoln & Guba, 1985: 290). The criteria needed to ensure trustworthiness include credibility, transferability, dependability and confirmability (Lincoln & Guba, 1985: 301-318).

Credibility refers to how believable the research will be to readers or other researchers. This may be enhanced by using established research methods, using the correct terminology specific to the phenomenon studied, being familiar with the setting in which the research occurs, using triangulation, employing strategies to ensure participants are as truthful as possible, examining previous research findings related to the phenomenon and allowing peer evaluation of the research (Shenton, 2004).

Transferability refers to the applicability of the research findings to other settings. This may not be possible in case study research, as the aim of the study was not to generalise. Only a small number of participants were part of this case study and the study occurred within the unique setting of the CSC. The researcher can however include sufficient information relating to the context of the specific study and a rich description of the phenomena that can allow the reader to transfer or relate some of the findings to other similar groups (Denscombe, 2007: 299). Research within a case study design can therefore not be generalised to other populations, but may be generalised in linking to underpinning theories (Yin, 2014: 21).

Dependability refers to how other researchers may be able to replicate the study. This may be very difficult with a case study design, but Shenton (2004) advises the researcher to add as much detail in the description of the methodology part of the research in order to assist future researchers with their decisions when planning studies of a similar phenomenon in their unique contexts.

Confirmability refers to the objectivity of the research. The researcher in a case study design is part of the research process, but must ensure the findings are a reflection of the experiences of the participants and not that of the researcher (Shenton, 2004). Triangulation of methods, data or theoretical perspectives can assist with this process.

3.7 DATA ANALYSIS

Henning et al. (2007: 103) suggest that the analysis of data is the “heartbeat” of a research study. Data analysis is performed to delve deeper into the phenomenon, describing the core components and then adding meaning to the data (Denscombe, 2007: 247, 287). The process of qualitative content analysis was employed for this study, where codes were assigned to text, which were then grouped into possible categories, and thereafter possible themes were identified which formed the basis for arguments (Henning et al., 2007: 104-109). Analysis of the narrative data started by listening to recordings from interviews and transcribing it. I transcribed five of the interviews and used a professional transcriber for the other four. Where a transcriber was used, I listened to the recording again to check the correctness of the transcriptions. In this way the researcher becomes familiar with the data. During the listening to the recordings, writing the transcripts, re-listening to the recordings and reading of the transcripts and field notes I already tried to identify some initial similarities and differences (Maxwell, 2013: 105). This process of delving into the data should involve a procedure where the researcher reflects on the data several times to ensure that she “moves deeper and deeper into understanding the data” (Creswell, 2009: 183). The more formal process of interpretation involves coding, categorising, identifying themes and relationships, and developing concepts. This can be done manually or by using the computer programme *Atlas.ti* to assist with the coding process (Henning et al., 2007: 126). For the initial open coding I used a combination of manual coding and *Atlas.ti*. Thereafter, categories and themes were determined manually.

A code can be one word or a short phrase assigned to part of the data that can summarise the findings, or afford some kind of characteristic or meaning to it (Saldaña, 2009: 3-4). The coding in this study involved adding labels to the raw data, which is an inductive process where codes were selected according to the meaning of data (Henning et al., 2007: 104). The coding process involved a combination of emerging and predetermined codes (Creswell, 2009: 187). The predetermined codes were guided by the theoretical perspectives gained from Chapter 2, and specifically the self-regulated feedback model of Nicol and Macfarlane-Dick (2006), while the emerging codes were allocated to aspects that did not fit into the predetermined codes, or potential subcategories of the predetermined codes. Thereafter codes were grouped together and divided into categories, and the categories into themes. With this process I tried to answer several questions posed by Henning et al. (2007: 106), such as relationships and meaning, what the holistic picture is, how the data relate to what is already known from literature and what may be missing. In this study the interpretation and meaning-making process included the researcher’s own interpretations based on self-identity as well as comparing the findings with the theoretical findings (Creswell, 2009: 189) in Chapter 2. To

ensure consistency in the allocation of codes, the researcher explained the meaning of codes in a table as they arose.

The objectivity of the research can be scrutinised and therefore it is important to report, represent and investigate all the data, even those accounts that do not fit the analysis.

3.8 ETHICAL ISSUES

In research it always seems possible that ethical dilemmas may appear. One group of authors put it like this: “A major ethical dilemma is that which requires researchers to strike a balance between the demands placed on them as professional scientists in pursuit of truth, and their subjects’ rights and values potentially threatened by the research” (Cohen, Manion & Morrison, 2011: 75). In this study the researcher complied with the ethical specifications as set out by the Ethical Committee of Stellenbosch University and ethical clearance was obtained from the Stellenbosch University Health Research Ethics Committee 2 (see Addendum C). The participants in the study were informed that participation was voluntary and that they could withdraw from the study at any time. They were informed that participation was anonymous and information would be treated confidentially, after which written informed consent was obtained (see Addendum A). The participants were not deceived regarding the aim of the research and permission was obtained from the Stellenbosch University Institutional Office for data collection from students and personnel (see Addendum D), as well as the MBChB programme coordinator for the participation of these specific students.

3.9 CONCLUSION

In this chapter, the design and methodology of this study were described, specifically pertaining to the use of a case study research design. Detail was provided on the selection of participants within the case of the fourth-year MBChB students and their lecturers in the clinical skills centre. Data collection and analysis methods were described, as well as the methods implemented to enhance quality of the data and the findings.

In the next chapter, the findings from the three different data collection methods will be described, as well as how they complement each other in answering the research question.

CHAPTER 4

FINDINGS AND DISCUSSION

4.1 INTRODUCTION

Chapter 3 described the process of data collection and analysis followed for this study. The data collection and analysis process aimed at answering the research question of this study: *How is feedback on learning of clinical skills experienced as provided by lecturers and received by students in a clinical skills centre?* Data collection therefore occurred during three different phases. Firstly, ten different learning sessions were observed in the CSC. Eight different lecturers presented these learning sessions to fourth-year MBChB students as part of their Middle Clinical Skills rotation module. Secondly, 35 students from this fourth-year class participated in five different focus group interviews. This part of the data collection aimed to develop an understanding of the students' experiences regarding feedback. Lastly, individual interviews with four of the lecturers involved in the learning sessions that were observed were conducted to record their view of feedback during the learning of clinical skills.

The data from the different collection methods were first coded separately. The themes emerging were very similar, but there were differences in viewpoints and experiences. In this chapter an overview will first be provided of the findings from the different data sources; thereafter the data will be discussed simultaneously in an attempt to describe the similarities and differences between what the researcher observed, and what the students and their lecturers reported.

4.2 OVERVIEW OF DATA COLLECTED

4.2.1 Observed learning sessions

For feedback to be provided to students on the performance of their clinical skills, students should receive a demonstration and they need to practise their skills while being observed (George & Doto, 2001). The clinical skills module of the CSC distinguishes between practise opportunities during learning sessions, compulsory follow-up individual practise sessions for formative feedback, and then optional (but recommended) opportunities where students come back to the CSC to practise when they have the need. During this study, the practise opportunities during learning sessions were observed (see Addendum B for the observation schedule).

From the observations of the learning sessions, it became clear that in some sessions all students receive some form of feedback, or information on their performance. However, there were also instances where this did not happen. Feedback seemed to depend on the structure of the learning

sessions, the number of clinical skills to be learned per session, the number of students per session and the time allocated to each session.

In the ten different sessions observed, the students learned a variety of clinical skills related to their paediatric, neonatal, dermatology, internal and gynaecology rotations. In some of the sessions the skills learned had previously been learned in relation to adult patients, in other sessions previously learnt skills were built on and still in other sessions new skills had to be learned (see the summary in Table 4.1).

Table 4.1: Summary of skills learned per session

Time	Session	Skills Learned	Previous exposure
45min	Paediatric (7 students)	<ul style="list-style-type: none"> • Taking venous blood • Taking arterial blood • Heel prick • Mantoux 	Previous learning related to adult patient New, but previous injections in adult patients
45min	Paediatric (7 students)	<ul style="list-style-type: none"> • Insert intravenous cannula 	Previous learning related to adult patient
30min	Paediatric (14 students)	<ul style="list-style-type: none"> • Patient scenario: respiratory distress 	New
2h	Neonatal (15 students)	<ul style="list-style-type: none"> • Resuscitation of the new-born baby 	New, previous resuscitation of adult, child & infant
2h	Neonatal (14 students)	<ul style="list-style-type: none"> • Oxygen & suction devices • Practise resuscitation of previous session 	Previous learning related to adult patient
1h (x3)	Gynaecology (10 students)	<ul style="list-style-type: none"> • Bimanual examination • Taking a cervical smear • Insertion of intrauterine device 	All new
2h	Dermatology (19 students)	<ul style="list-style-type: none"> • Fine needle aspiration • Punch biopsy • Different suturing techniques 	New Building on previous techniques
30min	Internal (7 students)	<ul style="list-style-type: none"> • Insertion of intercostal drain & suturing 	New

Time	Session	Skills Learned	Previous exposure
30min	Internal (9 students)	<ul style="list-style-type: none"> Defibrillation 	New with manual defibrillation, previous exposure to AED (automated external defibrillator)
30min	Internal (11 students)	<ul style="list-style-type: none"> Synchronised cardioversion 	New

4.2.1.1 Allocation of time and students

In clinical skills sessions observed the student numbers varied between seven and 19 students per lecturer and the duration per session was between 30 minutes and two hours. The variation in student numbers as well as the duration of the sessions was due to the structure and time allocated per rotation. Each rotation in the fourth year consists of about 30 students. Some of the clinical departments divide the students in two groups for the clinical skills sessions and then the groups may be divided further in the clinical skills centre to rotate between sessions, depending on the availability of lecturers and the number of skills per session. For example, the paediatric group is divided to come to the clinical skills centre in two groups, where they then rotate between two lecturers for the first 90 minutes, and thereafter they have the scenario session with the two groups combined. The two neonatal sessions occurred on different days. For this rotation, the group was also divided in two, and therefore 14–15 students attended a session. For the gynaecology session, the group was divided into three and the lecturer repeated the session with a next group of ten students every hour. The dermatology students also attended their session in two groups. For the internal session the entire group came simultaneously, but rotated between three lecturers.

4.2.1.2 Standards of performance

The observed learning sessions were generally structured in such a way that lecturers first provided an overview of the session, which included some theoretical information in some sessions and in most instances a demonstration of the skill(s) that were to be practised. Often lecturers also referred back to information available on SUNLearn, including theory, demonstration videos and the peer assessment sheets. Students were instructed at the beginning of the module to prepare for sessions by studying the available material on SUNLearn.

Nine of the ten learning sessions observed included a demonstration of a specific skill by the lecturer. The only exception was during a patient scenario session where students had to manage a simulated case without receiving a demonstration first. In most of these sessions, the lecturer

performed the demonstration while explaining. In the sessions where not every student had a manikin the lecturer completed the demonstration before allowing students to start practising. In the sessions where each student had their own manikin and equipment or instruments (neonatal resuscitation, dermatology and insertion of intercostal drain) the lecturer first demonstrated a small part of a clinical skill and then allowed all of the students to practise step-by-step along with the demonstration. Again, in nine of the ten learning sessions observed all students were allowed the opportunity to practise, although not all students made use of the opportunities. The sessions where each student had their own manikin seemed to involve more students in the practice session. During the simulated scenario in the paediatric session, only a few students (who volunteered) participated in the practise session. During the neonatal resuscitation session the second part of the class was also dedicated to scenario training, but the lecturer involved all students by allowing each student to show a part of the skill or answer at least a question. The technique ensured that all students stayed focused, even while a peer was busy practising, because the lecturer could ask another student to take over at any time.

4.2.1.3 Practice and feedback opportunities

The practice and feedback opportunities varied between the observed sessions. During the sessions where all students had the opportunity to practise, the structure was also diverse. With three of the sessions each student had their own manikin and instruments (as described above), which enabled them to practise along with the demonstration while receiving concurrent feedback as they practised. All three of these sessions involved the learning of new and complicated skills, like the insertion and securing of an intercostal drain, different suturing techniques, skin biopsies and the resuscitation of a newborn baby. With these sessions, most of the students seemed to be interested throughout the sessions and embraced the practice opportunities by making sure they knew what to do.

In two other sessions there was only one manikin and students took turns to ensure each one practised the skill while the lecturer and the rest of the students watched and provided concurrent feedback. During each of these sessions only one skill was learned respectively, each requiring the use of a defibrillator, which is potentially dangerous, including defibrillation with resuscitation of the adult patient in cardiac arrest and synchronised cardioversion. Although each student had the opportunity to practise and receive feedback, some students did not seem to be very enthusiastic about this session. While the lecturer was observing individual students practising, some students seemed disinterested in watching each student perform the skill and rather talked to one another or even looked on their cell phones.

In one other session, students worked in pairs, where each student had to perform each of the skills while their peer provided guidance. They participated in small groups, which ensured each pair had a manikin and their own instruments. The lecturer was moving around among the students, observing and providing feedback, but did not observe all students perform all of the skills. During this session, students learned a variety of new gynaecological skills such as the insertion of an intrauterine device, taking a cervical smear and performing a bimanual examination. Students were specifically instructed to make use of the peer assessment sheets to guide each other. In the pairs it was observed that one student read the instructions from the peer assessment sheet while the other one performed the clinical skill. In some instances the lecturer was even reading the peer assessment sheet's instructions to students when they asked questions. In other instances, the lecturer demonstrated the skill again and ensured everyone was watching, especially when seeing students repeating the same mistakes or asking the same questions. Students were actively participating in this practice session and helping each other with the guidance of the peer assessment sheets ("okay, now you must put your gloves on... now you must..."). Many students seemed to depend on this guidance and did not take initiative to proceed with the performance of the clinical skills without the guidance from the peer or lecturer. I observed one student asking "okay, what now?", waiting for the peer to think, but then proceeded to read the next step from the peer assessment sheet without allowing the peer to try it first. Another student told her peer that she was not going to read the steps aloud and only observe, but when her peer seemed unsure, she proceeded to reading the steps ahead of the performance. Students generally seemed enthusiastic about the structure of this session and the lecturer reported that this was her favourite session. The peer evaluation activity observed here was further explored with the student focus group interviews.

It was not observed that students used the practise opportunities to self-evaluate their individual performance. They were however seeking information on their performance from their peers and lecturer. Information provided were mostly concurrent feedback, continuously guiding students in the right direction (see Table 4.2)

Table 4.2: Sessions where each student practised and received individual feedback

Each student practised and received individual feedback			
Structure	Each student had own manikin and all practised along with lecturer	One manikin, students took turns to practise	Students worked in pairs, each pair with own manikin
Feedback	Concurrent feedback from lecturer along with practise to all students	Concurrent feedback from lecturer along with practise to all students	Concurrent feedback from peer along with practise. Some feedback from lecturer as well.

There were also learning sessions observed where not all of the students received feedback. In one of these observed sessions (paediatric session for insertion of intravenous cannula) all the students took turns to practise the specific skill, but the lecturer was occupied by only one student during the practise time and therefore did not observe the others. The one student struggled with the skill, which led the lecturer to re-demonstrate the skill to this individual student. In the meantime the other students continued by themselves and did not seek feedback from the lecturer. They were however familiar with the skill, insertion of an intravenous line, which they had practised before on an adult. For this session they had to apply the skill in a paediatric context. I observed how some of the students in this session guided each other during the practise time and shared from their own experiences.

There were two observed sessions where students did not get or make use of opportunities to practise. In the paediatric session where multiple skills were taught by one lecturer, the students were encouraged to practise after demonstrations. Some students practised some of the skills and received feedback or started a discussion with the lecturer, some practised on their own without being observed by the lecturer, and others only observed how their peers practised. In this session the lecturer's attention was occupied by one or two students who asked for feedback or who started a discussion and the rest of the students were not observed. There was one last session where only three (out of 14) students were selected to participate in a scenario-based learning session. Those three students volunteered and they had to explain how to manage a specific case, which was more of a theoretical discussion. I observed that one student performed a practical skill during the scenario (insertion of an intravenous line), but he was not observed by the lecturer, who was involved in discussions with the other students (see Table 4.3).

Table 4.3: Sessions where not all students practised and/ or received individual feedback

Not all students practised and / or received individual feedback			
Structure	Various skills learned, lecturer asked specific students to demonstrate the various skills.	Various skills learned, one manikin per skill, some students took turns to practise.	Only three students involved in managing a patient scenario.
Feedback	Concurrent feedback from lecturer to individual students performing skills, but not all students practised all the skills.	Concurrent feedback from lecturer to those students asking for feedback.	No feedback provided to student who performed clinical skill as the focus was on the theoretical discussion of the case.

Unfortunately limited time was allocated for students to attend sessions in the CSC, and student numbers have increased over time. Even if students received feedback on their skills during a learning session, this once-off practise and feedback combination may not be sufficient to allow retention of the clinical skill. Students are therefore encouraged to come to the CSC to practise their skills in times not allocated to clinical skills sessions - mostly during their off time. Additionally, students have two compulsory follow-up sessions for practice and feedback in their third year and one in their fourth to fifth year.

During the period of data collection the fourth-year students were not observed during these additional practice opportunities. No students were observed coming in for voluntary practice sessions and none of the fourth-year students made appointments for the compulsory practice session. It is the lecturers' experience that the fourth-year students usually only start making these appointments closer to the date of their OSCE, which would be only 12 months later. However, the students and lecturers shared their previous experiences of these sessions during the focus group and individual interviews.

4.2.2 Lecturers' experiences

The lecturers generally realised the importance of feedback in the learning of clinical skills and agreed that they did provide feedback to most, if not all, of the students during a learning session. However, Lecturer 4 commented that she was aware that students did not perceive the feedback during learning sessions as feedback: *"They [the students] said what they had was teaching, not feedback"* (L4)^{1 2}

¹ Reference for Lecturer Interviewees: L4 = Lecturer 4

² Some quotes were translated from Afrikaans with care taken to preserve the meaning

4.2.2.1 General structure of learning sessions

When asking the lecturers to share how they usually present a session, the general feedback was that it depended on the clinical skills, but also on the specific students. The level of enthusiasm of the students specifically influenced lecturer 1:

“...it is very bad when a student sits in class and he is bored, because sometimes they openly sleep during a session, and they are like they have already heard this thing ten times. It does not mean they can do it, but they think they know... So I adapt it (learning session) when I see it is a group of students who are very enthusiastic about the topic... I think you feel you have more to share with those students who are really interested...” (L1).

The narratives recorded in Table 4.4 below illustrated the lecturers’ general approach to a clinical skills learning session.

Table 4.4: Lecturers’ approaches to learning in the clinical skills sessions

Participant	Comment
L1	“I start by saying let’s go through it, those of you who have done it can participate in the discussion and say if you experienced it differently, but this is how we want you to do it here and this is how you will be assessed in the examination. And then I usually show them how to do it and if it is a skill where they have the opportunity to practise, then you prefer that they practise. Many of them are not necessarily interested because they already did it in the clinical area, so a lot will tell you I have already done it, I don’t want to do it now, but I will come back (to practise). In that case I feel it is their responsibility to come back and practise. It is adult education and I will not force a student to do something when I can see he just wants to leave. But for those who are unsure and who want to be helped, for those I will stay and I will go through the procedure with them. I will say show me what you saw and how did you do it, and then give advice and help them as they go through the procedure. Sometimes I allow them to complete the procedure and then say I see you struggled with this, or what do you think you struggled with?”
L2	“The first part of the class we give them some theory...like the indications and the contraindications. They should actually come to class prepared, but like students they do not always do it. So I shouldn’t actually go through it with them again, so then I ask questions to see if they prepared. Then I give them the opportunity to ask questions...Then I do a complete demonstration. Exactly like it should be done, with gloves, hand washing, all the things... but it is informal, they can stop me, then I stop and explain what I did and then I continue and explain. So they can stop me and ask questions. Then they must practise with me. Some of the things like arterial and venous blood I allow them to practise on their own and I do a round, but other things like lumbar puncture and Mantoux, they have to do in my presence. So they stand in a line and then they each get an opportunity for me to see them one-to-one”
L3	“I’m specifically going to refer to the gynaecology session... So first we have a day that I

	just do demonstrations, with a little bit of theory, and then a demonstration part where they can ask questions. But before the time there are information for them on SUNLearn, the indications, the contraindications...there are also digital video discs (DVDs) that they must come watch the Monday. So from the Monday they are prepped with DVDs...Wednesday I do the demo and Friday they have about two hours to practise...”
L4	“The lesson is comprised of a short discussion and interactive questioning regarding the indications for intercostal drain insertion, the safe triangle anatomy, skin preparation, positioning, administration of local anaesthetic, drainage set preparation and equipment. A demo of insertion is given and then I watch and guide the students as they insert the drain. A second demo of securing the drain is done and again I watch and guide the students to secure their drains. I suppose the structure of the session comprises pre attendance preparation, I send them an email the week before to tell them what preparation to do ... not that they follow that instruction...and interactive discussion, demo and guidance as they perform the task. At the conclusion, they are encouraged to come back to practise on the sponges.”

Although the lecturers responded that they adapt the structure of the learning sessions according to the clinical skill and the students, they all described following George and Doto's (2001) 5-step method (see Chapter 2), with the exception of having only one demonstration. This corresponds with the observation of learning sessions. It was however also evident that lecturers feel students do not prepare adequately for clinical skills learning, which may lead to more time spent on teaching, and less on practising the clinical skills. In some of the sessions the adapted George and Doto model (Archer et al, 2015), which allows for peer feedback, was incorporated.

All the lecturers referred to the peer assessment sheets and some described how they incorporate these in their learning sessions to ensure students learn to use the criteria. Lecturer 2 described it as follows:

“Sometimes I let the students read from the peer assessment sheets when I demonstrate something like the arterial blood or lumbar puncture...so then I demonstrate step-by-step as they read, and then when they practise, two-two practise, then they must read the peer assessment to each other...then they learn to do it according to the peer guidelines. It also makes it easy for them to learn for the OSCE” (L2).

From the observations described in 4.2.1 the use of the peer assessment sheets during the session was only evident in two of the sessions (gynaecology and neonatal resuscitation), although in some of the other sessions the students were referred to it.

4.2.2.2 Lecturers' experience of providing feedback

On feedback practices, the lecturers had comments as displayed in Table 4.5 below.

Table 4.5: Lecturers' methods of providing feedback

Participant	Comment
L1	"I think we each have our own style of giving feedback. A lot of us will say show me and I will give feedback afterwards, or you give feedback as he performs the skills, and I don't think the one is better or worse, I think it depends on the student...you find some students who want to complete the whole thing and then ask you okay I think I did this wrong or what do you think I did wrong, and then you get one [student] who wants to know as they do it if it is correct... so I think it is student dependent... you sort of know which student is very unsure and you should not interrupt them as they will not know how to continue, so you let him complete and then you take him through the different steps and say, why do you think you struggled here, what should you have done better here, how can we improve and then you help him afterwards by showing the procedure again and saying look here...remember this...".
L2	"I give immediate feedback, especially when it is this one-to-one, and then I sometimes remember things I didn't mention. Then I will say...do this...Then I will also ask, especially when they are unsure, then I will ask if I should demonstrate it again...I like to give immediate feedback...". "Feedback is very important because it tells me when I'm making mistakes...it is very important for students...".
L3	"I like to give feedback as soon as possible. I walk between them while they practise the procedure [skill], identifying mistakes and addressing it immediately before they learn the wrong thing...I like one-to-one feedback, but when I see it is something that the whole group does, then I will stop the group and fix it immediately. Of course there is nothing as good as having a one-to-one conversation, but it is not always possible".
L4	"Feedback is giving constructive critique to a student re an activity, procedure or assessment...it may take different formats like debriefing after an event...It should ideally be given immediately although some forms of feedback may involve reflection from the student and a follow-up session." "My favourite and I feel most successful feedback, is when doing scenarios; asking students themselves to identify problems and then facilitating a discussion re the problems they have identified".

From the comments captured in Table 4.5 it seems that there is much focus on correcting mistakes with feedback, but some of the lecturers also indicated that they like to give positive comments, as shown in Tables 4.6

Table 4.6: Lecturers' positive feedback comments

Participant	Comment
L2	"I always try to start with a positive thing...".
L3	"When a student does something well, then I can tell him I'm proud of you, that was

	fantastic”.
L4	“Students generally respond well when the feedback is pertinent to their practice.”

Although lecturers were positive that they provided feedback during all their learning sessions, they also identified common barriers to feedback (see Table 4.7).

Table 4.7: Lecturers’ feedback barriers

Participant	Comment
L1	“I think time is a factor...when you do like the 5-step method, it takes time and our groups are big...and the physical layout of the rooms [students in the back cannot see, need to re-demonstrate..]”.
L2	“Yes time...”
L3	“You must have time to provide feedback”.
L4	“The main barriers [to providing feedback] are large groups and time constraints”.

Additional to the time barrier cited by all lecturers, a lack in students’ enthusiasm was also noted as a possible barrier to the provision of feedback: “...often it is all that they (students) want, show me and get it over with, I want to go home and study...” (L1) and “and I think a huge barrier is students losing interest after a while... as soon as they have done the skill they want to go home...” (L2)

A final important barrier is very specific to the clinical skills centre, where every clinical skill is performed in simulation: “Another barrier is that we are never in a real situation...here the models never give a side-effect, you cannot give feedback for that kind of situation” (L2)

Although all lecturers indicated that time is a barrier to allowing all students to practise and receive feedback, Lecturer 2 (who presents the gynaecology session described in 4.2.1) was happy with the way that session is structured. She mentioned that all students have sufficient opportunity to practise and receive feedback. This session allows students to practise the clinical skills more than once. She made the following remark: “If there is a student who struggles, then I say you may not go yet, practise some more...so at the end when he leaves, then he knows I maybe did not do the procedure once, but I maybe practised it three times...”.

This may emphasise the need for students to return to the clinical skills centre to practise their skills. As explained in the previous section, students are encouraged to come back to practise their skills voluntarily, and then they have some compulsory follow-up sessions. It was however not the lecturers’ experience that students regularly returned for voluntary practice and feedback sessions.

One of the lecturers (L3) commented that she would like to have students return to the CSC, just to indicate whether the feedback or information provided during a learning session actually had an influence on their performance of the clinical skill in the clinical setting. This issue presented a major deficiency for her: “...we don’t know if what we tell them (feedback) is of any value, if they even use it. When they walk out the door (after a learning session), that is it” (L3). She further explained on the question of whether they come back:

“Do they come back (to practise)? The answer is no. I think their programme is too full. When they do come back it is again because we have something in place, like the sterile procedure (compulsory practice session) because we identified a deficit, but the student does not come voluntarily. They only come back during OSCE time” (L3).

Only one lecturers (L2) reported that students approach her for follow-up practise, but this is in the clinical area, not in the CSC. As this lecturer is employed by another department to supervise the students in the clinical area, she has opportunities to see students after the CSC learning sessions. She commented that students often came back to her in the clinical area and asked her to observe them performing a skill for feedback: “...I see them a lot in the clinical area and then they will come to me and ask (related to previous session in clinical skills centre)...” (L2).

Additionally, lecturers also do not experience that students return to the CSC for feedback after the OSCE (see Table 4.8).

Table 4.8: Lecturers’ experience of students seeking feedback after the OSCE

Participant	Comment
L4	“It amazes me how few students do so [come back for feedback]”
L3	“No [they don’t come back after the OSCE], they don’t do anything from their side to improve on their mistakes”

Although additional practise opportunities were not observed during the data collection period, lecturers were asked to share their experiences of the video assignment and CPR activities where they potentially provided feedback to students. Only two of the lecturers elaborated on the video assignment project (see Table 4.9), as Lecturer 2 was not involved and Lecturer 4 spent minimal time on that project:

Table 4.9: Lecturers' experiences of video assignment

Participant	Comment
L1	<p>"I think it was brilliant, it is adult learning where the student must take responsibility for his own learning...".</p> <p>"It is also an excellent way to encourage peer learning because there is always two involved with the making of the video, sometimes three, and everyone in the room learn...and there's always the student who wants it perfect and this student will do it ten times before handing it in, so you know in that ten times he did it, not just he learned, but all the others with him"</p> <p>"...I think that learning is self-regulated learning and that is what we want as the classes are getting bigger...our human resources will not allow us to spend so much time with individual students, so if it is peer learning that is self-regulated learning...".</p> <p>"...often they do not believe what they did... he may deny it if you tell him [what he did wrong], until you show him [on the recording of himself]...".</p>
L3	<p>"...some positive aspects [about the video]...you had the student who wanted to do well with the video and they put time and effort in...but then there were students who just wanted to get it over and done with...".</p> <p>"I cannot recall anyone coming back after the feedback... and saying can you please observe me so that I can show I'm doing it correctly".</p>

Lecturer 3 also commented on the feedback with cardiopulmonary resuscitation (CPR) sessions. Here she mentioned that some students did not practise the skills before their appointment, thus increasing the workload of the lecturers: *"You get the group who came to practise before their appointment...and he was ready to do it, and you had to make minimal corrections, and then you got one (a student) who thought you are giving a lecture now..."* (L3). The CPR session did however allow for dialogue opportunities that were absent for the video assignment: *"We can have a discussion ...when we are sitting in a group (the CPR session), but with the video when it was a written message... no one came back to me..."* (L3).

4.2.2.3 The use of peer feedback

Some lecturers were using peer feedback as common practice during their learning sessions, while others did not purposefully employ peers to provide feedback to each other (see Table 4.10).

Table 4.10: Lecturers' use of peer feedback

Participant	Comment
L1	<p>"I think what we do with the peer assessments work because you find students practising in pairs... for example the family medicine session [not observed], we all sit around a table and one student will perform a skill... and then we ask the class: how did the student perform...?"</p> <p>"and you will find those students ...who will only say the good things, and then the one who will immediately say what was wrong and then you get some with a good balance between what was good and what was bad..."</p>

	<p>“I think it is generally good to do it, to ask the other students, our setup just does not always allow it...”.</p> <p>“when they come practise they usually come two-two, like just before the OSCE they will help each other.</p>
L2	<p>“I will not tell them to give each other feedback, but they do it...I sometimes hear [when busy with another student], remember sister said that, and then sometimes they disagree and then they ask me...”.</p> <p>“I think they trust each other as they are not clueless when they get here...Then they will say, do you remember... Or because I already gave a demo and then they do it again... So I think they trust each other enough, and if they don't they ask someone else. ...Yes, they are honest enough... to tell each other listen, no, I think you are talking nonsense...”.</p>
L3	<p>“I put the peer assessment tools out...I usually let one [student] read the peer assessment to the other one and then also let them observe where they make mistakes...”.</p>
L4	<p>“I do find that they [peers] can be reluctant to critique one another face to face but there will normally be one student who will mention something that allows initial discussion and once they realise it is not a personal attack on one member but a group critique, they participate very well”.</p>

Peer feedback did seem to provide opportunities for dialogue, as indicated by Lecturer 2:

“Often they will query... the students like to challenge you...some will continue asking and asking until they understand, and then I have to explain it in another way, or a more practical explanation. Or one of the other students will say...I had a patient like that, let me explain it to you... then I can also react to that” (L2).

4.2.2.4 The use of self-evaluation

Some of the lecturers seemed reluctant to allow students to self-evaluate. This may be due to a perception that students are not good at judging their own perceived competence. It seems as though the lecturers may not be aware of the importance of self-evaluation as part of the feedback process (see Table 4.11).

Table 4.11: Lecturers’ use of student self-evaluation

Participant	Comment
L1	<p>“I think the literature have shown that it is the good student who will see his mistakes and the one who is not so good will not see it...so as educators we must still look at it [their skills performance], because often they do not look, or they look but they do not see, they do not see their mistakes”.</p>
L2	<p>“I have not done it but I think it will be a good thing.</p> <p>“I will sometimes ask when they do something, why do you think that happened...”.</p>
L3	<p>“I am in two minds about it, because you get students who will do it well, and you will find</p>

	students without the insight to do it well, maybe because he does not have the theoretical background...I do not think every student has that ability...".
L4	"Initially I thought that students would either be too lenient or too critical of themselves but in fact I think that generally they are quite honest and able to critique one another and themselves quite fairly... this is also dependent on what is being evaluated, what the context is and what experience they have of procedure/task".

It is also important to understand the difference between perceived competence and reflection, which is in essence what self-evaluation is. Lecturer 4 explained the importance of this in learning: *"I believe that in order for feedback to successfully enhance learning, it is essential that the student is able to reflect on what has occurred and able to identify their own gaps, the teacher (lecturer) should thus facilitate this transition"* (L4). Lecturer 1 further emphasised the importance for life-long-learning:

"That ability to look at yourself critically and to say I did this well, this was not so good and I need to improve, I think the ability to do this as a competence will be valuable for yourself and your practice one day, to identify your own deficiencies and to do something about it...it is a competence that can be widely applicable..." (L1).

4.2.2.5 How feedback can be improved

Lecturer 1 explained how important it is for students to feel they are in a positive trusting environment:

"...so I think often this is a place for them to relax and know the manikin is not going to complain that they are hurting him of no one is going to scream at him if he makes a mistake, we will help and correct him and he can even correct us if we do not know, so I think it is a safe place for them to come practise" (L1).

It is however important within this environment that students are educated and instructed in the importance of self-regulated learning. This is to ensure they understand the practices in the clinical skills learning sessions as explained by Lecturer 1.

"I think firstly if you want to use a certain technique then you must explain it to the students otherwise they think there is something wrong with your head when you repeat something 5 times (referring to the 5-step method)...if they do not understand why it is done in a certain way they will not buy into it and if we want to be student centred at the end of the day we also need to consider their

needs...and I think sometimes the evidence based way (of presenting a learning session) is in conflict with the student's need at that time, his need is to go home and study and the sooner he can go the better...”(L1).

In summary, the lecturers seemed to prefer a certain structure when facilitating learning sessions, allowing practise time and opportunities for feedback. They mostly seemed to prefer concurrent feedback, which were verified with the observations of the clinical skills learning sessions (see Table 4.2 and Table 4.3). Time and other barriers to the provision of feedback was mentioned and the lecturers expressed concern that students do not return to the CSC for more feedback. Furthermore, lecturers reported on using peer feedback, but they did not seem comfortable to incorporate student self-evaluation activities.

4.2.3 Students' experiences

On asking the students in the focus group interviews whether they received feedback on their learning of clinical skills, some of them initially responded very negatively: “Oh, not at all” (FG2F2³) and “Oh, but that doesn't usually happen, does it?” (FG3F1) and even suggesting that: “I think feedback is a huge gap” (FG2F1).

4.2.3.1 Need for feedback after assessment

As can be seen from the comments of students captured in Table 4.12, they seem to want and need feedback. On closer inspection, however, it seems they specifically want feedback after summative assessments and that they generally agree that they actually do not receive feedback, except for marks. Students in the second focus group could recall a single incident in four years where they actually received feedback that was more than a mark and that only after a summative assessment. This was a specific test in their second year, not related to the clinical skills sessions.

Table 4.12: Students' perceptions on feedback after assessments

Participant	Comment
FG3F2	“But we never get feedback on exams”.
FG3M4	“I don't think we get too much feedback, with the OSCEs”.
FG5F1	“Nowhere are you getting told exactly if you are doing it right or wrong. It's just that exam, and still after that exam you don't really get any feedback. So you're still not sure where you stand, so it would be very helpful to actually have that”.
FG2F1	“But mostly you don't know what you did wrong, you just get your mark and then okay, how must I fix it now”?
FG1F4	“... that's the problem I've had since first year with the skills lab OSCEs because I don't

³ Reference for Focus Group Interviews: FG2F2 = Focus Group 2 Female Interviewee 2

	know where my problem is or where I did well for that matter”.
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With further questioning about feedback after assessment it seemed that some students were happy with a mark only and some students even suggested that this was due to the system that places a lot of emphasis on passing and progressing to the next level, instead of being competent (see Table 4.13).

Table 4.13: Students’ perceptions of a ‘no feedback’ culture

Participant	Comment
FG5F2	“... we have grown up just passing, you know, just wanting to pass and wanting to progress to the next level. So I don't blame us as students [chuckles] for wanting to know first, okay, how did I do, am I progressing, because that's just how our education system is designed. We are designed to pass, then progress, and then we don't really think about, I guess, the implications of if I got 50% in this, what happened to the other 50%? It's a matter of oh, I got 50%, okay, thank goodness, I'm moving on”.
FG5F3	“It's even in the culture of the way things work at the university. You don't even get your tests back, so you don't know how you performed”.
FG5M1	“I think it's a culture in the university that's extremely poor, where after writing tests, maybe not even getting the test back, but there is no feedback on questions that were like troubling to students, and that is so crucial”.
FG2M1	“I think that's something that the department can actually do [provide feedback], ... overall the MBChB [programme]”.

There were also students who were of the opinion that seeking feedback depends on the individual student and seemed to correlate the student’s mark with their need for more feedback. There seemed to be a perception that students who score higher marks may need that individual feedback on how they can improve even more, while those students with lower scores may be happy just to pass (see Table 4.14).

Table 4.14: Students’ perceptions of feedback needs related to marks

Participant	Comment
FG3F3	“A lot of people just wanna pass”.
FG3M2	“I think in people that do well in general they ... care about their marks but they would know ... they would be able to apply it in hospital setting... but the guys that just wanna pass, get 53, they just wanna pass, so they care about the marks more than anything else so, where people who usually would do well I think focus more on how to actually be able to do it in the hospital, to apply that knowledge”.
FG1F1	“It is very important to receive feedback on your clinical skills because you can have 85% for a procedure but that 15% that you lost may be something very important that you forgot...”.

There was at least one student who had a different perspective, saying that it depends more on your own goal: “... if you get 99% you may not worry about the feedback because you may feel you know your work, but if it is 70% and your aim was 75%... you want to know what went wrong” (FG2M1).

An interesting point though is that students’ need for more feedback on their performance increases with their sense of responsibility. The average student in the junior years may be happy with a mark only, irrespective of whether they just pass or receive a good mark. The more senior the students become, the more they seem to realise the importance of feedback on closing the gap between their current performance and the desired performance required to work with real patients. It seems important to the students that they receive feedback, especially after a summative assessment like the OSCE, informing them of their gaps, to ensure they will know how to improve their performance to be able to perform effectively in the clinical setting, and not only in simulation (see Table 4.15).

Table 4.15: Students’ need for feedback to improve clinical performance

Participant	Comment
FG5F2	“I think it’s important also, because ultimately we are practising skills that we need out in the community to actually do on people, and that feedback is important. If I think about the sessions I have had since second year, you just get a mark and you’re like wow, okay, what happened there, how did that happen? But you never really understand how you could do better for your patient, at the end of the day, which is actually really important, because if we leave here and we don’t know the glitches in our skills, we could be doing the wrong thing and teaching other students wrong things as interns and medical officers (MOs)”.
FG3F4	“I think that in second year it was more about like just passing for me, but as the years are going and I’m fourth-year, your realising more that your gonna have someone’s life in your hands then it becomes a bit more than just the marks, you like, oh my word do I really know this, do I know this work and it’s like its fine if you pass but are you goanna be able to apply it, no matter what your mark is?”.

In the clinical skills module MBChB IV students are not exposed to many summative assessments. In the third year, they have only the one video assignment, a multiple-choice questionnaire (MCQ) before each learning session, and then the OSCE at the end of the year. The MCQs contributed a small percentage to the students’ final marks and were more an attempt to force students to prepare for the learning sessions by reading the theoretical content relevant to the practical skills, and therefore allowing more time for practice and less for discussion of theory. In the fourth year, there are no summative assessments as their clinical skills module continues into their fifth year where there is an OSCE in the middle of the fifth year. If students therefore link feedback only to summative assessment activities, it is understandable that they report a lack of feedback. The

solution is probably not an increase in the number of summative assessments, as it will place a higher demand on the lecturers who already need to cope with increased student numbers. Students need to become aware of the value of formative feedback, even in situations beyond the learning sessions in the clinical skills centre.

4.2.3.2 *Students' experiences of receiving feedback*

Although students initially did not link feedback to the practise opportunities during learning sessions and the compulsory follow-up sessions, they did seem to recall some feedback related to these sessions after some probing (see Table 4.16).

Table 4.16: Students' recognising formative feedback

Participant	Comment
FG2F1	"The only feedback that I remember is that voice-over in the videos... that helped...".
FG1F2	"I think we do get like not maybe sufficient, but like in the CPR [learning session] feedback once they've taught you what you need to do and then you have your turn they are standing and watching you do it and saying uhm that's what you're doing wrong, it's maybe not as extensive as a lot of us would like but there are, it is like we do get feedback on the spot".
FG1F4	"...it depends, some people [lecturers] give more feedback during the [learning] session, some give nothing, some say go practise, so it is not standardised, you can't say everybody does it. I definitely leave some sessions where someone did tell me ... you did that wrong" [emphasis by participant].

The students seem to recognise feedback when it is linked to a special activity. The special activity mentioned in the first comment in Table 4.16 was related to the video assignment they had to complete in their third year as a summative activity. In this activity they had to submit a recording of themselves performing a clinical skill and for which they received feedback and a mark. The second and third comments referred to the normal learning sessions.

For feedback to be useful during any activity, the student must know exactly what is expected of that activity. The learning criteria can provide this information to the student, and this can then be used by the student for peer evaluation and self-evaluation activities. The learning criteria that students should study before learning sessions are introduced to them via information on SUNLearn, then by demonstrations in the learning sessions, and lastly with the peer assessment sheets available before, during and after learning sessions. Students who study the criteria beforehand seem to find them useful (see Table 4.17).

Table 4.17: Students' perceptions of usefulness of examples

Participant	Comment
FG3F1	"... also with the resources available, it's always on SUNLearn, ... you know everything we need to know ... , if it was too short in skills lab like sometimes the sessions, then you can always ... look back at it and come back and practise yourself, and that's always nice that that's available".
FG5F3	"Yes, the videos are generally helpful, those you can watch online to show you what to do".
FG2F4	"I think it's done very well, especially that uhm, they put up all the content that we need to know beforehand on SUNLearn so we can go through it, so I think that helps a lot, so when we come here we know exactly what's expected of us".
FG1F6	"And those videos that you guys upload is also very good".

Even if students did not study the learning criteria on SUNLearn, the demonstrations provided during learning sessions provided a good exemplar of the clinical skills (see Table 4.18).

Table 4.18: Students value demonstrations

Participant	Comment
FG4M2	"... or watching the videos, it is actually bad, I have never watched a video [laughter]. I am sure it will help a lot, but I mean it is easier when the person [lecturer] explains it to you in person".
FG3M3	"And if you didn't read up on it, it's still explained before you start the procedure [giggles]".
FG4M2	"...the person teaching you usually shows you, and with the chest drains they showed us first how to do it and demonstrated and sutures and everything ...".
FG2M1	"In the beginning there's an illustration, and then you show us exactly what to do and then we get pages [peer assessment sheets], yes it's very structured, I think we learn a lot".
FG1F1	"I think uhm what's nice about the sessions we have here is that it always starts off by somebody who knows how to practise the specific skill we're learning uhm by telling us how to do it, showing us how to do it and then we get time to do it ourselves afterwards with a friend or on your own uhm, so I think it is very nice because you first get that experience of this is how you do it, look at how I'm [lecturer] doing it and then you can do it yourself".

Additional to the initial information and the demonstrations at the start of a session, the students also seemed to find the peer assessment sheets useful (see Table 4.19).

Table 4.19: Students' perceptions of peer assessment sheets

Participant	Comment
FG2M1	"...it's [peer assessment sheets] great, when you practise you have a step-by-step method that you can follow, you can give some structure to what you are doing".
FG2F3	"...and we use it [peer assessment sheets] throughout like when we come practise for the

	OSCE, when we come practise we bring it with and ensure we can do it according to it”.
FG1F2	“I feel like ... that they normally put up the theory behind the skill beforehand on SUNLearn and that makes it easier when you come to the session, then they normally have the same uhm transcript of the procedure [peer assessment sheet] and then they explain it from there [Others agree]”.

There was one student, however, who clearly indicated that the peer assessment sheet on its own was not going to be sufficient to guide them on the performance of the clinical skills: “...*then the peer review (peer assessment sheets) helps, because it is a piece of paper that you give us and we must do it, but it is just words, so practical experience is very important, because we must know exactly how*” (FG1F5).

One student found the peer assessment sheets particularly helpful in the clinical setting:

“I have the peer assessments sheets on my dropbox on my phone and like once or twice I have like opened them up during hospital and like I look at them and like I have the blood one (peer assessment sheet) on my phone just in case cause I always forget, like how must I do this... just like simple things, just so I make sure I follow, like I do everything correctly” (FG3F4),

However, two other students did not share this idea as they indicated that the peer assessment sheets were only useful in the clinical skills centre, not the clinical areas (see Table 4.20).

Table 4.20: Students’ perceptions of peer assessment sheets helpful for CSC learning

Participant	Comment
FG3M2	“[Criteria are] helpful for the tests specifically, not necessarily for the hospital setting, but for the test and the OSCE’s, ja”.
FG3M2	“So to pass and to do well in, the peer assessment works well but in the hospital setting you probably just do what the doctor tells you to”.
FG2F3	“And we use it [peer assessment sheets] throughout like when we come practise for the OSCEwe make sure we can do it according to that”.

There were other students, however, who also thought that what was learned in the CSC might not be achievable in the clinical areas. This could be the reason why some students might not regard the learning criteria from the clinical skills sessions as helpful beyond the CSC (see Table 4.21).

Table 4.21: Students' perceptions of peer assessment sheets not useful in clinical setting

Participant	Comment
FG1F6	"...maybe to just correlate what we have in the skills lab and what is in the hospital a bit more because sometimes you get taught something here and then you go to the hospital and then it's not, they don't have the stuff ...and then you're not sure ... like theoretically you know what you're supposed to have and then do and you could do it here but then it's not always the same".
FG1F5	"Some sisters do actually tell us you know what we should, you should do it like this but in the hospital you'll probably never get this so let's do it but they don't spend a lot of time on that, they just sort of say it and then we learn the normal that we have to know... it might be nice just to incorporate what the scenario would be in the hospital as well in the sessions and you're not just saying it but actually trying to tell us what we could do, practically showing us ...because most of the time we never have, we run around in hospital trying to find the stuff that we find readily available here so ...".
FG1F1	"I think in that situation it is often the hospital's shortage of cleaning solutions or shortage of equipment that we need...so you have to learn to adapt in a rural area, adapt the way you learned in the skills lab, because what we learn here is according to the book but you must learn to adapt".

Even though some students referred to a mismatch between what is learned in the CSC and what is expected of them in the clinical area, other students elaborated on the value of what they learn in CSC (see Table 4.22).

Table 4.22: Students' perceptions of value of CSC sessions in clinical setting

Participant	Comment
FG3F4	"I remember the first time I had to suture in hospital uhm, the doctor asked me and it was in trauma, have you sutured before and I said no I haven't and the he said oh uhm, so I said well, I have on a sponge in skills lab (CSC) and then he said oh then you can do it, and then he left me and said ok I'm not gonna make you nervous and he closed the curtain and gave my sterile trolley and he said just suture the hand, (laughter) and then that's how it was, he left me to do it by myself because obviously they sort of trust what we do here, but at the same time he's probably too busy to teach me...I learnt it here I didn't learn it in hospital... I mean if we didn't have to do it here we wouldn't be able to do it".
FG2F3	"And also like even if I can give you an example, ...someone in our group had to insert an intercostal drain... and everyone (students from other institutions and interns) were telling her...you must do it this way...do it this way...and the she said to all of them to be quiet and that she is going to do it as she learned in the skills lab (CSC), and she did it according to that, and correctly according to it, so I think it help a lot if you can practise it here and then knows that I learned it this way, I must do it this way and it is correct".
FG2F5	"I think I really see the difference what we learned in first year, the cardiac, resp & gastric examination, uhm we know it so well now but when it comes to neuro exam we learnt in hospital and not in the skills lab and that's just so messed up, in the hospital you do it, the neuro exam like twenty times with twenty different doctors but in the end you still don't

	know what you doing, so if we do it in the skills lab (CSC) it will be so much more helpful in future”.
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Additional to the clinical skills learning sessions, the students were also asked about their experiences of the follow-up practise activities. Even though the students who participated in this study had completed their video assignment at least eight months earlier, they could still recall how much value it added (see Table 4.23).

Table 4.23: Students’ positive experiences with video assignment

Participant	Comment
FG2F5	“I think the next time you did it you did it so much more better cause you know where you did wrong, especially in hospital and you’re doing it for real, then you remember what you did wrong before and you actually remember it now”.
FG3F1	“I know with the video that we did we got quite thorough feedback on them, the videos”.
FG1F6	“It also makes you more aware when you’re in the clinical setting cause you’ve done it so many times to practise to actually submit the video that when you do it it’s more uhm did you remember everything just because you did so many times and not just you practised it once in a session you didn’t do it again”.
FG3F3	“At the end it actually prepared me really well for the OSCE because by the end of it out of everything I knew ...how to insert the catheter probably better than I knew everything else”.

The video assignment appeared to have helped some students in seeing their mistakes or identifying the gap: “*After the feedback (on the video performance) I was like okay, I know what she is talking about, I see that.*” (FG5F3). Some students commented on how they could still remember exactly what the feedback on their video assignment was (see Table 2.24).

Table 4.24: Students remembering feedback from video assignment

Participant	Comment
FG2M1	“Ja like ____ was saying earlier, I’ll never forget that I have to roll up my sleeves before doing a sterile procedure, I now know”.
FG2F1	“Take off you watch and...”.
FG2F4	“... like for me my feedback for my video was that my scarf was in the way, when I did it, it was like my scarf is not really in the way but from now from that moment I’ve been tucking my scarf in my white coat because it is actually in the way”.
FG4M1	I still remember it, even if it [feedback] was delivered verbally. I can still remember exactly what I did wrong, I will remember for ever...”.

The video assignment possibly made such an impact on some of the students because it forced them to practise the clinical skill several times (see Table 4.25).

Table 4.25: Students' perception of repeated practise opportunities with video assignment

Participant	Comment
FG5F1	"...the video ensured that you practised it so much, that you actually handed in a video of what you thought was your best. So feedback on something that you think was your best is actually a good thing. So instead of saying that people should come here in between, we could actually maybe have a system whereby people do videos and when the skills lab workers [lecturers], you guys have time, you can look through them and give feedback in that way".
FG1F5	"That catheter video made me crazy, I mean ...how many times did I repeat it, but when it came in the exam it went just like this...".
FG4M1	"...we had to re-shoot the video so many times. We made so many mistakes [laughter]".
FG3F3	"I definitely would not have come in that many times to like practise the catheter by myself".

The students also seemed to value the feedback associated with the individual session where they had to make a follow-up appointment for CPR practice (see Table 4.26).

Table 4.26: Students' perception of value of CPR session

Participant	Comment
FG5F3	"The one I personally learnt the most from was the one where you had to come to the skills lab to do the CPR in front of the sister. That was more, I don't know, like real. It was real time, if you know what I mean. It was like okay yes, you did that, but then this was wrong and then that and that. It was thorough...".
FG5F1	"Yes, I think I agree with ____, the CPR session helped a lot actually getting feedback at the point because every time that you would come and practise, or even think about it at home, you'd think to myself okay, these were my flaws, and this is how I have to make sure that I am better in A, B, C, D. That actually helped a lot".
FG4M1	"It helped because it was a smaller group. ...In the small group you receive direct feedback".
FG3M3	"Ja, and that one-on-one like basis with the teacher [lecturer] as well, because sometimes you just fall in the background and you think you understand something and you don't".
FG3F5	"... so you [lecturer] would actually tell me when I started you like, ok no this is not how you start, then I do it again and you be like, practise by yourself I'm coming back, then I practise and you came back then I did it and you like no, this is how you put your hands, so it's more, I think it's more beneficial that way, instead of just doing it once and then leaving and not knowing that there are multiple errors that I'm doing along the way, so every error I did you were helping me fix it".

With the follow-up CPR sessions students received verbal feedback and potentially also for the video assignment, where feedback was either provided verbally with an audio programme, or it was written. Students seemed to prefer the verbal feedback (see Table 4.27).

Table 4.27: Students prefer verbal feedback

Participant	Comment
FG3M2	“I think I suppose if you do well and there’s not much wrong then the written feedback just with one point well everything was good, we’re satisfied, ... but if someone really messes up or does not do well and you see a lot of points where they, then you can call them in tell them listen it this was good, but this you can work on and actually guide them through that to actually correct their mistakes, ja rather than just giving feedback and saying well you did that wrong...”.
FG2F4	“I think verbal feedback for me is better, because sometimes you read something and you like ok this is the way but now why is my way wrong so you still don’t know why your way is wrong even if you read something, so I think verbal is better”.
FG3M2	“... the new CPR dolls with the immediate feedback that also helps, cause you’re doing it and your seeing ok this I’m doing right and this I’m doing wrong so you can immediately fix it and immediately practise the right way...”.
FG4M1	“...with those machines that you practise CPR... it was very practical, and I always thought I was good with this CPR story and I realised I do not allow for chest recoil at all. It was immediately a thing like I always thought I was doing it correctly. That gap was identified and I was challenged to change it...”.
FG5F2	“But I also think that in terms of being practical, deciding whether you want feedback one-on-one and feedback based on a video depends on the skills that you have to practise. CPR is something you need feedback at that point because of the degree of importance that it holds. But when it comes to different skills like suturing and so forth, I think its things where you can hand in videos and stuff”.

The importance of verbal comment seems to be related to the students’ need for instant feedback:

“...you get that that feels like instant feedback, whereas with the e-mail (feedback after an activity) it will be like afterwards and you forgot like what it you did also, so when your teacher is there then it’s like ok it is like this and you just learn, I think you learn better” (FG3M1).

The clinical skills learning sessions were not always structured in a way that allowed all students to receive feedback on their performance, or even the opportunity to practise all the skills. This may particularly be the case with larger groups of students, which then prevents some students from being able to use the time in class effectively (see Table 4.28).

Table 4.28: Students' perceptions of influence of large student groups

Participant	Comment
FG5F1	"In the sessions themselves, I find that we are generally too many for one person that's teaching us at a time. So in that time you might desire feedback because you know that that's the one time you will actually have a skilled person to show you, but the person might not end up coming to you, or having enough time to work with you individually, taking you step by step, because of the fact that there are just too many of us to pay attention to".
FG2F2	"But sometimes it feels like a waste in the big groups cause you don't have time to stay afterwards all the time so, the time that's allocated for that you want to use it, and if you can't use it then what's the point of being there in this big group and not make sense, it's a waste then to stay afterwards".
FG5F1	"One thing is that we tend not to have, as a big group, enough time maybe to actually practise the skills once we are done with the sessions. They are well taught, but in the time it's allocated, which is actually quite difficult to probably work around, because we only have two hours in an afternoon".

Even if all students practised, it may be impossible for one lecturer to observe each student performing an entire clinical skill and to provide feedback on the skill. It was observed in some of the learning sessions that the lecturer was occupied with providing feedback to only a few students who actively sought feedback. Afterwards the lecturer might offer to observe some of the other students, but they sometimes declined the offer, having already practised on their own or with a peer (see Table 4.29).

Table 4.29: Students' perceptions of not being observed

Participant	Comment
FG3F4	"Or maybe just sort of if you make sure that in a session that you are observed doing the procedure at least once...".
FG3M2	"If they by chance walk past and see that you're doing it wrong, so that ja relies on the person the supervisor or whatever, but otherwise not, not really".
FG2F5	"I think the smaller the groups then the more feedback you get".

Even if all students have an opportunity to practise, they do seem to prefer sessions where there is a manikin for each student. Students can become bored when they have to wait around for their chance to practise, as indicated by this student:

"... most of my experience now is we only have one doll and then you stand in a queue and then you have to go and you do it and then you do have the sister standing next to you and helping you but you sort of, you sort of just want to get it done. So maybe if we can interact more, having more dolls for every like over a

table and everybody has one then you can do it while the sister is doing it. I don't know, that would be better for me because at this point I'm preparing and I'm doing it and I'm listening and I'm learning quite a lot but then I sort of just stand in a queue and I just need to get it done so I can go home” (FG1F5).

An important theme emerging from the data, was the students' enthusiasm to engage in practice time during the sessions. Although students generally seemed to enjoy the clinical skills session, aspects that negatively affected their enthusiasm decreased their willingness to participate in practice opportunities and therefore limited their feedback opportunities or their responses to feedback. The most prevalent aspect seemed to be the timing of the sessions (see Table 4.30). The clinical skills sessions occur when students are on clinical rotations, not during theoretical blocks. Almost all of the clinical skills sessions are scheduled during the afternoon, when students have already spent many hours during the morning in the clinical setting. Students seemed to agree that they were tired in the afternoons and just wanted to finish the clinical skills sessions as fast as possible.

Table 4.30: Influence of timing of sessions on students' enthusiasm

Participant	Comment
FG5F3	“Another thing for me personally is that usually the sessions are in the afternoon, so after you've done whatever you have to do in hospital, then you get here and you are usually a little out of it, so you may not be so enthusiastic, you know”.
FG3F4	“...this two o'clock to four o'clock sessions in skills lab, its kills us”.
FG3F1	“Doing CPR at four o'clock, I feel like collapsing afterwards”.
FG1F4	“There's like the afternoon we just wanna go homewe don't care [a lot of laughing]... Like everyone gets a chance to defib and you just run...”.
FG1M1	“Everyone just want to finish as quickly as possible [many students agree] so that we can go as quickly as possible”.
FG1F2	“The thing is we do get ample opportunity to practise after you've shown us the skills but we're so tired you don't really want to, you just want to get it done and go home”.

The timing of the session also relates to the timing within the clinical block. Unfortunately students cannot all attend a clinical skills session on the first day of each rotation. Due to the size of the student numbers, they are divided into groups, and it sometimes happens that some students only have a session towards the end of the clinical rotation. This then also leads to a lack of motivation and students not seeing the relevance of the session, as indicated by this student:

“...my surname is always last on the list, I always get the session in the last week or the last two weeks of the clinical block which doesn't, it's helpful but it also

then defeats the purpose because all the opportunities I had I didn't know what to do so then you sort of missed opportunities and then you do get the session sort of too late...” (FG1F6).

Other aspects dampening students’ enthusiasm to practise are the length of the session, the number of clinical skills per session, as well as the size of the group in relation to the number of manikins available (see Table 4.31).

Table 4.31: Other factors influencing students’ enthusiasm

Participant	Comment
FG1F5	“... I sort of just stand in a queue [to defibrillate the one manikin] and I just need to get it done so I can go home”.
FG1F4	“I think the fact that you sometimes try to fit all the sessions into one day... in the beginning I listen well but ... then I’m over it, so then your last session you do... I wonder if you can split it...”.
FG1F6	“Or even like if you do that one spread it over like say you do two hours in the morning and then come back the afternoon and then still be like where you can focus for a full two hours but then there's not like you're doing it all in the afternoon...”.

Even if students had sufficient opportunities to practise during the learning sessions, there may be long intervals between the learning sessions and the examination. Students may feel unsure about their competence before examinations, and in this time in between learning sessions and examinations they lack feedback (see Table 4.32).

Table 4.32: Students’ need for feedback before assessments

Participant	Comment
FG5F1	“I think just like feedback is important, like even if you do give it afterwards. I still think it’s important to know how you did, where you went wrong, because you know, you are very, very uncertain, even afterwards, you know, with what you have done. Even when you see your mark, you’re not sure, where did I get the marks, where did they, you know. Maybe I failed a station but the other ones covered up for it, you know. So it would be very nice to know exactly where you stand after that exam because you have no opportunity to be assessed before the exam. Nowhere are you getting told exactly if you are doing it right or wrong. It’s just that exam, and still after that exam you don't really get any feedback. So you’re still not sure where you stand, so it would be very helpful to actually have that” [emphasis by researcher].
FG4M2	“It will be good to practise it again afterwards [after the learning session] because it gets lost if you do not apply it immediately. It’s not that we insert catheters everyday... So I would say there must be another opportunity for us to do it again”.
FG3M2	“... we feel we know the skill after the session, I’d say immediately after yes and for maybe like two weeks but if you don’t get the opportunity, if you don’t come yourself again or if

Participant	Comment
	you don't get the opportunity to actually practise the skill in hospital, I find that sometimes I forget it, like some of last year's skills that we did again this year, it was like ok well I didn't quite remember it that well, so ja, we do know it after the session but if you do not get time to practise or if you don't revise then it does escape your memory".
FG2F2	"...you obviously want to go into it [the OSCE] with the most confidence, so I think feedback before [the OSCE] is also important".

Although students are encouraged to come back to the clinical skills centre to practise their skills after the learning session, some students admit to not making use of this opportunity (see Table 4.33).

Table 4.33: Students not making use of additional practise opportunities

Participant	Comment
FG2F3	"I think the opportunity is always there to come practise and ask someone, but I do not think the students always do it, because the students can come at any time and then you can ask someone to help you, but I do not think they actually make an effort to always come, most of the students".
FG1F9	"We can practise there on our own time and actually also throughout the year the clinical skills lab is always made available to us even though we sometimes don't go for that opportunity".

Another student indicated that coming back to practise may not be an option due to a possibility of not receiving help from the lecturers, showing a dependence on feedback from the lecturer: "... *if you do come in your personal time, sometimes you as staff here are so busy doing whatever else yourselves, that you don't necessarily have time to come and assist*" (FG5F1).

The exception however seems to be just before an OSCE, when most students do come and practise. Voluntary practise time seems to be linked to learning for assessment, rather than learning for competence in the clinical area (see Table 4.34).

Table 4.34: Students' voluntary practise behaviour before OSCE

Participant	Comment
FG3F3	"And before OSCE there's always a mad rush as well, like everyone is here...".
FG2F3	"[we practise] mostly before the OSCE's, then we come a few times, but not continuously, but definitely before the OSCE's...".
FG2M2	"I think I only came back once when it was not for an OSCE, because we had our surgery rotation at the end of the year...and we had the generic skills at the beginning of the year...the other times were all to practise for an OSCE".

4.2.3.3 Feedback from peer evaluation

When a student practises a clinical skill, the practise session can be observed by a lecturer, but also by a peer. The student can even evaluate his or her own performance against specific criteria. The likelihood of more practice sessions with a lecturer is decreasing with the increase in student numbers. With the analysis of the data I therefore searched for experiences and possibilities that could possibly fit into a self-regulated feedback model. One of the students even suggested using peer learning as a tool to counteract the lack of enthusiasm experienced during some learning sessions:

“I have a suggestion... there is manikins to practise but we as students are lazy, we are tired, we want to go home, we want to finish...but something like a peer assessment...get more interaction from students, because if you stand at the back you want to do it as quickly as possible,... but if one person teaches the other person then you actually have to know for the next person to learn” (FG1M1).

Those students who participated in this study who had recently had the gynaecology session indicated that it was the best learning session in terms of group size, availability of manikins and equipment, and availability of the lecturer. It was also the only session where peer evaluation was enforced. The students were however not used to their role in peer feedback, not trusting their own and peers’ ability to provide feedback, therefore still seeking feedback from the lecturer, as evidenced by this comment:

“We followed the peer assessment (sheet) but I cannot necessarily give good feedback because I also don’t know if she was sterile or not, so I think you have to, after practising, ask the sister (lecturer) to come and observe you and tell you if it’s right or wrong. Because I don’t know, we practised, but if we practised correctly I don’t know...” (FG2F1).

Even though students may have been unsure about their role as peer evaluators, these students realised the possible guidance a peer could provide (see Table 4.35).

Table 4.35: Students’ perceptions of guidance from peers

Participant	Comment
FG4M1	“You’re always thinking that you are doing it correctly, but it may not always be the case. So it helps to have a friend that can help your through it”.

FG2M1	“Yes, I think it comes back to what ____ just said, where you do not have a supervisor all of the time but you have someone behind you with that peer assessment sheet and can then tell you where you go wrong”.
FG1F1	“Something that really helped, I remember last year when we learned to take blood, there were many arms ... and the two of us did it together and then one had the paper [peer assessment sheet] and the other one did it [taking blood] and then you had to see if this student follows the steps on the peer assessment, and that was excellent because you then do not need thirty sisters [lecturers] with each student because then the two of you can help each other to do it [procedure] according to those steps [on the peer assessment sheets]”.

These students recalled how their peers had helped them to evaluate their video assignments. Although the video assignment was not an intentional peer-evaluation activity, it was evident that students used peer evaluation without being instructed to do so (see Table 4.36).

Table 4.36: Students using peer evaluation with video assignment

Participant	Comment
FG5F2	“The peer assessment, and your partner that you were actually doing it with, they helped a lot in telling you, in seeing the little things that you might not have seen in the video.”
FG3F5	“...we use the peer assessment to give the feedback, so if you do something that’s not in there then you like no! Do it this way cause this is what the notes say or something”.
FG2F3	“ ... I looked at it [video] with someone and then asked, or looked according to the peer assessment sheet if I followed it...”.

The following students went further and started to acknowledge the self-learning that could occur when providing feedback to a peer (see Table 4.37).

Table 4.37: Students’ perceptions of self-learning from generation of peer feedback

Participant	Comment
FG3M2	“Even just by reading it [peer assessment sheet] to them you learning and they learning while they do it and then when you swop, then ok, well I did it this way but I’ll then, you can sort of compare so when you reading you learn, when you doing you learn, when you watching you also learn and so it’s sort of like a three times thing”.
FG3M1	“You can learn from their mistakes as well and they learn from yours”.
FG1F5	“Yes, both of you learn, the one observes the other one and when that one makes a mistake you also make a mental note that you should not do that the next time. So that works for me...I remember better...”.

It did emerge from the students' perspective that a trusting relationship is needed during peer evaluation activities (see Table 4.38).

Table 4.38: Students' need for trusting relationship in peer evaluation

Participant	Comment
FG5F1	"Well, a lot of the time we have to be very trusting, because a lot of the time they are the only people who can actually, who are around to actually be like okay, I don't think you are doing that right, maybe if you tried this and you tried that. A lot of the time we are using the peer assessment sheet. But yes, you often have to, well, I often have to trust them quite a bit actually".
FG5F2	"I think for me it depends who you are working with at that point in time ... We interact with so many different people, and you learn – how do I put this – you learn how you work with a particular person and how committed they are actually to the task they're doing. So it depends, sometimes you work with somebody who is your friend, so you will trust your friend because it's your friend. Sometimes you work with a colleague that you trust, but you trust that person because you trust their opinion because of how you have been working with them. Sometimes you work with somebody that you don't know at all, and then I would rather observe and not to say ag, I don't believe what you are saying, but I would say okay, see what they are doing, see how I do it, and then go back and reaffirm the knowledge or whatever that they gave me. So it really depends on who you are working with. I think that makes the biggest difference for me".
FG1F1	"If they [the peer] are informed on what the correct procedure is, so it was done with us once ... and you [the peer] have proper knowledge of the skill, then we can definitely do it [peer evaluation]"
FG4M2	You obviously have to choose your peers well..."

There is also evidence that the students use the peer assessment sheets to guide their peer-evaluation activities (see Table 4.39).

Table 4.39: Peer assessment sheets guiding peer evaluation

Participant	Comment
FG5M1	"I think what helps as well is they encourage us to print out the actual instructions (peer assessment sheets) on how to carry out each process, and that makes it a lot easier because you can just pair up with a friend, and then you do the actual practise and then you get feedback from that as to what you did right or what you did wrong".
FG4M2	"[in peer evaluations]... we have to refer to a source to ensure we get it right, because it is human to forget things..."
FG3M2	"... obviously when have a session like this you would have to have seen it been done correctly for the first time so we had the session on Tuesday where we were actually shown, and it was quick, it was just this is how you do it ... and then we get time to practise, ... and as she said to actually be observed doing it once, but even like a second hand observation where I'm observed by the teacher and I'm sure this is how to do it and then I can observe

Participant	Comment
	my peer and actually do, ok, this is what the teacher told me and this is how I do it and if they have any more questions, they can maybe ask, so even that would be fine with me and that is, that can be done in a session like this...”
FG3F5	“...we use the peer assessment to give the feedback, so if you do something that’s not in there then you like no, do it this way cause this is what the notes say or something”.

During peer-evaluation activities, it seemed possible for students to engage in dialogue:

“...when the person tells you something and it sounds reasonable then you accept it, but if you do not agree with it, and we are the type that will challenge, say but listen I am not entirely sure. Then we will look it up together. ...it is a case where you challenge it and then together we learn from it. That is why I think it works” (FG4M1).

Although some students seemed to realise the value of peer evaluation activities, some students still needed the feedback from the lecturer (see Table 4.40).

Table 4.40: Students’ preference for lecturer feedback

Participant	Comment
FG5F1	“...It [individual feedback sessions] helped because you’re a professional”.
FG3M1	“But also I feel like if it is from a teacher its more you know, like it’s that way, instead of like maybe your friend can also have their very own idea and then you’re little way to do it where it could be wrong...”.
FG2F2	“... Things that another lay person will not recognise, like are you sterile... things that will make you lose marks...”.
FG2F2	“Again things that we wouldn’t have noticed helping each other and something that's not necessarily on the peer assessment”.
FG2F1	“We can follow the programme [peer assessment sheet] ... but we do not necessarily know exactly where, we do not look at the entire process from the perspective of an examiner...”.
FG1F5	“We are on the same level, we first need a senior who can tell us we are doing something wrong so that you can say, no but the sister [lecturer] said that so we must do it, because we all have strong personalities... Now we have a problem because I must learn from her [peer] but she knows just as much as I...”.

The students’ need for feedback from the lecturer may be related to a learning-for-assessment attitude, where the students wanted to ensure they would receive the kind of feedback needed to pass or do well in the OSCE (see Table 4.41).

Table 4.41: Feedback from lecturers for performance in assessments

Participant	Comment
FG5F3	“But if you do find like one of the sisters [lecturers] who are not busy, usually they are very, very helpful and they show you exactly how to do it and how they are going to test you on it. So, that is often really, really helpful”.
FG2F2	“...things that will make you lose marks...”.
FG2F1	“...we do not look at the entire process from the perspective of an examiner...”.

This was strengthened by students’ comments that they trusted each other for help in the clinical area, where patients were involved (see Table 4.42).

Table 4.42: Feedback from peers for performance in clinical setting

Participant	Comment
FG3M2	“...you never really go alone [in the clinical area], you just go two-two...”.
FG1F1	“I’m thinking of that CPR session last year ...where you and your clinical partner had to make an appointment with the sister [lecturer]. That concept is excellent because then you are with your clinical partner, the student responsible to hold you accountable on your performance in the hospital, how you apply your clinical skills. The two of you who are always together come practise together and you get feedback on how you perform.... And then that person [clinical partner /peer] is with you in the hospital when you perform it [a clinical skill] and he / she can tell you, remember like this, not like that”.
FG3M2	“it also depends on who the [peer] feedback comes from and then if you use a peer assessment or not ...I think a lot of the times when like if we give [peer] feedback it’s not necessarily to do well in the OSCE but maybe well in the hospital this will be different to more a practical way instead of more academic way of doing things maybe”.

4.2.3.4 Feedback from self-evaluation

Students did not recall many situations where they could actually assess their own ability to perform a specific skill. The few comments were linked to the sessions where they were involved in scenario-based learning:

“Where I – let’s say – mess up, and then they will ask me how do you think you did. I can remember it from you sometimes, you would ask how do you think you did, especially from like your team-based things, and you ask how do you think they perform. Then you say this worked, that worked, kind of thing” (FG5M1).

Without realising it, the students used self-evaluation with their video assignment, as they had to submit a video of their best performance of the clinical skill. They admitted to referring to the peer assessment sheet to guide their self-evaluation (see Table 4.43).

Table 4.43: Students' self-evaluation with video assignment

Participant	Comment
FG5F1	"We had to do the catheter thing, you practise how to do the catheter, how to insert the catheter several times, and because you are taking a video, you keep making mistakes. So you had to stop and redo it again, stop and do it again, until you were like okay, this is the best video, so this is what I'm going to hand in".
FG1F2	"And the fact that it's a video and you get to watch it again then you think you are sterile and then you look on this tiny screen oh my word look how bad I went there lot[s of laughing]... and it makes you aware...".
FG3M2	"[the video was ready for submission] when you actually followed the peer assessment point by point without making mistakes".

4.2.3.5 Students' feedback needs

Irrespective of whether the feedback comes from a lecturer or a peer, students want honest feedback: "So you expect your friend or the person with whom you learn to rather be honest and confront you..." (FG4MI2). The feedback should clearly indicate what they are doing incorrectly, and how they can fix it. It should therefore provide a plan on how to close the gap between the current performance and the expected performance of the clinical skill, as indicated by these students from different focus groups (see Table 4.44).

Table 4.44: What students want from feedback

Participant	Comment
FG5F1	"... say you do something, you perform a task or a skill, and to hear if you have done it properly, or the way it's supposed to be done, and with correction. They don't only tell you okay, you did this wrong and that wrong, but they show you and they tell you how it was supposed to be done".
FG4M1	"You will not improve if you do not know what is wrong".
FG3F3	"Mostly I wanna know what I did right and what I did wrong, so if I did something wrong I wanna know what I did wrong and how I can do it better so that I can improve on it and even if you did something right it's just good to know that you were doing it the right...".
FG1F4	"it's not helpful if they just say you cannot do this... you [lecturer] have to say you cannot do this because ...".

For some students it is clearly not just about passing the OSCE at the end, but the feedback should also enable them to perform the skill adequately in the future on patients in the clinical area:

"I think obviously if you are doing wrong, then you have to hear that you are doing it wrong, especially because a lot of the time these are things you are going

to have to perform on real people, so you know you can't afford to make even the smallest mistake" (FG5F11).

Even though students in this study preferred feedback that told them exactly where they went wrong, some students indicated that the feedback message should be conveyed in a motivating way (see Table 4.45).

Table 4.45: Feedback that is motivating

Participant	Comment
FG5F1	"But I think it also, the way it's said to you makes a huge difference. If its building then you're like okay, yes, I have to, you know, you don't have that kind of resentment sometimes if somebody is just like no! ... It's helpful if somebody is like okay, I see what you tried to do there, but no, you need to, you know. If it's constructive it makes a very big difference, I think".
FG5F2	"Because if somebody is going to say it's completely wrong, you can't just say that statement. It's empty if you're just going to say it, so you'd better show me how to do it properly, if you're going to say it's completely wrong".
FG5M1	"Because if you now decided to say it was completely wrong, there is very much a possibility that when the next session comes, I'm going to dread coming here. That is going to have a negative effect on future times when it happens...So it's definitely, there is no two ways about it, you have to tell someone if you are not doing it correctly, but it's all about delivery".
FG3M3	"And it feels good to know that you're doing something right as well".
FG1F8	"I think the most important for me is that it [feedback] should not be destructive but constructive and that it focuses on the areas that you can improve on".
FG1F4	"I think it's good, confidence boosting, when the things you do well is raised, because it helps you in future, I am actually good at this, I can do this".

The students further added that a positive learning environment could make a difference in whether students were willing to seek feedback (see Table 4.46).

Table 4.46: Feedback seeking in positive learning environment

Participant	Comment
FG3M2	"And ja I just want to add on what she said, we can see there's a lot of effort coming from the staff side to actually improve things or to see where they can do better and you know, ja in a sense we do appreciate that and we can see it and it makes the whole atmosphere just positive ja in that sense, so and when things are positive you feel much more comfortable and we are willing to actually go one-on-one with the staff or actually ask more questions uhm ja that really does make a difference".
FG5M1	"I feel there is very much an inclusive atmosphere in the clinical skills lab...Especially language is a huge issue in other modules, but here most often than not, I leave having

	understood what is happening, and even when they do speak in Afrikaans, there is always an attempt to then sort of try and switch into English so that we leave having understood, not frustrated. So that's a very big one for me. Yes, and just there is a genuine care for students I feel, and that's cool".
FG5F2	"But in the skills lab it definitely is a more positive experience, throughout my years that I have been here. Everybody has been so willing to help, so willing to help us to progress to be what you ultimately want us to become when we go out there and become doctors."

4.3 DISCUSSION OF FEEDBACK EXPERIENCES IN THE CLINICAL SKILLS CENTRE

The previous section (4.2) provided an overview of the empirical data collected from the observations of learning sessions, the individual interviews with lecturers and the focus group interviews with the students. The following section will provided an integrated view of the combined experiences on feedback on the learning of clinical skills in the CSC. The empirical data will also be compared to the components of a self-regulated feedback model (Molloy & Boud, 2013) to explore the possibilities of integrating such a model in the clinical skills learning sessions.

From the observations of the learning sessions it became evident that lecturers do provide feedback or some information on performance to the students during the learning sessions (see Table 4.2 and Table 4.3). Lecturers also report on the provision of feedback during learning sessions (see Table 4.5). However, the students do not necessarily recognise the guidance and corrections during learning sessions as feedback (see section 4.2.3).

It became clear from the data (see Table 4.12) that students associate the term 'feedback' with the information they receive after a summative assessment, such as a test or an examination. Feedback after assessment was the strongest theme which emerged from the data, with more than 80 quotes referring to this. The guidance and corrections from lecturers during learning sessions may be regarded as part of the teaching and students may not recognise the guidance they receive during clinical learning sessions in the CSC as feedback. Students seem to link the practice of feedback, or the lack thereof, to summative assessments and do not think of it as a formative activity during a regular learning session.

4.3.1 Feedback after assessment

Traditionally, feedback was not provided after an examination like an OSCE to MBChB students in the CSC. The students from this study indicated that feedback after an assessment is important for them to improve their future performance of the skill, especially where patients are involved (see

Table 4.15). The lecturers in the CSC have however adopted an approach in the last few years that students will receive individual feedback on their clinical skills OSCE if they would ask for it. It is however the experience that only the students who fail the OSCE seek feedback. The other students go on holiday or an elective immediately after the examination and then progress to a next level. An initiative to reach more students was to send general feedback to the class representative and then invite students to seek individual feedback. However, lecturers have found that students do not return for this feedback (see Table 4.8). This may be related to students already moving on to a new learning phase. Some students were however not aware that they could come back for feedback, which seems due to a perception that it is not something that happens at the Faculty of Medical and Health Sciences (see Table 4.13).

Not many summative assessments are linked to the clinical skills modules. Therefore, even if students receive more feedback after the summative assessments, it may not benefit the students during the year when they learn these skills. There is thus a missing link between the feedback during the learning sessions and the summative examination. Ideally, students should come back to the CSC after each learning session, with an opportunity to perform the clinical skills again and receive feedback on their learning. Although students are encouraged to come and practise their skills at any time, these will be unscheduled sessions and lecturers may not be available to provide feedback during such practise opportunities. It is however also the lecturers' experience that not many students return for these voluntary practise sessions, while some students also confessed to not making use of these opportunities (see Table 4.33).

The focus in feedback may well be shifted away from the lecturer to the role of the student. If students learn to become more efficient self-regulated learners, it may decrease their need to be assessed and receive feedback from lecturers. In the self-regulated feedback model as suggested by Molloy and Boud (2013) students can learn to be more self-regulated when they are exposed to opportunities to develop their self-assessment skills. These skills can be practised, especially when they participate in peer feedback activities. During the peer feedback activities, students may practise generating feedback according to well-defined standards of performance and examples. It is during these peer feedback activities that peers can engage in dialogue with each other, and even with the lecturer to seek feedback when more feedback is needed. High quality feedback provided to students may be more effective when it is motivational (Nicol & Macfarlane-Dick, 2006) and the empirical data indicated that the students in this study also prefer this (see Table 4.45). Feedback may also be more beneficial when it allows for closure of the gap between the current and expected performances. Students can then compare the judgements from the lecturer and the peers with their

self-evaluation in order to develop a plan to close the gap. Furthermore students may be allowed sufficient opportunities to perform the skills in future.

4.3.2 Orientation to the standards of performance

Criteria are important to guide students and provide specific examples of what constitutes good performance (Nicol & Macfarlane-Dick, 2006; Issenberg and Scalese, 2007). Such criteria are necessary in guiding their own performance of a clinical skill and when generating feedback to a peer, and the empirical findings indicate that lecturers include this in clinical skills learning sessions (see Table 4.4). The students referred specifically to the information provided on SUNLearn, which includes the outcomes of the session, the peer assessment sheets that provide the steps of the clinical skills, and demonstration videos (see Table 4.17, Table 4.18 & Table 4.19). Although the videos and other information are available, not all students watch or read these before a learning session (see Table 4.18). Fortunately, the demonstrations at the beginning of a session also provide a guide as to how the procedure should be performed. Additional to the video and demonstrations, the students can use the peer assessment sheets for practising during the learning sessions, as well as when they return to practise at a later stage. It is however important to note that the peer assessment sheets on their own are not sufficient to guide learning; they have to be used in conjunction with a visual example such as a video or a demonstration. This is in accordance with the various methods describing best practice for learning a clinical skill, where students need to watch a demonstration (Peyton in Lake & Hamdorf, 2004: 327; George & Doto, 2001; Nikendei et al., 2014).

The criteria should however not limit students in their thinking processes. When the criteria are very specific, with a list of things to do in a specific order, there is risk that students will not move beyond or outside the boundaries of the list of criteria and therefore not take initiative or even think logically about the procedure. An example in the clinical skills centre is the various 'sterile procedures', like insertion of a catheter. The procedure indicates that it is a sterile procedure, with the assumption that students will apply the principles of sterility when performing this procedure. Unfortunately, some students become so conditioned merely to follow all the steps of the criteria that they will only perform those steps and not even realise that some principles are not specifically listed. The students in one of the focus groups had a discussion around sterility and what it means. They were debating the feedback they received on their video assessment, for instance that they had to remove their watches. Although it is indicated on the peer assessment sheet that it is a sterile procedure, they argued that it did not state on the peer assessment sheet that they had to remove

their watches, and therefore it could not simply be assumed that students would remember it, even though they had theoretical learning sessions on principles of sterility.

Perhaps the solution is not to attempt to list everything that could possibly be required in all situations of performing the skill, because you would either end up with a list so long that it would not be useful, or it would probably be impossible to include everything for every possible scenario. It is important that the list of criteria should be practical and short enough for students to refer to in the clinical setting. If the list is too long, it may not be user-friendly, and that may limit its use.

Unfortunately some students may feel that the peer assessment sheets are useful in the CSC, but not in the clinical setting (see Table 4.20 & Table 4.21). The reason could be that they only learn for assessments. Some students even suggested the lecturers add a voice-over to all the demonstration videos, explaining what they will be marked on in the OSCE. It may however be that students feel the criteria are not achievable in the clinical setting. Students often complain that they do not have the same resources in the clinical setting as in the clinical skills centre, and never enough time.

It is clear that students value the list of criteria, even if some only value it to pass the OSCE. The students' perceptions of the relevance will have implications for future revision of the clinical skills learning sessions, to ensure compatibility in a changing world.

“We do critique our sessions continuously and discuss them with one another, by doing this I believe that we will not become complacent but will continue trying to improve...” (L4).

Students do practise their skills using the criteria, even if it may again only be for examination purposes. There is, however, some evidence that the students and the clinicians in the clinical setting value the learning that occurs in the CSC.

It is during these practice opportunities that students may potentially assess their own performance, receive high quality information, generate feedback to a peer, start a dialogue with a peer or lecturer and be given a chance to close the gap.

4.3.3 Opportunities to practise and self-evaluate

To receive feedback on the performance of their clinical skills, students need to practise their skills while being observed (George & Doto, 2001). Opportunities to practise the performance of clinical skills emerged as one of the themes from the data. A distinction can be made between practice opportunities during learning sessions (see Table 4.2 & Table 4.3), compulsory follow-up individual practice sessions for formative feedback, and then optional (but recommended)

opportunities where students come back to the CSC to practise when they have the need. Although students initially did not link feedback to these practice opportunities, they did seem to recall some feedback related to these sessions after some probing.

Even if all students have an opportunity to practise, they do seem to prefer sessions where there is a manikin for each student. Students can become bored when they have to wait around for their chance to practise (see Table 4.31). An important theme emerging from the data, was the students' enthusiasm to engage in practise time during the sessions. Although students generally seem to enjoy the clinical skills sessions, aspects that negatively affected their enthusiasm decreased their willingness to participate in practise opportunities and therefore limited their feedback opportunities or their responses to feedback. The most prevalent aspect seems to be the timing of the sessions (see Table 4.30). The clinical skills sessions occur when students are on clinical rotations, not during theoretical blocks. Almost all of the clinical skills sessions are scheduled during the afternoon, when students have already spent many hours during the morning in the clinical setting. Students seem to agree that they are tired in the afternoons and just want to finish the clinical skills sessions as fast as possible.

The timing of the session also relates to the timing within the clinical block. Unfortunately students cannot all attend a clinical skills session on the first day of each rotation. Due to the size of the student numbers, they are divided into groups and it sometimes happens that some students only have a session towards the end of the clinical rotation. This then also leads to a lack in motivation and students not seeing the relevance of the session. Other aspects decreasing students' enthusiasm to practise is the length of the session, the number of clinical skills per session, as well as the size of the group in relation to the number of manikins available (see Table 4.28 & Table 4.31).

There is evidence that undergraduate medical students need between five to ten trials in a clinical skill to reach a performance plateau (Loukas et al., 2010). Unfortunately, student numbers and time constraints may not allow for more structured sessions where students can practise while being observed by and receiving feedback from a lecturer. Students are therefore encouraged to come to the skills centre to practise their skills in times not allocated to clinical skills sessions, therefore mostly during their off time. Additionally, students have two compulsory follow-up sessions for practise and feedback in their third year and one in their fourth to fifth year.

According to Boud and Molloy (2013b: 2), the feedback process is started by what the lecturer says to the student, but the process is only complete when the student acts. The students may immediately change some aspect of their performance during a learning session, but it was not

possible to evaluate whether it actually changed the students' behaviour when the skill was performed the next time. Time constraints and student numbers do not allow the lecturer to observe a student more than once during a learning session, or even observe all students performing complete clinical skills (see Table 4.29). Students may not return to practise their clinical skills again, or if they do, they may not be with the same lecturer for follow-up sessions. The skills sessions are once-off sessions and it may not be possible to evaluate the value of feedback provided during these sessions. During a next session a new skill is learned, which may be completely unrelated to the previous skill. The same lecturer as before may also not be present. The next opportunity the lecturer may assesses the student's performance on the specific skill will only be during the summative examination, except if the student comes to practise in their own time. If a student returns to practise, the same lecturer may not be available for feedback, or even remember what the student's previous level of competence, deficiencies or improvement plan was.

Students are encouraged to come back to the clinical skills centre to practise their skills. The CSC has a policy that students are always welcome to practise, except on days when examinations take place. There may not be a lecturer available to assist with the practise session, and sometimes space for practise is created in the hall when all the other venues are occupied. The students are however informed that they should use opportunities to practise, using the resources (discussed under criteria) to guide their practice.

One of the students suggested the inclusion of peer learning in sessions to counteract the lack of enthusiasm. It therefore seems to be beneficial to include peer learning and peer feedback in the learning sessions. With the voluntary practice sessions students are encouraged to bring a peer along. There may not be a lecturer available on any given day (due to other responsibilities) and therefore the peer can potentially provide some feedback. Unfortunately not many students make use of opportunities to come and practise on their own. This is evident from the quotes by students in different focus groups, as well as from lecturers.

Primarily unscheduled voluntary practice sessions occur when students come to practise just before the OSCE. They usually come with peers, but even if they come alone they join other students who are also practising. The students seem to ask each other for help and use the peer assessment sheets as criteria for guidance, but they specifically may seek the feedback from the lecturer at this stage, to ensure they are adequately prepared for the OSCE (see Table 4.41).

The students in this study have been exposed to at least two compulsory follow-up practice sessions designed for formative feedback. The first is an individual appointment session, but students are

encouraged to make the appointment in pairs, or even in groups of up to four students, to facilitate peer learning. During this session, students have to perform two skills they learned at a previous learning session. The students who took part in this study had such a session in their third year, where they had to perform CPR, and in their fourth year they needed to perform two clinical skills, namely defibrillation and synchronised cardioversion.

All of these skills are not often performed in the clinical setting; hence, students may not have an opportunity to practise this in real life. The students are therefore encouraged to practise the skills in simulation before their appointment, to ensure optimal feedback opportunity. Typically, during such a session the students work individually or in a team to perform the clinical skills, and receive feedback from the lecturer and also from each other.

None of the participants in this study made use of this session for their fourth year and therefore none of these sessions was observed during this study, but the students reflected on the session they had in their third year, and the lecturers involved in those sessions referred back to their previous experiences. Students and lecturers were generally positive about this experience and recognised and valued the feedback during this session (see Table 4.26). Some students may not have used the opportunity to practise before their scheduled appointment, meaning lecturers either had to teach the session again by re-demonstrating the skill, or tell students to practise. The lecturers also reported this.

The second compulsory feedback opportunity is linked to a video assignment in the third year. For this assignment, the students had to submit a recording of themselves performing a specific clinical skill. The video was submitted for a mark, but the lecturers were also instructed to provide either verbal feedback concurrently with the video, using special recording technology, or written feedback sent to the student via e-mail. Students valued the feedback from this activity as it helped them to improve their performance in the clinical setting, but also prepared them for the OSCE. The feedback on this specific activity seemed to be powerful, as some students could still remember what they did wrong (see Table 4.24). Although the students indicated how valuable the feedback was, one lecturer was specifically concerned about the efficiency, as no students (who performed poorly) came back to practise the skill again or to clarify the feedback. Having been part of this project myself, however, I did experience students communicating and asking for clarification on their feedback.

With the recording of the video students used the peer assessment sheets and video demonstrations as a guide. The instructions to the students were to submit their best performance of the clinical

skill, and therefore encouraged self-assessment. Peer assessment and feedback seemed to have been an unintentional consequence, as the peers filming each other provided feedback, allowing students to re-shoot their video and improve on their performance. Some students admitted to re-shooting their video many times until they had the best performance.

The video assignment seems to be an effective practice opportunity, forcing students to practise until they got it right (see Table 4.25). Additionally, it allowed for some unintentional peer feedback, which is necessary for the development of self-evaluation skills.

Students' ability to evaluate their own performances seems crucial to enable them to be open to information provided by others on their performance, and to allow them to use this information from others to change their own behaviour (Boud & Molloy, 2013a). This may be beneficial in the context where the lecturer cannot evaluate the students' development over time by providing information on performance on multiple occasions. This is especially the case with learning clinical skills in this CSC. Although students attend various learning sessions in the CSC per year, each session may have completely different outcomes to the previous session. A group of students may learn the insertion of an intravenous cannula during the first session, and then basic paediatric CPR during a next session, with no shared performance outcomes between these two sessions. In other instances, students may learn taking of a blood culture in one session and then the insertion of a urinary catheter during a next session. Although these two skills may seem completely different in terms of outcomes, there is a shared performance outcome of maintaining sterility throughout the performance of the skill. This could be seen as an ideal situation to evaluate the student's development over time, but unfortunately, the time between the two learning sessions may be anything from two months to 8 months, and the same lecturer may not be presenting both of these sessions. There is therefore no way the lecturer can evaluate the development and improvement in performance of individual students in terms of the specific learning outcomes. The lecturer cannot know that student A struggled with applying the sterile gloves, or student B contaminated the sterile field with her scarf, or student C scratched his nose with his sterile gloves still on. It may therefore be beneficial if the students can evaluate how they perform against the performance outcomes set, keeping in mind the information they received on their performance in their previous learning session, and then actively seek information from the lecturer or the peer regarding the aspect he or she is unsure of (Molloy & Boud, 2013: 24).

Although the video assessment activity had the potential to encourage self-evaluation, many students did not recognise this as an opportunity for evaluating their own performance. Students may not even feel comfortable with the idea of evaluating themselves as they feel they do not have

the appropriate knowledge and skills. Even some lecturers are not comfortable with the idea of allowing students to evaluate their own performance as they also think students may not have the knowledge and skills to be able to see their own mistakes. Nevertheless, some lecturers do see the importance of self-evaluation for students to learn (see Table 4.11).

Lecturers unintentionally do initiate self-evaluation opportunities where they ask students after the performance of a skill how they feel about their performance or what they think they did well or could improve on. This was observed in several of the sessions, and one student remembered being asked similar questions. As in Molloy's study (2009: 132-134), however, lecturers did not really allow students to answer these questions, and they took over and provided students with their own opinions.

Unfortunately, the students who participated did not really refer to such scenario-based sessions, probably because they had not been exposed to many such sessions. Only one short scenario-based session was observed, and one part of another session. In none of these sessions did students receive guidance when they made mistakes, and they were not provided with an opportunity to identify their own problems. This brings me back to the quote from lecturer interviewee 4, who indicated that students' ability depends on their experience and skill. In both of the scenarios, the students were exposed to new concepts and therefore it could not simply have been expected of them to evaluate their own performance. Self-evaluation needs practice, with clear criteria as a guide.

Self-evaluation is a skill that can be developed, especially with the generation of peer feedback (Nicol & Macfarlane-Dick, 2006; Nicol et al., 2014). The more students are exposed to generating peer feedback, using specific criteria as reference, the more efficient they can become at self-evaluation. When students use the criteria to evaluate a peer's performance, they compare it to their own performance and may already think about adjustments they should make to their own performance. Students did make use of the criteria when they recorded their videos and the peer assessment sheets, in particular, were referred to when determining whether the video was good enough to be submitted.

Even if students do not feel comfortable with the idea of self-assessment, they unintentionally do it when working on an assignment. Students can be assisted to practise this skill by exposing them to activities promoting self-assessment. Although students may not be aware of the self-evaluation, the students reported how the video assignment allowed them to evaluate their own performances.

4.3.4 Students seeking feedback

The seeking of feedback is connected to the producing of feedback to peers. When a student practises evaluating a peer's performance against the standards of performance set by the expert or lecturer, the student may develop an even deeper understanding of the performance standards, and thereby being able to identify more areas of their own performance that they need to seek feedback on (Molloy & Boud, 2013: 25).

Peer-evaluation activities are valuable for two reasons. Firstly, the peer receiving the feedback could possibly use the information to change their behaviour. Secondly, the peer producing the feedback practises evaluating performances against specific criteria. This activity may then assist them in their ability to effectively evaluate themselves and change their own performance (Nicol & Macfarlane-Dick, 2006). The change could bridge the gap between their current and desired performance of the clinical skill. The focus of peer feedback may therefore not be so much on receiving feedback, although this is also beneficial, but on the production of feedback, thereby improving self-evaluation skills. Students in this study seem to realise the potential in learning when providing peer feedback (see Table 4.37).

The use of peer evaluations is evident in many of the learning sessions at this CSC. In some sessions, students were specifically instructed to work in pairs and help each other using the provided peer assessment sheets. In other sessions where students were not specifically instructed to help each other, it was observed they still did so, even when peer assessment sheets were not available. This was especially observed in the sessions where students had their own workstation with instruments like the intercostal drain and dermatology sessions. The students were next to each other, looking at how their peers were doing things, and providing some guidance to each other.

The video assignment was an example where unintended peer evaluation occurred. Many students responded on how they had helped each other during the filming of the videos, and how it had helped them when they made their own videos (see Table 4.35). The feedback on the video assignment can be especially valuable, as the students have an opportunity to look back on their own performance, with the feedback. This compares to the ballerina practising her skills in front of the mirror (Ende, 1983), where the video recording is the "mirror" and the student has the opportunity to self-evaluate by comparing what they see on the video with the feedback they receive.

A trusting relationship seems to be an important aspect in peer evaluation, especially for the peer receiving the feedback (see Table 4.38). Random allocation of peers in a peer feedback activity may

not have the same benefits as when students receive feedback from a peer that they trust. This is especially true for the peer receiving the feedback. This may have implications on how peer feedback activities are structured and confirms that peers prefer peer evaluation activities that are anonymous (Nicol et al., 2014).

For peer evaluation activities to be more useful, students should use the standards of performance to assist with the evaluation. Students seemed to realise the value of referring to the criteria to produce reliable feedback to their peer (see Table 4.39).

Students felt that they would engage in dialogue with the lecturer if they were unsure about the feedback they received from a peer. Dialogue can be useful in peer evaluation to clarify feedback. Students may even be more willing to engage in dialogue with each other than with a lecturer and they then refer to the criteria to initiate the dialogue. This may be due to students being in an equal relationship, with no one having any kind of authority over the other. Even though students might feel more comfortable engaging in dialogue with a peer about their performance, some students still wanted feedback from the lecturer, because they put more trust in the experienced person's knowledge and opinion.

It became clear from the data that the need to receive feedback from a lecturer may be related to students wanting to perform well in the summative assessments (see Table 4.41). Students' learning is often driven by assessment and students may feel the lecturer can provide feedback that will be useful for the OSCE at the end of the year. This links with some students' perception that the peer assessment tools (criteria discussed in 4.3.2) were helpful for performance in the OSCE, but maybe not in the clinical setting.

Although students may not always trust their peers to provide feedback in the clinical skills centre, they do seem to rely a lot on their peers in the clinical area. Many students in this study agreed that they helped each other a great deal in the clinical areas (see Table 4.42).

Even though the focus of this study was only on the feedback experiences in the CSC, it is important to note that students take the peer feedback practices beyond the CSC to the clinical areas where there is no lecturer to rely on. Therefore students may benefit from learning more efficient peer feedback strategies in the CSC that can be used beyond the borders of the clinical skills centre.

4.3.5 Lecturers providing information on performance

Regardless of who provides the feedback, the lecturer or the peer, the information on the performance of the clinical skill should allow the student to use it to improve on their performance.

Some guidelines on the quality of feedback include the following (Nicol & Macfarlane-Dick, 2006: 209-210). Feedback should:

- be provided in relation to pre-determined criteria.
- be provided timely before submission time to allow students to use the feedback and make changes to their performances.
- provide corrective advice, not only strengths and weaknesses.
- be limited to a few comments that can be useful to the student, rather than a long list that is overwhelming.
- prioritise areas for improvement.
- be easily accessible to students.

From the data collected in this study, it is evident that students want the feedback to indicate what they did right and what they did wrong, but it should also include how they can improve, which refers to the closing of the gap (see Table 4.44 & Table 4.45).. It seems more important to students to know what they did wrong. It is only when a student understands what they performed incorrectly, that a plan can be created on how to bridge the gap between the current and the desired performance. According to the participants in this study, the value of knowing what was incorrect seems to correlate with a sense of responsibility towards their interaction with patients. The students seemed to understand the importance of being able to perform the clinical skills in future practices on real patients and therefore they valued the feedback on their performance.

Although students want to hear what they did wrong, the message should also be conveyed in a motivating way (see Table 4.45). There is evidence that lecturers may be reluctant to provide feedback due to fear of emotions like anger or sadness (Cantillon & Sargeant, 2008). The trusting relationship that was highlighted in the previous section where peer evaluation was discussed, seems crucial for a positive atmosphere (see table 4.46) where honest feedback can be provided (refer to section 4.3.4). The students seem to have positive learning experiences in the CSC, which can contribute to them asking for feedback and being open to feedback. If lecturers or peers withhold feedback due to a fear of emotional responses, this can negatively influence learning. Students in this study clearly indicated that they would rather want to know what was wrong in their practice, as it had an impact on their future interactions with patients. Honest but motivating feedback certainly seems more useful than no or 'empty' feedback that does not address the gap.

Additionally, students in this study seemed to prefer verbal to written feedback (see Table 4.27). Verbal feedback may be more beneficial, especially if there are many areas that they can improve on. Contrary to this, students may not identify verbal guidance during a learning session as feedback.

“(Students) saying feedback is written and given personally, not in a group. They said what they had was teaching” (L4).

The verbal feedback is also related to the immediacy of the feedback, especially on their performance of crucial clinical skills. However, according to Hatala et al. (2014), concurrent feedback may increase students’ dependency on feedback in that they will not be able to perform at a later stage without the feedback, or concurrent guidance. Terminal feedback in the example of the CPR performance would not have the same effect on the student’s changing of his behaviour. When the student is able to see immediately how a change in behaviour can improve the outcome of the clinical skill, it may lead to a more permanent change in behaviour.

Lecturers also prefer concurrent feedback (see Table 4.2 & Table 4.3), indicating that problems should be identified as soon as possible and fixed before incorrect behaviour is learned. This is contrary to the suggestion by Hatala et al. (2014) that concurrent feedback leads to a dependence feedback. From this study’s data, there were suggestions that students may be dependent on the feedback, as they were relying on their peer to read the peer assessment sheets to them. The use of concurrent feedback also does not allow the student to employ self-evaluation. If the lecturer, or even a peer, is constantly guiding and advising, the student will not have the opportunity, or even realise the importance of self-evaluation in the feedback for learning process. Intermittent terminal feedback seems to be the preferred feedback in the learning of clinical skills (Bosse et al., 2015), which may allow students to self-evaluate before seeking feedback from peers or the lecturer.

Individual feedback is also important after assessments. Students however seem to realise that it may not be practically possible to give feedback to each individual student after an OSCE, in which case general feedback to the group will also be beneficial.

4.3.6 How students compare and interpret evaluations

Dialogue around the feedback and the information provided on the performance of clinical skills can be seen as an important factor in the success of feedback. If students have the opportunity to discuss and clarify the meaning of the feedback, it may lead to a better understanding of how to close the gap between the current and desired performance. Unfortunately not all students appreciate the opportunity to engage in dialogue around feedback.

It is evident that the student's willingness to engage in dialogue around feedback depends on more than just the student's personality. It also depends on the student's perception of how approachable the lecturer is to this dialogue process. Similar to the discussion around students' willingness to practise their clinical skills during a learning session, students may also be reluctant to engage in dialogue with bigger groups and when they perceive that their peers just want to go home.

Additionally, the opportunity to engage in dialogue depends on the immediate availability of the lecturer and whether the feedback is delivered face-to-face (during a class learning session or an individual session) or at a later stage after completion of the activity (such as the video assignment activity). This was also reflected by the lecturers. In addition, the need for dialogue depends on the student's perception of how detailed the feedback is. Students were particularly positive about the concurrent verbal feedback received on their video assignment, indicating how this can be useful for later reference when they revise the skill.

It may be easier for students to engage in dialogue with peers, rather than with the lecturer, especially if they feel the latter does not agree or understand. This can be due to the relationship differences between peers and lecturers.

4.3.7 Synthesis

The data that were analysed and reported in this chapter point to a number of important findings. Firstly, it points to the fact that students need feedback after summative assessments in the CSC as they see this as important for their future performance of the clinical skill. The students in this study seem to have a need for feedback especially as they progress to a more senior level where they have an increased sense of responsibility towards their patients in the clinical setting.

Secondly, the data have shown that the clinical skills sessions are structured and facilitated by lecturers to ensure students are well aware of the performance standards for the different clinical skills. Students also appreciate the emphasis on these demonstrations and other examples of criteria.

Thirdly, the data indicated that students have opportunities to practise clinical skills during the clinical skills learning sessions, and that many students receive feedback from the lecturer and / or peers during these practise sessions. Lecturers and students in the CSC seem to prefer concurrent feedback, indicating immediately where students can improve their performance of clinical skills. There is however also evidence that students depend on feedback from lecturers to ensure they pass assessments. Learning sessions may however not provide sufficient practice opportunities to allow students to be competent in the variety of clinical skills.

Fourthly, students do seem to trust their peers to provide feedback when they are in the clinical setting. Peer evaluations are also incorporated in clinical skills learning sessions, even when students are not specifically instructed to do so. Students make use of the standards of performance when evaluating a peer's performance of a clinical skill. The evidence further points to the fact that students seem to be aware of the potential benefits of peer evaluations, not just receiving it, but also performing it to produce feedback to their peers.

Lastly, even though the lecturers and students seem reluctant to incorporate self-evaluation, there may be opportunities where self-evaluation activities can be incorporated in clinical skills learning. The data from this study seem to indicate that students are well informed of the standards of performance by receiving demonstrations and being able to access examples of good performance on SUNLearn. The peer assessment sheets also provide guidance on the standards. Students are however not encouraged to perform the skills independently, without constant guidance, and self-evaluate before they seek feedback from peers or lecturers. Furthermore, students do not necessarily embrace opportunities to practise their skills again.

4.4 CONCLUSION

This chapter has described the data analysed from the learning session observations, focus group interviews with students and individual interviews with lecturers. There is evidence that students receive information on their performance of clinical skills, but may not be encouraged to self-evaluate. There is however also evidence that opportunities do exist where the components of Molloy and Boud's self-regulatory feedback model can be applied in the learning of clinical skills in this clinical skills centre. The next chapter will describe the conclusions to this study as well as its implications and limitations.

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

5.1 INTRODUCTION

The importance of feedback in learning clinical skills has been emphasised since Ende's paper on the topic (Ende, 1983), indicating feedback as being key to learning clinical skills. Various methods developed for teaching clinical skills in simulation in clinical skills centres also include feedback as an important component in learning clinical skills. Despite this apparent importance of feedback, there is evidence that students may not be satisfied with the feedback they receive and their performance of clinical skills may not improve due to feedback provided. Improved performance or a change in behaviour furthermore seems to be a key component in definitions of feedback. It may thus be significant to improve feedback practices to enhance students' learning of clinical skills.

As a new lecturer in the clinical skills centre (CSC), I was particularly interested in exploring effective learning strategies related to the learning of clinical skills, especially in a CSC. This led to the development of the research question, with the underlying motivation for the study being a desire to improve my understanding of feedback practices that may contribute to enhancing the learning of clinical skills in a CSC.

In Chapter 1 and Chapter 3 of this study the research question was formulated as: *How is feedback on learning of clinical skills experienced as provided by lecturers and received by students in a clinical skills centre?* The aim of the study was thus to determine how feedback on the learning of clinical skills was provided by the lecturers at the CSC and how students experienced the received feedback on their learning of clinical skills in the CSC. The study was limited to the lecturers regularly facilitating learning sessions in the CSC at Stellenbosch University and the fourth-year group of MBChB students enrolled in the Middle Clinical Skills module at the CSC in 2015. The lecturers were selected for their specific expertise in facilitating learning sessions in the CSC and the fourth-year student group as they were the students with the most experience of attending learning sessions at the CSC at the time of data collection. Empirical data were collected through observations of learning sessions, individual interviews with lecturers and focus group interviews with students. The following five research objectives were set to support the aim of the study and guide the data collection process, namely to:

- describe feedback practices essential to learning and specifically the learning of clinical skills in a clinical skills centre;

- describe current feedback practices used to facilitate the learning of clinical skills at one clinical skills centre;
- determine lecturers' experiences of feedback provision in a clinical skills centre;
- determine how students experience the feedback they receive in a clinical skills centre; and
- explore a framework for potentially improving feedback practices for medical students in a clinical skills centre.

The first objective was achieved with Chapter 2, where theoretical perspectives related to feedback practices on learning, especially learning of clinical skills were explored. The next three objectives were achieved by an analysis of the empirical data as accounted for in Chapter 4. This included the current observed feedback practices in the CSC, as well as the experiences of feedback as provided by the lecturers and received by the students. The last objective was achieved in Chapter 2 where a potential theoretical framework for feedback practices in relation to the learning of clinical skills was identified and then checked against the empirical findings of the study as reported in Chapter 4.

The previous chapter (Chapter 4) ended with a synthesis of the empirical findings of the study related to the theoretical perspectives in Chapter 2. Against these findings a number of conclusions may be drawn which will be presented next.

5.2 CONCLUSIONS

Based on the empirical findings and theoretical perspectives of this study at least four conclusions can be highlighted regarding experiences of feedback provided and received on learning of clinical skills in the CSC case.

First, it can be concluded that the students who practise clinical skills during learning sessions in the CSC regularly receive information on their performance of clinical skills. During the observed learning sessions this information was mostly provided by lecturers and in some instances by peers. Lecturers and peers mostly employed concurrent feedback methods, providing continuous information and guidance along with the student performing the clinical skill. The findings from the theoretical perspectives indicate however that the concurrent feedback method may not be ideal for the learning of clinical skills as it may lead to a dependence on guidance and may not allow students to self-evaluate their performance before seeking feedback. It could not be observed whether the information on performance of clinical skills changed the students' behaviour in future application performances of these skills, as the students were not observed again when performing the same clinical skills, either in simulation or on patients in the clinical setting.

Secondly, one may conclude that students do not have sufficient opportunities to receive feedback on their learning of clinical skills within the CSC. Although it was observed that most learning sessions were structured to allow for practice time, there seems to be inadequate opportunities for each student to be observed by lecturers. Increased student numbers and limited time appears to be main obstacles in allowing lecturers to observe each student performing an entire clinical skill during a learning session. Even though students are encouraged to return to the CSC for voluntary practice sessions, the findings point to the fact that they do not necessarily make use of such opportunities for a number of valid reasons.

Thirdly, one may conclude that the MBChB IV students who participated in this study value feedback, but agree that they do not receive sufficient feedback on their learning of clinical skills. This perception of a lack of feedback is possibly due to students' association of feedback with summative assessments. The clinical skills module does not present the students with many summative assessment opportunities and therefore students may feel that they do not receive feedback. After an OSCE, students only receive their average mark. Although students are invited to return for individual feedback, not many students were aware of this or made use of this opportunity in the past. This may be due to the students being on holiday when the results are announced, where after they progress to a new level of study. The students in this study generally did not perceive the formative feedback they receive on their performance of clinical skills during learning sessions in the CSC as feedback. They did however recognise feedback when it was provided on individual activities such as the video assignment and the CPR appointment. These types of activities are however limited and each student only receive information on performance on one or two clinical skills per year.

Fourthly, one may also conclude that there is room to implement a self-regulatory feedback model within the CSC. The first component of this model, namely the setting of standards of performance, is already implemented within clinical skills learning sessions. Almost every learning session include some kind of demonstration and students can even access the demonstration videos and peer assessment sheets from home or the clinical setting by means of computer or their mobile devices. The second component of a self-regulatory feedback model, the self-evaluation during practise sessions, also seems possible. Students are offered opportunities to practice during every learning session, although not all students make use of such opportunities. Students and lecturers however do not seem to be informed of the potential benefits of self-evaluation. They appear to see self-evaluation as a risk whereby students may believe that they are competent, when in fact they are not. Self-evaluation opportunities may not only benefit students, but may also benefit lecturers who may not need to observe every student all of the time. When students are allowed and encouraged to

practice independently and self-evaluate, they may become less reliant on the constant guidance of their peers and lecturers. The students may then also implement the third component of the self-regulatory feedback model by seeking feedback from peers or lecturers on aspect of their learning of clinical skills that are important to them. The students may then be able to compare and interpret the evaluations from different sources with their own evaluation and develop a plan of action to alter their behaviour, especially to perform these skills in future when no guidance is available.

Finally, lecturers and students reported on follow-up practise activities with the potential for self-evaluation and more feedback at this CSC. These include individual appointments with lecturers to practise clinical skills, the video assignment where the students have to submit a recording of them performing a clinical skill, as well as voluntary practise sessions, usually with peers. None of these activities was however observed during the data collection period of this study. Nonetheless, the students and lecturers reported on the positive experiences with firstly the individual appointments, as the student value the opportunity to be observed and receive personal feedback one a one-on-one basis. Lecturers also appreciated the value of this activity, but reported on it to be very time consuming. The students and the lecturers valued the video assignment activity as it forced students to practise the clinical skill several times. This activity was also viewed by the lecturers as beneficial for students, but time consuming for the lecturers. On the voluntary practise activities students reported to not making use of opportunities to practise in their own time, except before the OSCE. The students in this study seem to prefer feedback during these practise opportunities from the lecturer and not from peers. This may possibly be due to assessment driving the students learning, as the feedback seems to be important for them to pass. The students do however seem to trust feedback from their peers when they perform the clinical skills in the clinical setting on patients.

5.3 IMPLICATIONS

The findings and conclusions from this study may have implications related specifically to feedback practices during clinical skills learning sessions, feedback after assessments, and future research into feedback practices for the learning of clinical skills.

5.3.1 Implications for feedback practices during clinical skills learning sessions

Firstly, for the learning of clinical skills, the findings from the theoretical perspectives of this study imply that feedback on the performance of clinical skills may be more effective if students learn to self-evaluate their performance of clinical skills. It therefore demand a strategy to be developed to

inform lecturers and students on the role and importance of feedback, and specifically the role of self-evaluation in the feedback process.

Secondly, the curriculum may need to be revised to incorporate more self-evaluation activities. The learning sessions specifically may need to be re-structured to allow more practise time that includes self-evaluation and peer evaluation as part of the practise times. The amount of practise time may be increased by refraining from adding too much theory and lectures in the learning session. Although the best-practice methods for learning clinical skills promote two demonstrations by the lecturer, time may be saved on these activities by encouraging students to watch the demonstration videos on SUNLearn before they attend the sessions. The videos are already available for this purpose, but lecturers prefer to demonstrate the skill at the start of a learning session due to not trusting students at this self-regulated activity. Students are aware that the demonstrations will occur at the start of the session, so they will not see the need to prepare before the sessions. It should however be emphasised that students need allocated time for this preparation. It cannot be expected of students to prepare for sessions during times when they are expected to be in the clinical setting.

Thirdly, lecturers may benefit from learning to refrain from constantly guiding students, and allow them to self-evaluate and be involved in peer evaluations before providing information on performances. Although lecturers may feel the need to intervene immediately when a student make a mistake, it is important to allow students to make mistakes. The CSC already provides the safe environment where mistakes are allowed for learning to occur, and it seems the ability to self-evaluate may contribute more to learning than concurrent feedback. Furthermore, concurrent feedback may even be detrimental to students' learning as they may become reliant on the continuous guidance. With constant guidance and no self-evaluation, there are no opportunities to compare different evaluations and develop their own plans to bridge the gap between their current and expected performances. The lack of self-evaluation may also negatively influence students' ability to perform the skill independently in future, especially when no guidance is available in the clinical setting.

Lastly, the opportunities for follow-up practise sessions may be revised to incorporate more peer evaluation and self-evaluation. It may not be possible for lecturers to provide more individual appointment sessions due to time constraints and growing student numbers. Since the start of this study, the video assignment activity for the third year students were adapted to include a self-evaluation and peer evaluation as an explicit outcome. The CPR activity was also revised, where the addition of new manikins providing electronic feedback enabled students to complete this activity as a self-regulated activity, without any assistance from a lecturer.

5.3.2 Implications for feedback after assessments

In the light of the finding that the MBChB IV students value feedback after summative assessments, more effort may be needed from the clinical skills centre to ensure feedback after summative assessments reach the students. The current system of compiling a summary with general feedback may not be beneficial if students do not know how they performed in individual OSCE stations. With students receiving only an average mark, they may be unaware of skills failed in the OSCE. If they are not aware of their individual marks, they may not see how the general feedback is applicable to them. The current practice of providing an average mark may therefore need revision. When students are more used to self-evaluation, they may also be better at knowing when they performed poorly in an OSCE skill, which may prompt them to seek feedback after the OSCE.

5.3.3 Implications for further research

Although this study attempted to explore the feedback experiences within the learning of clinical skills in the CSC, further research on aspects related to a self-regulated feedback model as part of learning clinical skills, may be of importance. This may include an in-depth study of challenges and success factors to implementing such a self-regulated feedback model in the learning of clinical skills. Other studies may focus on aspects of such a model already implemented in a CSC, for example the use of technology to assist with the self-evaluation activity during the learning of CPR, as well as the experiences of students performing peer and self-evaluation as part of their video assignment.

5.4 LIMITATIONS

This study was limited to the fourth-year medical students at one CSC, which decreases the transferability of the results to other contexts or other groups of students.

The student participants were asked to reflect on learning experiences that happened some time ago. For instance, the video assignment activity and the CPR activity took place about six to 12 months before the inquiry, and none of the students participated in such activities during the data collection period. It was however important to obtain data from these activities as the potential for self-evaluation in these kind of activities were identified as high.

5.5 CONCLUSION

A self-regulated model of learning and providing feedback does not mean that the role of the lecturer becomes obsolete. On the contrary, lecturers have important roles in providing students with opportunities to develop self-regulated learning abilities. In a changing higher education

environment with ever higher demands and increased student numbers, it is however not possible for lecturers to spend excessive individual time providing feedback to students. Students providing feedback to each other based on clear criteria and performance standards, and learning from such feedback to evaluate their own performance is therefore much better than no feedback at all. Although the findings of this study did not reveal an ideal position, the CSC has to deal with the realities it is presented with. The learning of clinical skills in safe and low risk learning environments remains an important challenge in medical education to achieve at acceptable levels of effectiveness and efficiency. The search for such a position needs continued inquiry and exploration.

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ADDENDUM A:

PARTICIPANT INFORMATION AND CONSENT FORM

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM (Students)

TITLE OF THE RESEARCH PROJECT:

Experiences of feedback on medical students' clinical skills performance in a clinical skills centre.

REFERENCE NUMBER: S14/08/165

PRINCIPAL INVESTIGATOR: Ms C van der Merwe

ADDRESS: Clinical Skills Centre, Centre for Health Professions Education, Faculty of Medicine and Health Sciences, Stellenbosch University

PO Box 241, Cape Town, 8000

CONTACT NUMBER: 021 938 9830 (w) / 082 994 0164 (mobile)

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the study staff 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 Practise and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

The purpose of this research study is to explore the feedback practices experienced by medical students on the performance of clinical skills in the clinical skills centre. Focus group interviews as well as observations during teaching sessions at the clinical skills centre will be conducted at the Faculty of Medicine and Health Sciences.

Why have you been invited to participate?

You have been invited to participate because you are a fourth-year medical student during 2015 and you have completed various rotations at the clinical skills centre.

What will your responsibilities be?

If you agree to participate in this study, you will be asked to attend a focus group interview with other fourth-year medical students.

A transcription of the interview will be sent to you after it has been transcribed in order for you to verify that the information is correct.

Your name will not appear on the transcription of the interview. You will only be identified by means of a randomly allocated number.

During some of the sessions you attend at the clinical skills centre, the researcher will observe the feedback practices utilised during the teaching and learning of clinical skills.

Will you benefit from taking part in this research?

The information that is obtained from this study may be useful scientifically and possibly helpful to others. While there may be no direct benefits to you for participating in this study, we hope to better understand the practices of feedback in the clinical skills centre. This may improve feedback practices, which may improve the teaching and learning of clinical skills in the clinical skills centre, but this is not guaranteed.

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

You will not be exposed to any risks while taking part in this study.

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

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

Who will have access to the study records?

The audio record of the interview will be held in a password-protected computer. The transcript of the record will be numbered only with a random number allocated to your focus group and also stored on a password-protected computer.

Appropriate feedback will be given to the MBChB programme committee.

Study monitors and Research Ethics Committee members may only inspect the anonymised records.

The recordings and transcripts will be destroyed after the research has been completed.

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

You will not be paid to take part in this study.

Is there anything else that you should know or do?

You can contact C van der Merwe at cvandermerwe@sun.ac.za or tel 021 938 9830 if you have any further queries or encounter any problems.

You can contact the Health Research Ethics Committee at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the researcher.

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 Experiences of feedback on medical students' clinical skills performance in a clinical skills centre.

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*) 2015.

Signature of participant
witness

Signature of

Declaration by investigator

I (*name*) declare that:

I explained the information in this document to

I encouraged him/her to ask questions and took adequate time to answer them.

I am satisfied that he/she adequately understands all aspects of the research, as discussed above

I did/did not use an interpreter. (*If an interpreter is used then the interpreter must sign the declaration below.*)

Signed at (*place*) on (*date*) 2015.

Signature of investigator

Signature of witness

Declaration by interpreter

I (*name*) declare that:

I assisted the investigator (*name*) to explain the information in this document to (*name of participant*) using the language medium of Afrikaans/Xhosa.

We encouraged him/her to ask questions and took adequate time to answer them.

I conveyed a factually correct version of what was related to me.

I am satisfied that the participant fully understands the content of this informed consent document and has had all his/her question satisfactorily answered.

Signed at (*place*) on (*date*)2015.

Signature of interpreter

Signature of witness

ADDENDUM B:

INTERVIEW GUIDES

GUIDE FOR FOCUS GROUP INTERVIEWS (STUDENTS):

Question 1:

Tell me about your experiences of learning clinical skills in the CSC...

- The format of the sessions...
- How do you know what is expected of you? **Criteria** (demo's? peer assess sheets? Videos?)
- Practise opportunities?
- Guidance / Feedback? From who? (lecturer, peer, computer?)

Question 2

What does feedback mean?

- Determine what students understand around the term 'feedback' and also 'feed forward'.
- Provide a definition of feedback to ensure all students understand

Question 3:

Tell me about your personal experiences of receiving feedback in the clinical skills centre.

- Is it common practise?
- Who generally provide the feedback (lecturers / peers / simulators?)
- How did you feel about the feedback experiences? How does it make you feel when you receive feedback? (**Motivated, embarrassed?**)
- What kind of feedback do you prefer? Strengths, weaknesses, corrective...
- **Dialogue?** (clarify??)
- How did you react to the feedback?
- What do you think the impact of the feedback was on your performance of clinical skills
- When you do not receive feedback...(during sessions, after OSCE) – do you seek? When counting marks, do you look at feedback?

Question 4:

Tell about opportunities you have to assess your own performance and progress in the CSC...

- Practise on your own?
- According to criteria?
- When performing skills in clinical setting, how do you rate yourself?
- Bring a **peer** with? How does the peer help you??
- Think about your catheter video last year: how did you decide it was good enough to submit?

GUIDE FOR INDIVIDUAL INTERVIEWS (LECTURERS):

Question 1:

Tell me about your experiences of teaching clinical skills in the CSC...

- The format of the sessions...
- How do you make sure the students know what is expected of them? **Criteria** (demo's? peer assess sheets? Videos?)
- Practise opportunities?

- Guidance / Feedback? From who? (educator, peer, computer?)

Question 2

What does feedback mean?

- Determine what lecturers understand around the term ‘feedback’ and also ‘feed forward’.
- Provide a definition of feedback

Question 3:

Tell me about your personal experiences of providing feedback in the clinical skills centre.

- Is it common practise?
- Barriers?
- When do you provide the feedback (during / after practise attempts, formative & summative assessments)?
- What kind of feedback do you prefer? Strengths, weaknesses, corrective...
- How do students react to your feedback? / No feedback
- What do you think the impact of the feedback was on the students’ performance of clinical skills?
- Who generally provide the feedback (lecturers / peers / simulators?)
- What do you think about involving peers in the feedback process?
- **Dialogue?** (clarify??)
- What do you think can be done to improve feedback practises?

Question 4:

Tell about opportunities you allowed students to assess their own performance and progress in the CSC...

- Are they able to?
- What will help them?
- **Bring a peer** with?

GUIDE FOR OBSERVATIONS DURING LEARNING SESSIONS:

Skills to learn			
Structure of session (theory, demo, practise)			
Use of peer assessment sheets			
Lecturer	Students		
Ratio of lecturer to students		Do all practise?	
Is opportunities provided for students to practise clinical skills?		Do they help each other during practise time?	
All students observed? Complete / partial skills?		How do students react to feedback?	
Feedback practises: <ul style="list-style-type: none"> • Concurrent / terminal • Related to skills? • Positive vs negative? 		How do students react when no feedback is provided when they practise? Do they seek feedback?	
Making use of peers (students) to provide feedback to each other?		Feedback asked from lecturer and or peers?	
Other observations			

ADDENDUM C: ETHICAL APPROVAL



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Approval Notice New Application

23-Sep-2014

VAN DER MERWE, Charmaine

Ethics Reference #: S14/08/165

Title: Experience of feedback on medical students' clinical performance in a clinical skills centre.

Dear Ms Charmaine VAN DER MERWE,

The **New Application** received on **13-Aug-2014**, was reviewed by Health Research Ethics Committee 2 via Committee Review procedures on **17-Sep-2014** and has been approved.

Please note the following information about your approved research protocol:

Protocol Approval Period: **23-Sep-2014 -23-Sep-2015**

Present Committee Members:

Davids, Mertrude MA
Fernandez, Pedro PW
Rosenkranz, Bernd B
Barsdorf, Nicola
Etoe, Sheila SL
De Roubaix, Malcolm JAM
Engelbrecht, Susan S
Willett, Derrick DWE
Edwards, C E
Holgate, Sandi SL
Botha, Matthys MH
Naidoo, Vikesh VT
Van der Merwe, Anita AS
Jordaan, Gerhardus GP

Please remember to use your **protocol number** (S14/08/165) on any documents or correspondence with the HREC concerning your research protocol.

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

After Ethical Review:

Please note a template of the progress report is obtainable on www.sun.ac.za/rds and should be submitted to the Committee before the year has expired. The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for an external audit.

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

Federal Wide Assurance Number: 00001372

Institutional Review Board (IRB) Number: IRB0005239

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

Provincial and City of Cape Town Approval

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

We wish you the best as you conduct your research.

For standard HREC forms and documents please visit: www.sun.ac.za/rds

If you have any questions or need further assistance, please contact the HREC office at 0219389207.

Included Documents:

- Investigator CV (Bitzer)
- Investigator declaration (van der Merwe)
- Investigator declaration (Bitzer)
- Consent form - Lecturers - General Research
- Protocol
- HREC New application form
- HREC general checklist
- Investigator CV (van der Merwe)
- Investigator declaration (Archer)
- Protocol Synopsis
- Consent form - Students - general research
- Investigator CV (Archer)

Sincerely,

Mertrude Davids
HREC Coordinator
Health Research Ethics Committee 2

ADDENDUM D: INSTITUTIONAL PERMISSION



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29 August 2014

Ms Charmaine van der Merwe
Clinical Skills Centre
Centre for Health Professions Education
Faculty of Medicine and Health Sciences
Stellenbosch University

Dear Ms van der Merwe

Concerning research project: *Experiences of feedback on medical students' clinical skills performance in a clinical skills centre*

The researcher has institutional permission to proceed with this project as stipulated in the institutional permission application. This permission is granted on the following conditions:

- The researcher must obtain ethical clearance from the Stellenbosch University Research Ethics Committee.
- Participation is voluntary.
- Persons may not be coerced into participation.
- Persons who choose not to participate may not be penalized as a result of non-participation.
- Persons who choose to participate must be informed of the purpose of the research, all the aspects of their participation, the risks to participation, their role in the research and their rights as participants. Participants must consent to participation. The researcher may not proceed until she is confident that all the before mentioned has been established and recorded.
- Participants may withdraw their participation at any time, and without consequence.
- Data must be collected in a way that ensures the anonymity of all participants.
- The data collected must be responsibly and suitably protected.
- The data collected may only be used for the purpose of this study.
- Individuals may not be identified in the report(s) or publication(s) of the results of the study.
- The privacy of individuals must be respected and protected.
- The researcher must conduct her research within the provisions of the Protection of Personal Information Act, 2013.

Best wishes,

Prof Ian Cloete
Senior Director: Institutional Research and Planning



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