Introducing formative assessment during Family Medicine clerkship to improve students' clinical skills

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Abstract

Formative objective structured clinical examination (OSCE) provides an experiential learning activity where students can receive feedback on their clinical skills. Feedback can have a very powerful effect on learning. The aim of the change project was to introduce formative assessment of clinical skills during the clerkship training using OSCE. A pilot formative OSCE was implemented on 17 December 2014. Twenty-five students, nine clinical tutors, and one simulated patient participated in the formative OSCE. The formative OSCE included 10 stations. Students rotated around the stations in groups of two or three. One student performed a clinical task in seven minutes while being observed by the clinical tutor and peers, then a five-minute structured feedback followed. The stations exposed students to different clinical skills including breaking bad news, smoking cessation counseling, explaining insulin therapy, explaining investigation results, prescription writing, history taking, and physical examination. Evaluation was through surveys and interviews with participants. Results obtained from the students’ surveys and the focused groups were consistent. Students appreciated the feedback provided during the formative OSCE. A pre-OSCE and post-OSCE confidence level survey showed a significant increase in students overall confidence on the performed clinical skills. In conclusion, formative OSCE provided a structured learning activity that was appreciated by the students and had increased their perceived confidence on the performed clinical skills.
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Chapter 1

Introduction
1.1 Introduction

‘No organization today - large or small, local or global - is immune to change’ (Kotter, 1998). In the era of developing technology, globalization, and increasing competitiveness, change becomes a compulsion (Kotter, 1998). The need to improve or to start a new system would spark off the change within the organization. The change necessitates the collaborative efforts of those involved in the change and those affected by it. These forthcoming chapters address a change that occurred within an educational organization.

This chapter provides a brief outline of the context and the nature of the change, followed by and the rationale for conducting the change. The aim and objectives are then defined. The chapter concludes with the role of the project manager within the organization.

1.2 Context of the change project

The proposed change project took place in a medical college in the Gulf region. The college is part of a large nonprofit higher education institution that has 14 colleges offering a large number of programmes at the Bachelors, Masters and PhD levels in addition to the Community Colleges, which offer higher diplomas. The programmes enroll around 11 thousand students.
The mission of the College of Medicine is ‘to provide education for medical students and medical professionals through the creation of a scholarly environment that fosters excellence in the lifelong goals of education, research activity and compassionate patient care’. The medical curriculum is a six-year programme followed by one year of internship. It is divided into three phases; Phase I which is the ‘Foundation Year’, Phase II which is the ‘Pre-clerkship Phase’ that includes year 1, 2, and 3, and Phase III which the ‘Clerkship Phase’ that comprises year 4 and 5. The total number of students incorporated in phases II and phase III are around 5 hundred students. There are 20 full-time faculty members that are committed to deliver the educational programme through the three Phases.

In the pre-clerkship phase, basic medical sciences are taught in an integrated PBL curriculum. During this phase, clinical skill training plays an important role to develop students’ communication, history taking, physical examination, and procedural skills. The clinical training occurs through simulated patients and role-plays in the clinical skill labs within the college. At this phase, around 12 full-time clinical tutors are dedicated to facilitate the clinical skill training.

In the clerkship phase, there are four clerkship rotations in year 4: Surgery, Medicine, Pediatrics, and Obstetrics & Gynecology. During year 5, students rotate through three clerkships: Surgery, Medicine, and Family Medicine. Each of these rotations lasts for 10 weeks. The clinical training takes place in affiliated government hospitals and primary
health care centers. In these clinical settings, students are supervised by part-time clinical faculty members who are clinician working for the Ministry of Health.

1.3 Nature of the Change

The proposed change project was to introduce formative assessment of clinical skills using Objective Structured Clinical Examination (OSCE) for fifth year medical students during their Family Medicine clerkship. The project manager introduced the change project in stages. Initially, literature was reviewed for similar initiatives to ensure the availability of relevant studies. This was followed by studying the local circumstances of the institute that would permit for implementing the change project then conducting meetings with students and faculty members to explore their acceptability and their suggestions for implementing the formative OSCE. Accordingly, the project manager commenced the planning and implementation for the formative OSCE through continuous communication and consensus with the head of the Family Medicine department and the clinical faculty. The formative OSCE was piloted during the fifth week of the Family medicine clerkship on 17 December 2014.

The formative OSCE had 11 stations in which students rotated in groups of two to three. Each station represented a specific clinical task that one of the group members had to perform in seven-minutes while being observed by peers and one clinical faculty. After that the student received feedback from faculty and peers on their performance. The students took turns in performing the assigned task as they rotated around the stations.
Finally, evaluation was carried out through surveys, focus group interviews with students, and individual interviews with clinical faculty members. The purpose of the evaluation was to determine how well the objectives of the project were achieved. The Health Service Executive (HSE) change model and Jacobs’ evaluation model were followed as guides throughout, to achieve the aim and objectives of the change project.

1.4 Rational of the change

Within the aforementioned institute, there is no established formative assessment during the clerkship phase. The current assessment of clinical skills is through summative Direct Observation Clinical Encounter Exam (DOCEE) and summative Objective Structured Clinical Examination (OSCE). The DOCEE and OSCE are conducted at the end of the clerkship with no feedback provided to students, although feedback is considered as one of the principles of teaching (Harden & Laidlaw, 2013). Feedback allows students to be involved in the learning process, to identify their competency gaps, to make appropriate remedy plans, and improve their performance (Norcini & Burch, 2007; Ozuah et al., 2007).

At several occasions, students have asked clerkship coordinators and clinical faculty members for feedback on their performance during their clinical exams. In most occasions, the only feedback they receive is the grade in their final report. Several studies have also shown that students reported deficiency in the direct observation as well as feedback on their performance during their clinical training (Al-Mously et al.,
2014; Norcini, 2010). The use of formative OSCE has been reported in literature to be an educational method to provide immediate feedback and a learning opportunity for students to identify their strengths and weaknesses and practice their clinical skills (Brazeau, 2002; Hodder et al., 1989; O'Sullivan et al., 2008).

1.5 Aim and objectives

1.5.1 Aim of the change project

The aim of the change project was to enhance a culture of formative assessment of clinical skills during the clerkship training.

1.5.2 Objectives of the change project

The Objectives of the project were

- to implement a pilot formative OSCE to fifth year medical students during their mid-clerkship.
- to facilitate for clinical faculty members to provide feedback to fifth year medical students on their performance during the formative OSCE.
- to increase the confidence of fifth year medical students on their clinical skills performed during the formative OSCE.
- to determine the impediments of implementing future formative OSCE during the clerkship training.
1.6 Role of the project manager

The project manager, who is the writer of these chapters, is employed as a lecturer and coordinator of the Family Medicine clerkship. The nature of the work entails engagement with clerkship students and clinical supervisors in the health centers as well as involvement with clinical supervision and assessment of the students. These roles have assisted the project manager to plan and implement the change project.

1.7 Summary and Conclusion

Formative assessment of clinical skills provides an opportunity for students to receive feedback and improve their performance. The purpose of the change project was to introduce and implement formative assessment of clinical skills to fifth year medical students during their clerkship training. A pilot formative OSCE would be conducted to facilitate for formative assessment.

In the next chapter, supporting evidence from literature on formative assessment and feedback will be discussed. The change process which has been guided by the HSE change model will be detailed in chapter three. Following that, evaluation of the change, using Jacobs’ model, will be stated in chapter 4. Finally, the discussion in chapter 5 draws together the overall stages of the change project, presents a framework model for formative assessment within the clerkship, provides recommendation for future implications, and identify the impact on the organization.
Chapter 2

Literature review
2.1 Introduction

Assessment presents an essential aspect of an educational programme. It has great influence on how students learn and how educators teach (Schuwirth & van der Vleuten, 2011). The current trend in medical education is changing from the traditional viewpoint of an end of course summative assessment to a formative assessment that is part of the daily learning and teaching activities (Schuwirth & van der Vleuten, 2011).

The purpose of this chapter is to review the literature on formative assessment. The chapter is arranged to initially define formative assessment and feedback based on the educational literature, then to determine their underlying principles and to identify their impact on learning. This is followed by pointing out the merits and facets of formative assessment as addressed in medical education literature. Lastly, the chapter delivers a review on studies that have utilized Objective Structured Clinical Examination (OSCE) for formative assessment purposes, pointing out their educational impact and any related challenges.

2.2 Search strategy

For this literature review, the writer searched in PubMed and ERIC databases in the past 10 years using English Language. The key words that were selected in the search strategy included “formative assessment”, which generated 32 items in ERIC and 672 in PubMed; “formative assessment” and “Feedback” and “medical education”, which
resulted in 5 items in ERIC and 28 in Pub med; and “Formative OSCE”, which yielded 3 items in ERIC and 54 in PubMed. The writer then revised the titles and abstracts to choose articles depending on their relevance. Additionally, key author papers that were prominent through the literature search were also revised. Twenty-eight articles were finally included in the literature review.

2.3 Concept of Formative assessment

Formative assessment is a continuous process by which teachers and learners provide feedback to modify teaching and learning, with the intention to improve learners’ achievements during the course (Bennett, 2011). Saddler (1998) referred to formative assessments as an ‘assessment that is specifically intended to generate feedback on performance to improve and accelerate learning’ (Nicol & Macfarlane-Dick, 2006; Sadler, 1998).

Formative assessment is viewed by some authors as ‘instruments’ or as ‘diagnostic tests’ that produce scores which are presumed to have a diagnostic value. These tests are then repeated according to the taught courses. On the other hand, other researchers and educators refer to formative assessment as a process, rather than a ‘test’, that involves the engagement of both teachers and learners. The process will guide modification of the ongoing teaching and learning in order to improve students’ attainment (Bennett, 2011). Bennett (2011) argues that both the process and the
instruments utilized for formative assessment are equally important and complement each other (Bennett, 2011).

Black and William (2009) indicated that formative assessment has three key processes of learning and teaching where the teachers, the learners, and their peers have a shared responsibility. These processes involve establishing where the learners are going, where they are in their learning, and what needs to be done to get them there. To establish where the learners are going, the teachers’ roles would be to clarify to the learners the intended outcomes and the standards for success, whereas the learners and their peers’ role would be to understand the intended outcomes and the success criteria. To establish where the learners are in their learning, the teachers have to create activities for the learners to demonstrate their understanding of the intended outcomes. To establish what needs to be done to get the learners to the standards of success, the teachers should provide feedback that would help the learner to progress. In the last two processes, the students and their peers are actively involved in providing information and feedback to each other through self and peer assessment (Black & Wiliam, 2009).

2.4 Feedback: a key to formative assessment

Feedback is integral to formative assessment (Rushton, 2005). From the medical education literature, feedback is defined as a ‘specific information about the comparison between a trainee’s observed performance and a standard, given with the intent to
improve the trainee’s performance (Ridder et al., 2008). In clinical training, the trainee must perform a clinical task before feedback takes place. Hattie and Timperley (2007) argue that feedback occurs as a ‘consequence’ of performance, and to be effective, there should be ‘a learning context to which feedback is addressed’ (Hattie & Timperley, 2007). Moreover, the clinical supervisor must observe the performance before giving feedback (Norcini, 2010; Ridder et al., 2008). The impact of feedback is determined by how the tutors deliver the ‘specific information’ and how the trainees perceive the information provided (Ridder et al., 2008).

2.4.1 Effective feedback

Feedback becomes more effective and useful for the learner when it focuses on a specific task. Feedback has to be clearly delivered in a non-judgmental manner (Norcini, 2010). In addition, delivering effective feedback requires observing students’ performance during clinical training (Norcini, 2010; Ridder et al., 2008), as well as the active engagement of the students in the process (Black & Wiliam, 2009; Nicol & Macfarlane-Dick, 2006; Rushton, 2005)

2.4.2 Principles of good feedback

The relation between the teacher and the student is essential for feedback to occur effectively. Nicol and Macfarlane-Dick (2006) proposed seven principles of ‘good’ feedback, which requires the student and teacher to work together (Nicol & Macfarlane-Dick, 2006). A good feedback clarifies the expected performance and reduces discrepancy between students’ set-up goals and standards and those of the teachers’.
Poor performance is related to a wide discrepancy between students’ perceived goals and the intended ones (Nicol & Macfarlane-Dick, 2006).

Furthermore, a good feedback provides opportunities to deliver valuable information to students about learning. Nicol and Macfarlane-Dick (2006) suggested some approaches to improve the value of feedback and the information delivered. One approach is to provide corrective advice, rather than just information about strengths and weaknesses. The other approach is to avoid vast amount of feedback and to prioritize the information provided (Nicol & Macfarlane-Dick, 2006). These feedback approaches will enable the students to narrow the gap between their present performance and the intended outcomes. Importantly, teachers need to create opportunities for the students to re-perform or repeat the same task. Re-performance leads to an impact that is more noticeable on learning and hence considered to close the ‘feedback loop cycle’ (Nicol & Macfarlane-Dick, 2006).

Additionally, a good feedback encourages ‘dialogue’ between teachers and students rather than just transmission of information. This means that students have an opportunity to discuss the feedback with their teachers and to understand the expected standards in a better way. Moreover, ‘dialogue’ provides information that the teacher might utilize to modify future teaching.

Lastly, good feedback facilitates the development of self-assessment during learning. Several studies have shown that students who are efficient in self-assessment can
achieve better learning, especially when the self-assessment follows teacher’s feedback (Nicol & Macfarlane-Dick, 2006). Hence, educators recommend to provide training to students on self-assessment and to facilitate activities that foster self-assessment such as students evaluating each other’s work, providing feedback and reflecting during practice and training (Nicol & Macfarlane-Dick, 2006).

Lastly, good feedback enhances positive motivational belief and self-esteem, which play an essential role in learning and assessment. Educational courses, where teachers provided feedback on students’ performance rather than grades, increased students’ motivation to learn and the students would focus on the feedback to improve their performance. In contrast to courses where just grades were provided, the students would focus in comparing themselves with their peers rather than on the feedback (Nicol & Macfarlane-Dick, 2006).

2.4.3 Four levels of feedback

Hattie and Timperley (2007) suggested several types of feedback that are directed towards four levels: task level; process level; self-regulation level; and person level. The feedback that focuses on a task performed by the student provides directions for the students to attain more or different information related to the accomplished task (Hattie & Timperley, 2007). For example, the clinical supervisor may comment to a student who has presented a medical history of a patient, ‘you did not include drug history’. In this example, the clinical supervisor focused specifically on the missing information related
the performed task. This is frequently termed as ‘corrective feedback’ (Hattie & Timperley, 2007).

The feedback that focuses on the process of performing the task, targets the learning process, provokes understanding of the performed task, and provides a guide to the student for searching and planning. Moreover, it stimulates students to put more effort towards learning (Hattie & Timperley, 2007). For example, the clinical supervisor comments to student, ‘including a detailed drug history is necessary to manage the patient better’.

The third level of feedback is directed towards self-regulation that enhances greater skills of self-evaluation and confidence (Hattie & Timperley, 2007). Hattie and Timperley (2007) suggested that the effectiveness of feedback enhances several aspects of the self-regulation process. These include the ability to generate internal feedback and to assess self, the readiness to dedicate more effort for managing feedback information, and the confidence that the performance is correct. Similar to the example mentioned earlier, the clinical supervisor might comment to the student, ‘You already know the importance of drug history in a medical interview, what are the important relevant formations in drug history that you need to include?’

The feedback that focuses on the person is directed towards a personality trait of the student, rather than towards the performed task. Similar to the last mentioned example, the clinical supervisor might comment, ‘you are a good student’ or ‘you were very fast in
taking the history’. Hattie and Timperley (2007) argued that such feedback, which is commonly used by most teachers, adds little to the learning and understanding of the task and its intended learning outcomes (Hattie & Timperley, 2007).

Each one of these feedbacks exerts a different influence on the student. The feedback that focuses on the person is the least effective, while the feedback that focuses on the process and self-regulation is ‘powerful’ in terms of understanding and performing the task. On the other hand, the feedback which is directed towards a task may become ‘powerful’ when the information related to the task is utilized by the students to improve processing, to develop learning strategies, and to enhance self-regulation (Hattie & Timperley, 2007).

2.5 Impact of formative assessment and effective feedback

Several studies from the general and medical education literature have shown that feedback has a powerful influence on students’ achievement and performance (Hattie & Timperley, 2007; Nicol & Macfarlane-Dick, 2006; Norcini, 2010). Formative assessment with effective feedback works to narrow gaps in the students’ understanding, assists teachers to make remedial plans, enhances students’ self-regulation and self-efficacy, and increases learners’ motivation (Black & Wiliam, 2009; Hattie & Timperley, 2007; Rushton, 2005).
2.5.1 Narrowing gap in understanding

Effective feedback narrows the gap between the student’s present understanding and the intended outcomes (Hattie & Timperley, 2007). This is likely to happen through different processes. One process is through affective feedback that enhances the motivation and engagement of the students. This will encourage students to exert more effort while performing the task, become more committed, and believe that success is foreseeable. Alternatively, the gap may be narrowed through cognitive processes that help students to reach the intended goals and to reorganize their understanding by clarifying to the student their strengths and weaknesses, guiding them to rectify their gaps, and providing them with more information as needed (Hattie & Timperley, 2007).

2.5.2 Enhancing self-regulated learning

Nicol and Macfarlane-Dick (2006) argue that adopting formative assessment and principles of good feedback will assist students to self-regulate their learning activities (Nicol & Macfarlane-Dick, 2006). In self-regulated learning, students set goals for their learning and regulate aspects of their thinking, motivation and behavior through an internal active continuous process. The internal feedback, as well as the external feedback provided by the teacher or by peers, influence the self-regulation process and thus lead to internal and external learning outcomes (Nicol & Macfarlane-Dick, 2006). The students must actively be involved in the external feedback in order to influence the internal processes and thus the external outcomes. According to the conceptual model developed by Nicol and Macfarlane-Dick (2006), students who are more effective at
self-regulation can produce better internal feedback, and can achieve better goals and outcomes.

2.5.3 Enhancing self-efficacy

Hattie and Timperley (2007) stated that feedback that focuses on self-regulation enhances students’ beliefs about their capabilities to perform a given task which Bandura (1993) termed as ‘self-efficacy’ (Bandura, 1993). According to him, a high sense of self-efficacy improves personal achievements by different means. Those with high efficacy proceed with challenging tasks with an attitude to understand them while those with low efficacy avoid them and perceive them as a threat. Moreover, people with high efficacy sustain commitment to learning and focus more on the task to improve their performance. Additionally, high self-efficacy raises interest towards and deepens engagement with learning activities. Bandura (1993) argues that those with high self-efficacy can recover faster after failures or hindrances (Bandura, 1993).

2.6 Formative Assessment in Medical Education

The main aim of medical education programmes is to graduate competent healthcare providers, who have the necessary knowledge, attitude, and clinical skills to practice safely. The clinical skills include physical examination, practical procedures, communication, and management skills (Michels et al., 2012). Studies have shown that feedback during clinical training improves interviewing and communication skills,
physical examination skills, procedural skills, problem based learning, team building, and personal and professional behaviours (Perera et al., 2008).

2.6.1 Planning a curriculum with formative assessment

Incorporating activities that will foster a culture of effective feedback and formative assessment as a part of the learning and teaching is a necessity. It entails careful planning, implementation, and evaluation. Setting clear guides for integrating formative assessment into the curriculum and providing adequate training to the teachers, are important requisites when planning the educational programmes (Bennett, 2011).

Formative assessment must be an ongoing process in which the ‘evidence’ from the assessment is used to adjust teaching and respond to students’ needs. Implementing formative assessment throughout the module or course provides a spaced opportunity for the students to learn. Similarly important, is choosing a suitable timing for the formative assessment and feedback to take place that is appropriate to the students’ learning activities (Evans et al., 2014; Wood, 2010).

Teachers and curriculum organizers need to create a non-threatening environment for formative assessment and feedback to occur. Students should be able to converse comfortably with their clinical supervisors without the fear that the discussion might affect their final grade or reduce their self-esteem (Evans et al., 2014; Wood, 2010). The environment could be created in the classroom, in a simulated setting, or in a clinical
setting. This could either be through the daily training or through structured formative assessment of clinical skills using different methods.

2.6.2 Method of implementing formative assessment

Formative assessment was introduced in medical education programmes with different activities and tools. Audience response technology was used in an innovative approach to accommodate large classes where educational game competitions were employed for formative assessments purposes (Schlegel & Selfridge, 2014). Similarly, Direct Observed Procedural Skills (DOPS) has been utilized to deliver feedback to undergraduate medical students on their procedural skill in a simulated workplace setting through tutor, peer, and self-assessment (McLeod et al., 2012). Formative assessment with peer feedback has also been implemented in the undergraduate clinical training using in mini-CEX (Bennett et al., 2012).

2.7 Formative OSCE during clinical training

Harden et al. (1975) described the OSCE to assess clinical skills consistently and objectively. Since then, the OSCE has been utilized for both summative and formative purposes during the clinical training (Harden et al., 1975). The use of OSCE as a method of formative assessment has been reported in different clinical specialties. O'Sullivan et al. (2008) described a pilot three-stationed OSCE for postgraduate medical, dental, and psychiatric trainees. The trainee performed a task where their interpersonal and communication skills were assessed. Students received immediate
feedback from expert faculty and the simulated patient. The candidates who participated in the formative assessment valued the immediate feedback given (O'Sullivan et al., 2008).

Similar findings were reported in studies from a variety of postgraduate and undergraduate specialties including obstetrics, psychiatry, gastroenterology, dentistry, nursing, medicine, and primary care (Brazeau, 2002; Chander et al., 2008; Chandra et al., 2009; Larsen & Jeppe-Jensen, 2008; Rentschler et al., 2007; Stein et al., 2005). In these studies, educators were able to identify gaps in the skills of the students and accordingly, provide guidance for their students in setting learning goals (Chander et al., 2008; Larsen & Jeppe-Jensen, 2008; Rentschler et al., 2007; Stein et al., 2005). In the study reported by Stein et al. (2005), the data from the formative assessment feedback was used to design a new substance abuse curriculum for internal medicine residents (Stein et al., 2005).

2.7.1 Formative OSCE with element of peer and self-assessment

Black and William (2009) have emphasized the role of peer and self-assessment as important activities. They enhance the development of students' autonomy and their ability to learn, when applied in formative assessment (Black & William, 2009).

A formative OSCE with an element of peer and self-assessment was conducted for undergraduate dentistry students. The OSCE included a station in which a written task was exclusively evaluated by the students and their peers (Larsen & Jeppe-Jensen, 2008). The students appreciated the peer and self-assessment. However, there was a
wide variation on the average score given by students, indicating that more training of students on peer and self-assessment was needed (Larsen & Jeppe-Jensen, 2008).

Similarly a peer-assisted OSCE was conducted in preparation for a summative OSCE, were fourth year medical students facilitated the implementation of OSCE and provided structured feedback to third year medical students. The peer-assisted OSCE was highly appreciated by participants. Third year medical students valued the feedback and reported improvement in their confidence while fourth-year medical students gained valuable teaching skills (Young et al., 2014).

2.7.3 Formative OSCE using audio recorded feedback
An innovative educational OSCE was developed which utilized audio recording to facilitate opportunities for examiners to provide feedback after summative OSCE. I-Pads with specially developed applications have been used to record examiners’ verbal feedback. Those records were later conveyed through a website after the OSCE. The recorded audio feedback made it possible for all students to receive personalized feedback on their performance in the OSCE station. The method was acceptable to most of the students and examiners. Most students appreciated the audio feedback (Harrison et al., 2014). A major drawback reported by the examiners was the lack of time to record the feedback; others expressed difficulty in providing feedback.

There are several limitations in the discussed studies. The studies did not assess improvement in the students’ performance following the feedback. Another reported
limitation in these studies was, the extensive time and resources needed for the implementation of the formative OSCE.

2.7.4 Cost-effective formative OSCE

During a postgraduate psychiatry training, a cost-effective training method was conducted. The OSCE was designed in a single station format and repeated weekly for 6 months covering different relevant clinical encounters. One trainee acted as a simulated patient another performed the task and others observed. The feedback was provided by the observing trainees and by the trainee acting as the stimulated patient facilitated by the expert faculty (Chandra et al., 2009).

2.8 Summary and conclusion

In summary, formative assessment plays an important role in teaching and learning. For achieving positive impact on learning, formative assessment has to be an ongoing process that requires continuous contribution of teachers and students. Effective feedback has a powerful influence on learning. Successful implementation of formative assessment requires careful planning of the curriculum and training of faculty.

In medical education programme, different methods are utilized for formative assessment. Formative OSCE has been an acceptable method for providing feedback to students’ clinical skills in different specialties for both undergraduate and postgraduate medical education.
Based on this literature review, the writer believed that a pilot formative OSCE could be planned and implemented in the writer’s institute. The change methodology will be detailed in the coming chapter guided by the HSE model.
Chapter 3

Change process
3.1 Introduction

‘It must be considered that there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things’ (Kotter & Schlesinger, 2008). This chapter begins by providing a discussion on three approaches to change: Lewin’s, Kotter’s, and Contingency change models. This is following by a detailed account of the Health Service Executive (HSE) change model and the rational of choosing the model by the project manager. The HSE change model provides a comprehensive guide through its four stages: initiation, planning, implementation, and mainstreaming. The chapter then concludes by stressing the main issues of the change process.

3.2 Approaches to change

It is important before initiating a change within an organization to identify where it is now and where it needs to be in the future, and more importantly how to manage the changes required to get there (Todnem, 2005). Although successful management of change is considered a requirement in order to survive and succeed in today’s highly competitive and continuously demanding environment, it is estimated that two thirds of organizational change projects fail (Mitchell, 2013; Todnem, 2005). The failure may be due to lack of a suitable structure of how to bring about and manage an organizational change (Todnem, 2005). Failure may also be a result of moving too swiftly with minimal involvement of key people (Kotter & Schlesinger, 2008). Therefore, it is essential for
managers, or change agents to adopt an appropriate change theory or model that provides a structure for implementing, managing and evaluating change (Mitchell, 2013). There are several approaches to change that are reported in literature; of these are the planned, prescriptive, and contingency approaches. Each will be discussed in the coming sections.

3.3 Planned approach to change: Lewin’s model

The planned approach to change is a ‘calculated and collaborative effort to bring about improvements with the assistance of a change agent’ (Mitchell, 2013). The planned approach stresses that in order for an organization to shift from an unsatisfactory situation to an intended situation, it is important to understand the different stages, which an organization will have to go through (Todnem, 2005).

The theory of the planned approach was initiated in 1946 by Lewin who has emphasized the need to abandon the old behaviour, structures, processes, and culture before successfully embracing new approaches (Todnem, 2005). Lewin has advocated that a successful change must engage three steps: ‘Unfreezing’, which necessitates examining ‘status quo’ then increasing the driving forces for change; ‘Moving’, which requires taking action, making changes, and involving people; ‘Refreezing’ suggests making changes permanent, establishing new ways of things, and rewarding desired outcomes (Burnes, 2004; Mitchell, 2013).
3.3.1 Critique to Lewin’s model

Lewin’s planned approach presumes that organizations function under stable circumstances, and that change can move in a pre-planned manner from one state to another. Conversely, authors argue that organizational change is an unlimited and never-ending process rather than a pre-identified set of separate and independent events. It was also argued that the model is only suitable for small-scale changes that occur in stable conditions; hence, it is not appropriate for conditions that necessitate rapid transformational change. Moreover, the critics of the model argued that the planned approach to change assumes that all stakeholders in a change project are eager to implement the change. This presumption ignores organizational politics and conflicts (Burnes, 2004; Mitchell, 2013; Todnem, 2005).

3.4 Prescriptive approach to change: Kotter’s model

Kotter change model presents another useful guide to organizations and managers. The model suggests an eight-step approach to change: ‘establishing a sense of urgency, forming a powerful guiding coalition, creating a vision, communicating the vision, empowering others to act on the vision, planning for and creating short wins, consolidating improvements and producing still more change, and institutionalizing new approaches’ respectively (Kotter, 1995).
3.4.1 Critique to Kotter’s Model

Kotter Model represents an example of prescriptive management of change where a series of steps have to be followed in order to administer a successful change. A major problem with following prescriptive approaches is that it does not tolerate the unpredictable issues that naturally arise in most change processes. Moreover, the model simplifies the management of change to a linear course thus overlooking the multifaceted iterative nature of change (Shanley, 2007).

3.5 Situational approach to change: Contingency model

The situational or contingency model is another approach to change that suggests altering change approaches to achieve “optimum fit” with the changing environment (Todnem, 2005). The contingency approach to change is based on the theory that the structure and the performance of an organization rely on the situational factors that it confronts. The theory presumes that organizations and managers do not have any influence and options over situational factors and structure. This assumption has weakened the theory and has subjected it to critique (Todnem, 2005).

3.6 HSE change Model

Organizational change is a non-linear and iterative process that is reliant on people changing. The HSE model is based on an organizational development approach, which puts more focus on actively involving key stakeholders and staff through listening to and
acting upon their inputs and responses. Moreover, it involves a project management, which adds structure and regulation to the process. The HSE change model, as shown in figure 1, has four stages: initiation, planning, implementation, and mainstreaming. The stages are often interacting in a dynamic way; it involves re-visiting and consideration throughout the change process (HSE, 2008). Details of these stages will be revisited in the forthcoming sections.

**Figure 1: HSE Change model (HSE, 2008)**

3.6.1 *Rationale for choosing the HSE change model*

The project manager had chosen the HSE model for its dynamic processing between the stages which tolerate the intricacy of change and provides a practical applicability to the change process; unlike Kotter’s and Lewin’s change model which are linear and thus do not equate with the complexity of change. Moreover, the project manager believes the strength of the HSE model lies in the initiation stage, which prepares for
successful planning and implementation. The forthcoming sections will provide a detailed application of the HSE model to the change project.

3.7 Initiation stage

The aim of the initiation stage was to set ground for a successful change. It guided the project manager to gain support across the organization and to create readiness to lead the change. The stage involved early planning by identifying the important factors that would influence the change as well as the people who would be affected by the change.

At the initial stage, the project manager studied the local circumstances within the institute by reviewing the clerkship curriculum and conducting meetings with the students and clinical faculty members. That was an essential step to identify the drivers for change and to establish what must be changed and why. The outcome of that initial search influenced the initiation of the change project.

3.7.1 Drivers of change

The project manager had noted from the clerkship manual and the curriculum documents, students were assessed through summative written exams and summative clinical exams at the end of the clerkship. The summative assessment did not include a structured feedback and there was no structured formative assessment during the clerkship training.
Accrediting bodies like the Liaison Committee on Medical Education (LCME) has recommended that formative assessment to be part of the curriculum. It was stated in the accreditation document, ‘a medical school ensures that each medical student is assessed and provided with formal formative feedback early enough during each required course or clerkship four or more weeks in length to allow sufficient time for remediation’ (Liaison Committee on Medical Education, 2014).

Moreover, students have conveyed through the meeting with the project manager, that there were variation and inconsistency of the training in the clinical settings. Students have also expressed their desire to receive feedback on their performance after the summative clinical exams: the OSCE and DOCEE. Those mentioned observations were the drivers that triggered the change.

3.7.2 Force field analysis
The project manager had to study these drivers of change and consider any opposing forces. According to the force field theory, there are forces acting on opposite direction in a balanced manner to maintain the ‘status quo’ of any organization. A change in an organization requires a disturbance in this balance. Change will occur when the forces supporting the change are stronger than those that are resisting it. The acting forces may either be ideas about the way the organization should function or the opinions of individuals or groups in the organization (Gale & Grant, 1997).
3.7.3 Positive and negative forces supporting the change

Figure 2 demonstrates the positive and negative forces that would influence the change. The forces that were in favor of introducing the change project included requests of the students' for feedback; interest of clinical faculty to participate in the formative OSCE; recommendations of accrediting agencies. Additionally, as was reported in literature, formative assessment has a positive educational impact on students' learning. Moreover, the project manager purported that formative OSCE would be a valuable opportunity for clinical faculty to provide structured feedback to students.

On the other hand, the project manager had foreseen the negative forces opposing the change. These were students' anxiety and fear from the new assessment, the reluctance of clinical faculty members and organizers to have more workload and their lack of time to participate in regular formative assessment activities. Moreover, OSCE requires extensive preparation and resources.
3.7.4 Managing resistance

At this stage, the project manager believed that the positive forces would drive towards the introduction of the formative OSCE. At the same time, the project manager also anticipated the negative forces might lead to resistance from the Dean, the clerkship coordinators, the clinical faculty members, and the students. Being aware with these issues had assisted the project manager in the planning stage to enable the implementation of the change project.

There are interacting forces acting on the organization in an equilibrium manner, meaning that the harder it is pushed in one direction, the harder it would push back as a response. The wise change manager would put the greatest effort into reviewing the opposing forces and searching for ways to abate their effect. It would also be helpful to order the positive and negative forces according to their impact and to deal with the strongest resistant forces first while applying some effort to maintain positive forces (Gale & Grant, 1997).

The project manager arranged separate meetings with clerkship coordinators, with some of year 4 and 5 students, and with some clinical faculty members. The purpose of the meeting was to identify an enabling environment for the change project to take place. The outcome of these meetings was the decision of introducing a pilot formative OSCE for year five students during their Family Medicine clerkship. The project manager, who has been a clinical coordinator of the Family Medicine clerkship, was aware of the training schedule of the students and the clinical faculty members who may
be interested. The head of the Family Medicine clerkship was interested and supportive to the change project.

3.7.5 Key influencers and stakeholders

Early in the initiation phase, the project manager needs to map out key stakeholders to involve them early in the change process, to define their responsibilities and to clarify their roles. According to Bryson (2004), the term stakeholders refer to 'persons, groups or organizations that must somehow be taken into account by leaders, managers and front-line staff' (Bryson, 2004). Failing to consider the concerns of stakeholders and disregarding their involvement is a shortcoming that might lead to under performance, failure or even disaster. Conversely, the success and even survival of the organization depends on key stakeholders and what they think as worthy (Bryson, 2004). However, that does not imply that all potential stakeholders should be satisfied, involved, or entirely taken into account but rather the key stakeholders who have a fundamental political, ethical, and judgmental role. Since the consideration of stakeholders was an essential step, stakeholder analysis become a requisite before implementing a change within an organization (Bryson, 2004).

There are several stakeholder identification and analysis techniques. One is the ‘Power versus Interest’ grid in which four groups of stakeholders are presented; those who possess both an interest and significant power in the organization or the issue at hand, those who have an interest but little power, those who possess power but have little interest, and those with little interest and little power (Bryson, 2004). After identifying the
stakeholders, the project managers need to explore the readiness and capacity of the organization for the change by reviewing the local policies, to screen for the opportunities available, and to consider the relationship between people within the organization (HSE, 2008).

The 'power interest' grid in figure 3 demonstrates the stakeholders who had influence on the project from highest level of power to lowest level and their degree of interest from highest to lowest. The ethical committee members held high power but low interest, while the head of the Family Medicine department had high power and interest.

![Power verses interest grid](image)

Figure 3: Power verses interest grid adopted from Bryson (2004)

Since the ethical approval was essential for the change project to proceed, the project manager submitted the project proposal to the ethical committee for approval before
progressing with the project. The approval for the project was received on 23 September 2014 (see appendix 1). The head of the Family Medicine department was informed. He had shown interest to implement the change in his department. The students and faculty had expressed their enthusiasm for the proposed change project. Another essential step for the project to proceed was to identify and list the resources that are needed for the planning and implementation of the project such as rooms, budget, and personnel. At this stage, the project manager had a clear image of the dimensions of the change project and the necessary information: the driving forces, the key stakeholders, the anticipated sources of resistance, and the available resources.

3.8 Planning stage

The purpose of the planning stage of the HSE model was to accumulate a great deal of support and readiness by engaging with key stakeholders through further communication and involvement of a shared future vision. A more detailed plan of the change including the key stakeholder roles, the resources needed for the change, and the possible obstacles would be obtained. Moreover, the precise elements and the detailed implementation of the change would be established. Three steps assisted the planning stage: building commitment, determining the detail of the change, and developing the implementation plan (HSE, 2008).
3.8.1 *Building commitment*

The change would not proceed without the commitment of the key stakeholders. The focus of the project manager at that stage was to engage with the students and clinical faculty members who were involved in the Family Medicine clerkship training. The project manager organized separate meetings with the students and faculty members. The aim, objectives, and the proposed plan of project were discussed.

During these meetings, the project manager was able to explore possible obstacles that might raise resistance and thus hinder the project. Accordingly, queries and concerns were responded to and were clarified. Kotter and Schlesinger (2008) stated that managers should be conscious of why people might resist change. The reasons might be 'a desire not to lose something of value, a misunderstanding of the change and its implications, a belief that the change does not make sense for the organization and a low tolerance for change' (Kotter & Schlesinger, 2008). Communicating ideas and educating people through discussions, presentations, or memos and reports can help them make out the need for and the rational of the change and it the most common approach to surmount resistance to change (Kotter & Schlesinger, 2008).

3.8.3 *Determining the detail of the change*

It was important for managers to become aware of the preferred aspects and the possible successful means to plan for the change (Gale & Grant, 1997). To prepare for the formative OSCE, it was important for the project manager to apply the key processes of formative assessment; to establish where students are in their learning,
where they are going and what needs to be done to get them there (Black & Wiliam, 2009). Accordingly, through the discussions with students and faculty members, the project manager sought to identify their needs and to explore their ideas and suggestions that might be of value in planning for the educational content of the formative OSCE. The outcome of these meetings was constructive. The students have expressed their needs and the faculty members had conveyed important deficiencies in the students’ clinical skills such as breaking bad news, counseling, explanation skills, and prescription writing skills.

Both clinical faculty members and students have suggested conducting the formative OSCE during the mid-clerkship. The timing was recommended for two reasons: first, to allow students to gain more understanding of the clerkship goals and secondly, to give them time to apply and practice based on the feedback that they would receive.

3.8.3 Developing the implementation plan

Gale and Grant (1997) argued, ‘Change is a political process and depends on power’. Managers that do not have adequate personal power may use other means to gain power. They may influence key people in positions of authority or/and may spread ownership of the process to a larger group and colleagues (Gale & Grant, 1997). It was therefore necessary for the project manager to consider the sources of power that would enable and support the implementation of the formative OSCE. The head of the Family Medicine department was the key person with power. Hence, the project manager arranged a meeting with him to discuss the details of the implementation. The
agenda for the meeting was fixing a date for the formative OSCE in the students’ training schedule; selecting the clinical skills that would be included during the formative assessment; approving the incentives for those who would participate, and lastly organizing the logistic of the formative OSCE.

In meeting, the date of the OSCE was agreed upon on to be in the mid-clerkship. The clinical scenarios were selected from the clerkship syllabus with consideration of the needs of the students. At this stage, the project manager had a clearer image of the plan and was ready for the implementation stage.

3.9 Implementation stage

The purpose of this stage was to ascertain that the project plan was fulfilling its objectives as agreed and the change process was progressing as planned. The project plan was directed with close monitoring to identify and manage risks. Continuous consultation and feedback, building relationship with those who involved would help to sustain the process. The coming section includes a description of how the change was implemented and how ‘momentum’ was maintained.

3.9.1 Preparing for the formative OSCE

The agreed formative OSCE date was 17 December 2014. A team of four clinical faculty members, including the project manager, selected the clinical scenarios to be used during the formative OSCE. A set of 10 clinical cases were chosen to cover common
clinical encounters and to expose the students to key competencies relevant to the Family Medicine training. Seven cases were adapted from cases used in previous summative OSCEs. The assigned clinical faculty members reviewed these cases and the project manager modified them according to the faculty recommendations. Three newly developed clinical cases required detailed reviewing and piloting.

Two days before the formative OSCE, the project manager sent an email to the students, to provide details of the formative OSCE’s objectives and format, to encourage them, and to reassure them that attendance was optional with no implications on their grades.

The project manager then organized an orientation session for clinical faculty on 16 December 2014; three out of 9 clinical faculty members were able to attend. Another orientation session was arranged two hour before the formative OSCE. The main purpose and format of the session was to communicate the organization of the formative OSCE and to agree on the method of providing a structured feedback to the students.

The structure of the 5-minute feedback had rudiments to enhance peer and self-assessment. Initially, clinical faculty member would ask the student about his/her own performance, ‘How did you do?’ then asks peers ‘Do you have any suggestions for improvement?’ Subsequently, clinical faculty member provided feedback on strengths
followed by suggestions for improvement on specific areas related to the content and technique.

3.9.2 Organization of Formative OSCE

Twenty-five students attended the formative OSCE. The head of the department briefed them on the purpose of the formative OSCE and its structure. The 25 students were divided into groups of 2 to 3 students that rotated around the 10-stations. The allotted time for the stations was 12 minutes. At each station, one of the students would perform the assigned task in seven minutes while being observed by peers and the clinical faculty member. The next five minutes were allocated for feedback. The students took turns in performing the assigned task as they rotated around the stations. The formative OSCE was conducted in an interactive educational activity that lasted two hours. Surveys were immediately distributed to students to evaluate the implemented formative OSCE. The next step was to incorporate and maintain the formative assessment and feedback into the clinical training through the mainstreaming stage.

3.10 Mainstreaming

The purpose of this final phase was to incorporate and maintain formative assessment during clinical training in the usual daily activities. The phase also focused on methods of evaluation and continuous learning and for the continuous improvement within the organization (HSE, 2008).
In order, to build a committed team of clinical faculty members and to sustain the integration of the formative assessment during clerkship years in the future, further communication would be required to make formal arrangement through the curriculum committee, the Dean, and the financial department. Moreover, collaboration and agreements with the Ministry of Health should be a priority to maintain the clinical training. The medical education department has an important role in training the clinical faculty members and deepening the concept of formative assessment to be part of everyday practice.

3.11 Summary and conclusion

Organizational change is a non-linear and complex process, if not well managed can end with failure. Understanding theories of change and following suitable models or structured framework of change management is essential to approach success. The HSE model seems to combine the different approaches. Its strength lies in its dynamic and interacting stages that involve re-visiting and consideration throughout the change process.

The change process focused on actively involving key stakeholders through continuous communication then responding upon their inputs and reactions to modify the change process. Formative OSCE required an extensive and collaborative work between clerkship coordinators, clinical faculty, and OSCE organizers to plan and to implement it in a standard that would benefit the students. In order to sustain formative assessment
and a culture of feedback during the clerkship training, key figures from the medical college, the university and the Ministry of health should be involved.

Evaluation of the change process at all its stages is an essential step in the mainstreaming. Feedback from the clinical faculty, students and the head of the department were collected by surveys and interviews. The results would be utilized to provide guidance for further improvement. Details of the result would be discussed in the coming evaluation chapter. The next chapter includes details of the evaluation process guided by Jacobs’ evaluation model.
Chapter 4

Evaluation
4.1 Introduction

Change is a norm within an organization (Hallencreutz & Turner, 2011) and medical educational institutes are no exception. It is fundamental for those administrating medical education programmes, to scrutinize the intended and unintended changes that occur within the programme by choosing a suitable evaluation approach (Frye & Hemmer, 2012; McNamara et al., 2010). The forth-coming chapter briefly defines programme evaluation and their underlying theories. This is followed by detailed evaluation of the change project using Jacobs’ evaluation model. The model describes 10 stages for the evaluation process. Stages 1, 2, and 3 involve evaluating the context and policy surrounding the change. Subsequently stages 4, 5, 6 and 7 encompass preparation for the evaluation method. Stages 8 and 9 involve collecting, analyzing and interpreting the data. Lastly, stage 10 entails displaying results to the principal stakeholders.

4.2 Aim and Objectives

4.2.1 Aim

The aim of the change project was to enhance a culture of formative assessment of clinical skills during the clerkship training.
4.2.2 Objectives

The Objectives of the project were

- to implement a pilot formative OSCE to fifth year medical students during their mid-clerkship.
- to facilitate for clinical faculty members to provide feedback to fifth year medical students on their performance during the formative OSCE.
- to increase the confidence of fifth year medical students on their clinical skills performed during the formative OSCE.
- to determine the impediments of implementing future formative OSCE during the clerkship training.

4.3 Programme evaluation approaches

Programme evaluation has been defined as ‘the use of social research procedures to systemically investigate the effectiveness of social intervention programs such as education and training’ (McNamara et al., 2010). Two main theories influence approaches to programme evaluation. The reductionist theory assumes that the outcome of a programme can be predicted by inspecting and understanding the contribution of its different elements. The theory also assumes linear relationship of the programme elements, meaning that changes in certain elements are expected to have an anticipated influence on the outcome (Frye & Hemmer, 2012). However, the association between programme elements and outcomes is non-linear, where small changes in programme elements may lead to large changes in outcomes and vice
versa. The system theory or complexity theory considers this non-linear association and takes into account the complexity of educational programmes with its multifaceted relationship between the members and the environment. Thus, the system theory may be better for reporting programme evaluation (Frye & Hemmer, 2012).

The project manager has chosen Jacobs’ model to evaluate the change project. The model was developed to embody an evaluation framework, which considers all the different variables influencing educational practices in an academic context. The educational practices could be either new or only partially implemented activities which are intended to advance as well as to respond to the needs of the academic curriculum including the teaching and the learning processes (Jacobs, 2000).

4.4 Jacobs’ model

Jacobs’ evaluation model is organized in 10 stages. Although, these stages are presented in sequence, it is not a necessity to strictly adhere to the order of these stages. During the evaluation process, there may be a need to shift back and forth between the stages. The aims of the evaluation will dictate whether to sequentially follow the stages or shift in a more cyclical fashion, as represented in the diagram in Figure 4 (Jacobs, 2000).
Figure 4: Jacobs’ evaluation model

STAGE 1
Locate the innovation within the context and policy framework of its operation

STAGE 2
Determine the goals of the evaluation

STAGE 3
Identify the principle stakeholders from all relevant constituents

STAGE 4
Identify the aspects of the innovation to be evaluated

STAGE 5
Determine criteria for evaluating aspects of the innovation

STAGE 6
Decide on the best source of information

STAGE 7
Decide on the evaluation method to be used

STAGE 8
Collect data from sources

STAGE 9
Analyze and interpret the data

STAGE 10
Disseminate the evaluation findings
4.5 Evaluating context and policies surrounding the change

The first three stages of the model described by Jacobs (2000) are concerned with understanding of the context policy framework of the intervention, the goals of the evaluation, and the recognition of the stakeholders from all the related sectors. The goals are normally decided by the purpose of the evaluation which could be either internal, with formative goals for the purpose of improvement, or external, with summative goals for the purpose of accountability (Jacobs, 2000). Moreover an illuminative approach, which is rarely discussed in the evaluation literature, aims to elucidate for the academic community any doubts and uneasiness surrounding the ‘innovation’, through continuous dialogue and shared understandings (Jacobs, 2000).

The model advocates that evaluators should consider combining formative, summative and illuminative goals (Jacobs, 2000; McNamara et al., 2010). The main purpose of these initial stages is to evaluate the institution of the change project within the academic context while interrogating why and how the change was executed.

The context and policy of the change project was evaluated using force field and stakeholder analysis, the details of which have been discussed in chapter three. Considering the local policy of the institute and the surrounding circumstances, the Family Medicine clerkship seemed an appropriate feasible option for the initial piloting of the formative OSCE as was discoursed earlier in chapter three. The intended curriculum
for implementing the project was the clerkship courses, focusing on specific clinical skills.

The teaching processes were through formative OSCE which has been reported in literature to be suitable for both assessing and teaching clinical skills (Harden et al., 1975). The feedback that has been an essential component of the formative OSCE was in response to the request of the students who have expressed their need for feedback on their performance. Clinical faculty members participated in the formative OSCE. Their participation was essential during the planning and implementation. More importantly, was their participation in providing feedback during the formative OSCE.

4.6 Preparing for evaluation methods

Stages 4 to 7 of the model involve iterative revisiting between the stages to reach an agreement on the purpose of the evaluation and the interests to be served. Furthermore, the parts of the programme to be evaluated, the sources of information to be used, and the evaluation methods are ascertained (Jacobs, 2000; McNamara et al., 2010).

Stage 4 of the Jacobs evaluation model recognizes the aspects of the intervention that needs evaluation. The aspects could be related to the impact of the intervention on curriculum, teaching, and learning or related to the social, political and economic factors that have an effect on the intervention. Stage 5 defines the criteria for evaluating these
aspects. The criteria must be molded to the requirements of the evaluation. Deciding on the criteria requires iterative cyclical shifting between stages 4 and 5 to reexamine the aspects defined earlier. This cyclical shifting entails that the evaluator constantly incorporates stakeholders. In stage 6, the evaluator selects the most suitable sources of information. These could be from stakeholders, non-stakeholders, personal observation, studying documentations, and the literature surrounding the intervention (Jacobs, 2000).

With regard to the evaluation of the formative OSCE, the aspects and criteria that the project manager intended to evaluate were related to the aim and objectives of the project. The formative OSCE would be evaluated in terms of its organization, authenticity, and relevance of the stations’ content. The results of the evaluation would be utilized for the planning and implementation of a similar future project. The feedback provided by the clinical faculty was another important aspect that required evaluation, in terms of its educational impact. The challenges encountered during the planning and the implementation processes are essential to be studied. This will assist for future similar projects. The students, the clinical faculty, the head of the Family Medicine department, and the project manager are the most suitable sources of information to study the mentioned evaluating criteria.

Stage 7 requires the evaluator to decide on the evaluation methods to be utilized. These could be either qualitative or quantitative and chosen depending on the available timeframe, the resources, and the sources of information. Furthermore, they should match the criteria decided in stages 4 and 5 (Jacobs, 2000).
To evaluate the achievement of the project objectives, the project manager had chosen both qualitative and quantitative methods. Evidence suggests that both qualitative and quantitative methods complement each other (Tavakol & Sandars, 2014). Combining different methods would shed light on different aspects of the project and would help the project manager to understand change project from different angles. Using these triangulation techniques would in turn enable the cross-validation of data (Jacobs, 2000).

4.7 Data collection from stakeholders

Stage 8 of Jacobs’s evaluation model involves data collection from the agreed sources of information; students and clinical faculty were the main sources. Both qualitative and quantitative data were utilized.

4.7.1 Quantitative methods

The students completed a survey immediately before the formative OSCE, to report their confidence in performing specific clinical skills that they would be exposed to during the formative OSCE. The survey used a 10-point scale (appendix 2). The students completed a matching survey at the end of the formative OSCE. The data were collected and statistically analyzed using SPSS 17.0. Wilcoxon signed-rank test for non-parametric data was used to compare the confidence level of the students before and after the formative OSCE.
The students had to complete another survey immediately after the formative OSCE. The purpose of the survey was to explore students’ perception of the organization of the formative OSCE, the authenticity and relevance of the stations, the duration allocated for feedback, and the usefulness of the feedback (appendix 3). The survey was adapted from a survey that is used to evaluate summative OSCE, in writer’s institute. Two questions were added to evaluate the time allocated for feedback and the helpfulness of the feedback. The survey used Likert scale; strongly agree, agree, unsure, disagree, and strongly disagree.

4.7.2 Qualitative methods
Qualitative evaluation was conducted through semi-structured interviews with three focus groups of the students on 21 and 22 December 2014. The groups were as follows: (group A, N=5), (Group B, N=4), (group C, N=6). Consent was taken for audio recording. The focus group interviews were conducted to capture the views of the students who had participated in the formative OSCE. Each interview lasted for around 20 minutes.

The clinical faculty members are another important source of information for evaluating the formative OSCE. Individual semi-structured interviews were conducted with three faculty members who had participated in the formative OSCE. Two clinical faculty members apologized to participate due to work commitment. The purposes of the interviews were to explore the views of the faculty on the implemented formative OSCE and to address any challenges that may hinder future implementation.
All interviews were audio recorded then transcribed. Verbatim was analyzed manually by the writer through an iterative process of thematic content analysis to identify emerging themes.

4.8 Results of collected Data

Stage 9 of the evaluation model involves analyzing and interpreting the data according to the agreed, negotiated criteria. Stage 10 entails that the outcomes of the analyzed data to be displayed to the principal stakeholders acknowledged at the beginning of the process. In the forthcoming paragraphs, the results of the data are displayed for each of the project objectives.

4.8.1 Students’ feedback on the Formative OSCE

The survey to explore students’ views towards the implemented pilot formative OSCE was completed by 19 students out of the 25 students who have participated in the formative OSCE. The results of the analyzed data, ‘agree’, ‘strongly agree’ responses were combined and presented as ‘agree’, while disagree, ‘strongly disagree’ responses were combined and presented as “disagree”

4.8.1.1 Organization of the formative OSCE

Figure 5, revealed that 95 percent (n=18) of the students agreed that the formative OSCE was organized.
Some of the students’ comments from the focus group interviews also supported this result.

*A1: “It was very organized, the timing was good”*

Students’ views differed about the timing of the formative OSCE during the clerkship. Some were content to have the formative OSCE during mid-clerkship, to have time to remedy their gaps, while others preferred end of clerkship to revise for the summative exams.

*C3: “… the timing of the formative OSCE was perfect; it was in the middle of the rotation so being in the middle we knew our deficits so we have four more weeks to work on them for the final”*

Students have found observing colleagues during the formative OSCE beneficial as they can learn from them and can provide feedback for them. However, there were suggestions to have less number of students per station for more individualized feedback.

*B4: “I did one station he did the next, I saw how he did so I could actually pick up things…”*
B2: “Maybe if we were single students it will be better”

4.8.1.2 Authenticity of the station content

Eighty-four percent (n=17) of the students agreed that the content of the stations were close to real-life practice (figure 6). Comments from the focused groups supported this result.

C3: “… this felt like it closely mimicked a real life situation and it was a very good point”.

![I felt that the stations were close to real life practice](image)

Figure 6: student' perception of the authenticity station

4.8.1.3 Relevance of the stations content

Seventy-four percent (n=14) of the students agreed that the stations content was relevant to the training in the health centers (figure 7).
4.8.2 Students’ perception of the feedback

All 19 students agreed that the feedback received in the stations was helpful, 79 percent of them (n=15) felt that the time allocated for feedback was enough (figure 8, 9).
Results from the focused group analysis provided more details about students’ perceived impact of the feedback.

4.8.2.1 Impact of feedback: Identify deficiencies

Students have expressed that the formative OSCE was helpful for several reasons. Most students have appreciated the opportunity to have feedback from clinical faculty members, which has helped them to identify their weaknesses; as one of the students stated:

A3: “I really liked the feedback part, because there are many things we would have missed…”

4.8.3.2 Impact of feedback: practical learning experience

Other students recognized that practicing and applying their clinical skills was a useful learning experience.

A4: “There was a station about breaking bad news, it was important for us to put our-selves in that place where we actually have to break bad news. We took lectures about it before but we never practiced it”
4.8.2.3 Impact of feedback: organize ideas

Some of the students commented that the feedback has helped them organize their ideas others thought that their clinical skills would improve.

A5: “These stations organize our ideas”

4.8.2.4 Impact of feedback: prepare for the summative exam

Several students felt that the formative OSCE would help them prepare for the summative examination as was revealed in the following selected comment of a student:

B2: “For me it was a great experience, it’s like training for the examination”

4.8.2.5 Impact of feedback: improve skills

Some of the students believed that their clinical skills would improve.

B1: “and it improved my prescription writing because we were discussing how we write prescription.”

B4: “yes, I will focus on my mistakes…the mistakes that I made in the OSCE; I will try to improve …."

4.8.3 Impact of feedback on students’ confidence

The confidence level survey had 24 completed data sets out of 25. The results of the analysis revealed a statistically significant increase in the student’s overall confidence level as well as in all the tested clinical skills (figure 10, appendix 4).
A couple of students reported that they have felt more confident while communicating with real patients during their clinical training after the formative OSCE.

*C3: “After the formative OSCE, during this week, I felt that me and my colleagues we communicate with the patients in the clinic, we started teaching them, we started explaining to them, I don’t know why but i felt more confident….”*

The interviews with the clinical faculty members have further supported the positive impact of the formative OSCE. Over-all clinical faculty members were content with the educational experience. They all agreed that the immediate feedback would helped students to identify their deficiencies and how to remedy them.

*F1: “I think the impact on learning is great because actually it’s a real image of assessment for learning, they are learning at the moment they are assessed, they are getting an immediate feedback, they can recall exactly their faults and mistakes, and they also have their say on how to correct those mistakes”*

### 4.8.4 Impediment for future formative OSCE

Clinical faculty members had raised some difficulties related to the formative OSCE.

Workload was one difficulty shared by all faculty members.

*F2: “The issue of the timings is the main concern because we are in busy clinics and arrangement of the time to go out for the OSCE could be an obstacle sometimes”*

The skill needed to give feedback was another challenge that was stated by one faculty.
“how to give the feedback is quite important because I don't think that everyone is skillful in giving the feedback”

Interview with the Director of the OSCE and Head of Family Medicine department brought up other challenges related to cost and resources needed to conduct formative OSCE.

4.9 Summary and Conclusion

Evaluation of the formative OSCE showed that it was an acceptable method with a positive educational impact. All students appreciated the feedback provided by clinical faculty members. Notably, there was a significant increase in students reported confidence level on the performed clinical tasks. The main challenges related to the formative OSCE were the workload and the availability of clinical faculty.

The pilot formative OSCE was implemented, achieving its objectives. The next challenging stage would be to maintain formative assessment of clinical skills and feedback as part of the daily practice. Two questions that need to be considered as part of the mainstreaming process would be: What are the lessons learned from the implemented change project? Do the benefits of the formative OSCE outweigh its costs? The forthcoming chapter will discuss these questions, followed by recommendations to sustain future formative assessment into the culture of clinical training.
Chapter 5

Discussion and Conclusion
5.1 Introduction

An important aspect of mainstreaming a change within an organization is to make the change ‘the way we do our business’ (HSE, 2008). With respect to the implemented project, the next step after evaluation is to develop strategies for supporting formative assessment and feedback to be part of the daily practice during clinical training. In the coming sections, the writer will be reflecting on what was done, and then stating what is learned from the experience. The writer will suggest a framework model for embedding formative assessment into clerkship courses. This is followed by recommendation for future projects, and the foreseen organizational impact. Lastly, the strengths and limitations of the project will then follow.

5.2 Introducing a change: What was done?

The change project ‘introducing formative assessment during Family Medicine clerkship’ was implemented as a response to lack of formative assessment and scarcity of feedback during the clerkship within the writer’s institute. The change project was planned after studying the local circumstances and policy of the institute to identify an appropriate environment for implementing the change. The initiation and planning process required continuous involvement of stakeholders; the students; the clinical faculty, and the head of family medicine clerkship. The HSE model guided the change project.
The stages in Jacobs’ model were followed during the evaluation process. The evaluation criteria were related to the aim and objectives of the project. Both qualitative and quantitative methods were utilized in the evaluation process. The results of the evaluation revealed achievement of the objectives. A pilot formative OSCE was introduced to fifth year medical students. Clinical faculty members have provided feedback to students during the formative OSCE. Participating students have perceived the feedback as helpful. The comments from the focused groups have shown that the feedback has helped students to identify their deficits, to practice and improve some of their clinical skills, to prepare for the summative OSCE, and to engage with patients more confidently during the daily practice. Students’ overall confidence level increased after completing the performed clinical skills.

These findings were parallel with the literature of formative assessment and feedback that the writer had elaborated in chapter two. Formative assessment and effective feedback help students to narrow their gaps, to self-regulate their learning, and to improve their self-efficacy (Black & Wiliam, 2009; Hattie & Timperley, 2007).

The outcomes of the implemented formative OSCE were also analogous to other similar studies (Brazeau, 2002; O’Sullivan et al., 2008; Stein et al., 2005). The formative OSCE was an acceptable method for providing feedback to both the students and clinical faculty. It provided an experiential learning activity in a simulated setting thus reducing the pressure on students and clinical faculty members that might arise in clinical setting
when dealing with real patients. The formative OSCE facilitated for the delivery of feedback in an objective structured manner (Harden et al., 1975).

The difficulties that preceded the preparation of the formative OSCE with respect to time for preparation, and resources have also been limitations in the aforementioned studies. Therefore, it would be beneficial to develop methods that would overcome these hurdles. One study had adapted the classical OSCE to be a cost effective one while maintaining its positive educational impact (Chandra et al., 2009). Another study has utilized senior students to facilitate the conduction of the formative OSCE (Browne et al., 2013). This opens doors for the future projects similar to these studies.

5.3 Lessons learned

Change process is complex and is hindered with difficulties and resistance. Adopting a change model increases the chance of a successful change. The need for change does not end, but a new cycle of change can follow, after evaluating the initial process. The change cycle within the organization requires the collaborative effort between leaders within the organization and those facilitating the change and those influenced by the change.

Formative assessment and feedback within a medical education programme is a challenge for all those who are planning curricula. Deficiency of feedback is especially evident during clinical training. Direct observation is a requisite before providing
effective feedback in clinical setting. Working towards a successful formative assessment for learning as postulated in literature requires continuous involvement of the teachers and the learners in the process of effective feedback. The feedback can be implemented through planned formative assessments of the outcome competencies as well as through the daily clinical training.

5.4 Formative assessment framework model

Reflecting on the experience of implementing the change project and drawing from the literature on formative assessment, the writers suggest a framework model in which formative assessment and feedback can be part of the clerkship program. Figure 11 illustrates a representation of the model. Formative assessment in clinical training requires the collaborative engagement between the students and their clinical supervisors and between the students themselves in a process of continuous feedback. The clerkship coordinator has an essential role in facilitating the process. The three agents: the students, the clinical supervisor, and the clinical coordinator represent the important agents that communicate through continuous feedback. The three processes of formative assessment, which were discussed in chapter two are depicted between the three agents, indicating that they act as a catalyst for the continuous feedback between the three agents and should be embedded in the learning activities during clinical training.
Figure 11: Formative assessment framework model during clinical training (Adopted from Black & Wiliam, 2009; Hattie & Timperley, 2007)
5.4.1 Establish where the students are going

The process of formative assessment involves establishing where the students are going, by clarifying the intended goals of the clerkship and the expected standards relevant to the students' level. These goals must be clear to both the clinical faculty members and students from the beginning of the clerkship.

The goals and standards can be displayed in the clerkship manual, and should be discussed with the students at the beginning of the clerkship. Written documents should provide assessment criteria and describe levels of standards (Nicol & Macfarlane-Dick, 2006). Students should be encouraged to enquire for further clarifications. It is also essential to revisit these goals and standards throughout the clerkship and to refer to them during the clinical training.

5.4.2 Establish where the students are in their learning

For students, clinical supervisors, and clerkship coordinators to identify gaps in the students' knowledge and clinical skills, there must be learning activities where students can apply their knowledge and skills. These activities can be informal and unplanned during daily practice while the students are in the clinic interacting with patients. Planned and structured learning activities can be organized through formative clinical examinations; for example formative OSCE similar to the one in the change project or formative DOCEE while students are in the clinic or case discussions. Observing students' performances is one key component for the next process of formative assessment to be carried out effectively.
5.4.3 Establish what needs to be done

Clinical faculty members will identify gaps in students’ knowledge and skills while observing them engage in the learning activities during the clinical training. This can be followed by providing feedback to the students, creating more experiential learning activities through simulation and role-plays, and encouraging students to actively engage with patients in order to practice their clinical skills.

Clinical faculty members can be a role model during the consultation. After the consultation, the faculty can then ask students to give feedback on the consultation. By these techniques, students’ assessment skills can develop and students may compare their teacher performance with their own standard. Moreover, students with more competent skills can be encouraged by clinical faculty members to perform a clinical task observed by their peers, thus acting as a role model for other students. Other students are then asked to provide feedback on their peers’ performance, hence fostering a culture of peer and self-assessment, which are essential components of formative assessment. Structured formative assessment exams like the formative OSCE and formative DOCEE can be scheduled during the clerkship at intervals that are suitable to allow students to plan for remediation as needed.

5.4.4 The impact of implementing formative assessment during clinical training

As illustrated in the model, the outcomes of the processes involved in formative assessment are related to the type of feedback, which takes place between the three agents. When effectively implemented, this would lead to medical students who are
more self-regulated, deep learners, motivated to learn and to improve, know their strengths and their weakness, and are more confident when dealing with patients or when performing other clinical tasks. All these outcomes will prepare students to graduate as competent doctors.

5.5 Overcoming impediments for formative assessment

As stated by Norcini (2010) activities that aim to increase the volume of feedback and alter the ongoing culture will encounter two main barriers. Firstly, involving clinical faculty members is a major restrictive issue which may be overcome by encouragement, motivation, and rewards for their commitments (Norcini, 2010). The rewards could be by incentives in the form of monthly payment, certificates, free invitation to faculty development workshops and seminars. Clerkship coordinators role will be to consider and ensure that such arrangement are channeled.

Secondly, to improve the quality of feedback, the medical education department role is to organize faculty development workshops on regular bases. In addition, clerkship coordinators can collaborate with the medical education department to develop and introduce tools that will encourage students to seek for feedback during their clinical training, without exerting extra load on the clinical faculty members. Such tools can be searched in literature and their implementation can be further studied in new action research cycle.
Moreover, structured formative assessment of clinical skills by using OSCE can be conducted with focus on core competency skills related to the clerkship. Low cost formative educational OSCE using different means can be planned and implemented.

5.6 Impact of the project on the organization

The change process created an opportunity for a collaborative effort between the clinical faculty members, who are part-time employee of the ministry of health, and the clerkship coordinator. This collaborative work has several implications. First, it engages the clinical members with the teaching and learning activities, motivates them for future collaboration, and enhances teaching and learning skills.

Sustaining a culture of formative assessment during clerkship training will mean abiding with the recommendation of the accrediting bodies. The impact will be reflected on the students learning and performance on the long run, thus preparing them to graduate as competent future doctors.

5.7 Strengths and limitations of the project

The writer believes the strength of this project lies on the organizational impact that was elaborated in the previous section: collaboration and engagement with clinical faculty members. Additionally, the suggested formative assessment framework model depicted in figure 11 opens door for further action research cycle to ensure its application and to modify it as needed.
On the other hand, there are several limitations to the project. First; the change project was a pilot study that was implemented during a specific period to fulfill the requirements of the dissertation. This meant that the time constraint of the project did not allow for observing improvement in students’ performance. Secondly, the number of the students that participated in the project was small, which does not allow for generalizability.

5.8 Summary and conclusion

Formative assessment and feedback play an essential role during clinical training. When effectively implemented can have a positive impact on learning, development of students’ knowledge and skills. The impact of this in medical school is to graduate doctors that are more competent. The pilot formative OSCE represented a change project, which had applied some of the principles of formative assessment. However, there is a need for future studies to ensure that formative assessment and feedback is implemented as part of the daily practice.

On the other hand, implementing a culture of effective formative assessment requires commitment and collaboration at different levels: the students, the clinical faculty, the clerkship coordinators, the curriculum and assessment committees, the medical education department. It also requires continuous monitoring and evaluations to modify and adjust according to needs.
References


Appendix 1 Ethical approval letter

Ref: DFCM /23/09/14/088
Tuesday, September 23, 2014

Principal Investigator

Re: Ethical Approval

Project Title: “Introducing Formative OSCE as an educational tool to improve clinical skills”

Researcher

I am pleased to let you know that the Ethics and Research Committee of the University of Sharjah has approved the above mentioned research project to be conducted at College of Medicine - University of Sharjah.

It is the responsibility of the principle investigator to make sure that the study adheres to ethical standard and the study is conducted exactly as specified in the amended ethics application form.

Please provide us with final version of study protocol, questionnaire and consent form.

Any change to the design or methodology should be reported to the ERC for approval before implementing any change.

Please provide us with six monthly progress report starting from October 2014.

The ERC would like to wish you and the team all the best
Appendix 2: Students’ feedback survey

Feedback questionnaire regarding the Family Medicine formative OSCE ON 17th December, 2014

Dear student, the Faculty in the Family Medicine Department is interested in your feedback about several aspects of the Formative OSCE for quality improvement.

Please tick the response that suits you, for each question below. Accurate & objective feedback on the following will be most appreciated:

Q3. This Formative OSCE was closer to real life practice:
□ strongly agree □ agree □ not sure □ disagree □ strongly disagree

Q4. I felt that the Formative OSCE was well-organized:
□ strongly agree □ agree □ not sure □ disagree □ strongly disagree

Q6. This Formative OSCE was relevant & correlating to the health center training:
□ strongly agree □ agree □ not sure □ disagree □ strongly disagree

Q8. The feedback I received was helpful:
□ strongly agree □ agree □ not sure □ disagree □ strongly disagree

Q9. The time allocated for feedback was enough:
□ strongly agree □ agree □ not sure □ disagree □ strongly disagree

Share your overall impression & experience in this formative OSCE

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Appendix 3: Students confidence level survey

Dear student

This short survey aim to identify the level of your confidence in performing certain clinical skills that you will need throughout your career as a future doctor.

<table>
<thead>
<tr>
<th>Indicate your level of confidence in performing the following:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<tbody>
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<td>Prescription writing</td>
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<td>Breaking Bad news</td>
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<td>Counseling (Smoking cessation)</td>
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<td>Communicating a management plan to a patient with diabetic nephropathy</td>
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<td>Communicating a management plan to a patient with infective diarrhea</td>
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<td>Explaining drug therapy (insulin)</td>
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<td>Conducting a medical interview with a hypertensive patient attending for follow up</td>
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<td>Conducting a medical interview with a pregnant woman attending for antenatal care</td>
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<td>Physical examination “diabetic foot”</td>
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<td>Interpretation of Stool result</td>
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</table>
Appendix 4: Result of the confidence level

<table>
<thead>
<tr>
<th>Question</th>
<th>Scores* (n=24)</th>
<th>p-value**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
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<tr>
<td>Prescription writing</td>
<td>6.5 (1-10)</td>
<td>8 (3-10)</td>
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<tr>
<td>Communication skills</td>
<td>7.5 (3-9)</td>
<td>8 (4-10)</td>
</tr>
<tr>
<td>Breaking bad news</td>
<td>5 (1-8)</td>
<td>7 (4-10)</td>
</tr>
<tr>
<td>Counseling (Smoking cessation)</td>
<td>6 (2-8)</td>
<td>7.5 (1-9)</td>
</tr>
<tr>
<td>Communicating a management plan to a patient</td>
<td>6 (3-9)</td>
<td>7 (1-9)</td>
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<tr>
<td>Communicating a management plan to a patient with diabetic nephropathy</td>
<td>5 (1-8)</td>
<td>8 (1-9)</td>
</tr>
<tr>
<td>Communicating a management plan to a patient with dyslipidemia</td>
<td>6 (3-10)</td>
<td>8 (5-10)</td>
</tr>
<tr>
<td>Communicating a management plan to a patient with infective diarrhea</td>
<td>5 (1-10)</td>
<td>8 (4-10)</td>
</tr>
<tr>
<td>Explainin drug therapy (insulin)</td>
<td>5 (1-9)</td>
<td>8.5 (4-10)</td>
</tr>
<tr>
<td>History taking</td>
<td>9 (3-10)</td>
<td>9 (4-10)</td>
</tr>
<tr>
<td>Conducting a medical interview with a hypertensive patient attending for follow up</td>
<td>7 (3-10)</td>
<td>7 (1-9)</td>
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<tr>
<td>Conducting a medical interview with a pregnant woman attending for antenatal care</td>
<td>6 (1-9)</td>
<td>8 (1-9)</td>
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<tr>
<td>Physical Examination &quot;diabetic foot&quot;</td>
<td>6 (1-9)</td>
<td>8.5 (4-10)</td>
</tr>
<tr>
<td>Interpretation of Stool result</td>
<td>6.5 (1-9)</td>
<td>8.5 (4-10)</td>
</tr>
<tr>
<td><strong>Over all confidence level</strong></td>
<td><strong>88.5 (36-111)</strong></td>
<td><strong>110 (61-126)</strong></td>
</tr>
</tbody>
</table>

* Values give as Median (minimum-maximum)
** Comparisons made using Wilcoxonsigned-rank test
## Appendix 5: Focus group interviews: Themes and quotes.

### Students views on the organization of the formative OSCE

<table>
<thead>
<tr>
<th>The timing allocated for stations</th>
<th>Positive:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1: “It was very organized, the timing was good, I think seven minutes is very good”</td>
<td></td>
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<tr>
<td>Negative:</td>
<td></td>
</tr>
<tr>
<td>C1: “the time was not that good, especially for communicating and explaining, building report, this takes time”</td>
<td></td>
</tr>
<tr>
<td>Suggestions</td>
<td></td>
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<tr>
<td>C4: “we need at least 1 or 2 more minutes, 8 or 9”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The selection of cases</th>
<th>Positive:</th>
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</thead>
<tbody>
<tr>
<td>A1: “the stations themselves were very helpful because they simulate the real life.”</td>
<td></td>
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<td>C2: “all the stations that have been chosen, I feel, are the most difficult, and according to priority they are right at the top and we need these stations….communication, breaking bad news, especially breaking bad news”</td>
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<td>Negative:</td>
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<td>B6: “the level was unexpected to us so we didn't expect to have these cases or these types of cases”</td>
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<td>Suggestions:</td>
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<tr>
<td>A2: “There was no psychiatry case. Maybe they can add one case”</td>
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<tr>
<td>A1: ”More challengeable scenarios. So we will open our eyes as my colleague mentioned”</td>
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<td>B4: “we need more of the cases that we will be seeing in family medicine, which are those that are like primary care”</td>
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<tr>
<th>Selection of Arabic speaking simulates patients in some stations</th>
<th>Positive:</th>
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<tr>
<td>C3: “the Arabic thing was applied very well. In one station the breaking bad news, I was speaking in Arabic, I am an Arabic speaker, but sometimes subconsciously you say English words and apparently this is wrong. So when you were in those 7 minutes where you have to speak in Arabic and you have to teach the patient everything you get to understand that you should know your terms and you should know your language because 99% of the people who come to the clinics are Arabs”……… C1: “still it is hard because we are studying in English and not in Arabic to try to translate it in your brain and say it to the patient is hard”</td>
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<tr>
<th>The timing of the OSCE during the rotation</th>
<th>Positive</th>
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<td>B2: “mid rotation so that we can have time to prepare ourselves and correct our mistakes and it’s a good preparation , at the end it will not give us time to make it better. Mid rotation we can practice more and get feedback from the doctors.”</td>
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<tr>
<td>C3:”.......... the timing of the formative OSCE was perfect, it was in the middle of the rotation so being in the middle we knew our deficits so we have four more weeks to work on them for the final”</td>
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<td>Negative</td>
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<td>B4: “I prefer at the end of the rotation because by then I would have covered most of the topics or if not all of the topics but in the mid rotation maybe i will not have covered some of the stuff so if I'm going to be examined on some topics that i already did not cover then what’s the point”</td>
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# Students comments on how the Formative OSCE has helped them

<table>
<thead>
<tr>
<th>Identified their gaps</th>
<th>Positive</th>
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<tr>
<td><strong>A3:</strong> I really liked the feedback part, because there are many things we would have missed. Like the follow up, yeah i got this mark because i did not comment about the follow up or there are some things we forget about or we don't know that it is important for us during the OSCE.</td>
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<td><strong>A4:</strong> &quot;It was very beneficial in general; the stations opened our mind on things we have to know more about ……and the instant feedback was very important, as we did the consultation and we know what we missed&quot;</td>
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<td><strong>A5:</strong> &quot;I don't know that I have to fulfill this point, the doctor told me no you have to: follow up for example, i totally forget about it, he said you have to tell the patient about the follow up. So if the doctor didn't say that, how would I know about it&quot;</td>
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<td><strong>B2:</strong> &quot;……they showed us where our weak points are, what we should focus on, and these were the main points&quot;</td>
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<td><strong>B3:</strong> &quot;The fact that they give us feedback afterwards, this is the first time, it never happened before. We used to get examined and then get our marks we don't know what our mistakes are so we keep repeating the same mistakes because we don't know them… now we get feedbacks and we get to correct them so inshallah we will do better&quot;</td>
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<td><strong>C1:</strong> &quot;it's just the first time that I did it but it was very useful, usually the past rotation the first time you would encounter such cases is during the real exam, during the OSCE, and sometimes you wouldn't know what to ask and what to do and that way we lose marks, and we all know that we are losing marks, so when we were going each station by station, even the feedback that i was given after each station was over it was really helpful and the doctor would say that you should take these steps, ask these questions, related to the case, so it was helpful I didn't find that one station was not as good as the other, they were all equally helpful especially the communication and prescription&quot;</td>
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<td><strong>C2:</strong> &quot;…… And we have explored some new things that we have never been exposed to before, like for example I like the station of breaking bad news because I usually had problems with it before and yeah it was very useful&quot;</td>
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<td><strong>C3:</strong> &quot;I felt like it was a new experience, we understood what the point of OSCE is, it was a teaching experience, we knew our deficits … after every station I was able to know my point of weakness and I could know where I used to miss my marks before. I was enlightened on things that I never thought I should focus on while studying especially in the family medicine because it is not only about the knowledge… it is about the communication and how to handle the patient, how to break bad news, and we did not have much experience in the clinics, so it was a good chance to be examined personally, to see my deficits, not lecture wise&quot;</td>
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### Students comments on how the Formative OSCE has helped them

<table>
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<tr>
<th>Learned by observing their colleagues</th>
<th>Positive</th>
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| A4: “But even when observing what did your friend miss and you can put it in your mind, well this is something I shouldn't forget or maybe you can learn from their approach of counseling some people have good communication skills, some people have confidence, they have a good way of communicating from the patient. You can learn from it, not all of us have good communication skills, so we can observe our friends, maybe we can advise them later, give them a feedback, or learn from them if it's something good or positive.”  
B4: “I did one station he did the next, I saw how he did so I could actually pick up things”  
C3: there is one more thing that is good about the formative, that we were going in groups… because usually the people who are going in the same group are friends and for example me and (X) we study together… so when we went together we never saw how the other person does in their OSCE and apparently when you go with your friend/colleague you are able to evaluate each other and we can teach or learn from them …in groups observing colleagues”  
C2: “even with communication skills, maybe I don't have, maybe she has very nice communication skills and really she can convince the patient and can really explain well… so mainly we are learning from each other actually”  
C3: “and pinpoint each other’s mistakes, the doctors were giving one checklist to assess my colleague and this was very good, because I looked from the examiner point of view.” |

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<th>Suggestions</th>
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| A4: “If we were not three by three. Like three students within the same group, like if we were two it would be better”  
B2: “maybe if we were single students it will be better, but the time will be a problem”  
B5: “alone you will feel like it is more like a real exam” |

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<th>Provided a chance for the student to practice by doing.</th>
<th>Positive</th>
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| A4: “There was a station about breaking bad news, it was important for us to put ourselves in that place where we actually have to break bad news. We took lectures about it before but we never practiced it”  
B2: “….we used the BNF, for example for the first time we wrote the prescription together”  
C2: “After this, for me for example, in those specific stations like communication, breaking bad news, as they said we knew our deficits, like for example I’m not in good in breaking bad news or starting to build a rapport with the patient… now I can see myself communicating with the patient in real life in the clinic, I’m trying seriously to practice more in the clinic and to apply it more in the clinic” |

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<tr>
<th>To prepare for the summative OSCE.</th>
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| A2: ‘I love it because mostly the stations were counseling, which if I didn't do the formative OSCE, I wouldn’t know the OSCE will be like this. I thought it was like another rotation, history and examination …so, it was very helpful”  
B2: “For me it was a great experience, it’s like training for the examination”, they showed us where our weak points are, what we should focus on, and these were the main points. |
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<th>Students comments on how the Formative OSCE has helped them</th>
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<tr>
<td><strong>Helped students to organize their ideas</strong></td>
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<tr>
<td>Positive</td>
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<td>A5: “these stations organize our ideas, for example in smoking cessation, okay I know the information but I don’t know how to tell the patient, or how to counsel the patient. The same thing in the interpretation of the investigations, I know but I don’t know how to say. So these stations really help us to organize our ideas about that.”</td>
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<tr>
<td><strong>Helped students to improve their skills.</strong></td>
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<td>Positive</td>
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<td>B1: “and it improved my prescription writing because we were discussing how we write prescription.”</td>
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<tr>
<td>B4: yes, I will focus on my mistakes…the mistakes that I made in the OSCE, I will try to improve …the body language, breaking bad news skills, explanation skills, the communication between you and the patient, how family medicine is more patient centered rather than doctor centered”</td>
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<tr>
<td><strong>Helped student to be more confident</strong></td>
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<td>Positive</td>
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<td>C3: ….after the formative OSCE, during this week, I felt that me and my colleagues we communicate with the patients in the clinic, we started teaching them, we started explaining to them, I don’t know why but i felt more confident….”</td>
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