

Full Length Research Paper

Exploring Child Health Education: A Qualitative Study of Clinical Learning Environments

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The Faculty of Medicine, Al-Baha University (FMBU) is a newly founded medical school. FMBU teaches clinical sciences in phase III, which includes the 4th, 5th, 6th, and the internship year. In the fifth year, students undertake Child Health Module (CHM) together with other clinical modules. This paper aims to describe and analyze our clinical teaching situations in the CHM to show how we utilized the workplace and the minimal available resources to achieve the learning objectives of the CHM in part and the outcomes of the FMBU curriculum as a whole. We determined the relationships between students' activities and the workplace where the clinical teaching takes place. We analyzed these situations according to Kolb's learning cycle theory and Dundee three-circle outcome model. Multiple parts participated in the clinical teaching of the CHM and the implementation over three years showed good results that are improving every year. The analysis of these workplace learning situations using the Kolb's learning cycle theory and Dundee three-circle outcome model helped in good distribution and definition of the tasks. All parts of the workplace participated in the teaching and learning process. Involvement of all workplace parties is the cornerstone of effective clinical teaching. Most important, is the application of educational theories to analyze and reform clinical teaching situations.

Keywords: Workplace, Clinical setting, Child Health Module, Clinical Teaching

INTRODUCTION

In our relatively newly established Faculty of Medicine, Al-Baha University (FMBU), we try to implement the most advanced curriculum achieved by others with some adaptations that suit our situation and resources. In the FMBU, we teach medicine in three phases. In the foundation phase 1 (first year), the students are taught natural sciences. In phase II, students are taught basic medical sciences and in phase III, they are taught clinical sciences. The college is implementing a fully integrated body systems-based curriculum applied to all phases of its educational program (Abdelaziz and Koshak, 2014; Elfakey and Ahmed, 2015). In phase three, the teaching places are widened to accommodate the clinical teaching. Teaching places in addition to the college building include main hospitals, Primary Health Centers

(PHCs) and the community (Abdelaziz and Koshak, 2014). The university hospital is still under development and can accommodate only minimal teaching activities, for this reason, the health authorities signed an agreement with the University of AlBaha to let the clinical academic staff take part in service delivery in their facilities and also to make these facilities available for students' clinical training.

The learning situation I am going to describe and analyze is a real situation that we face in teaching clinical pediatrics for fifth-year medical students. This learning situation will give an idea on how we utilize the workplace and the available resources to achieve the learning objectives of FMBU.

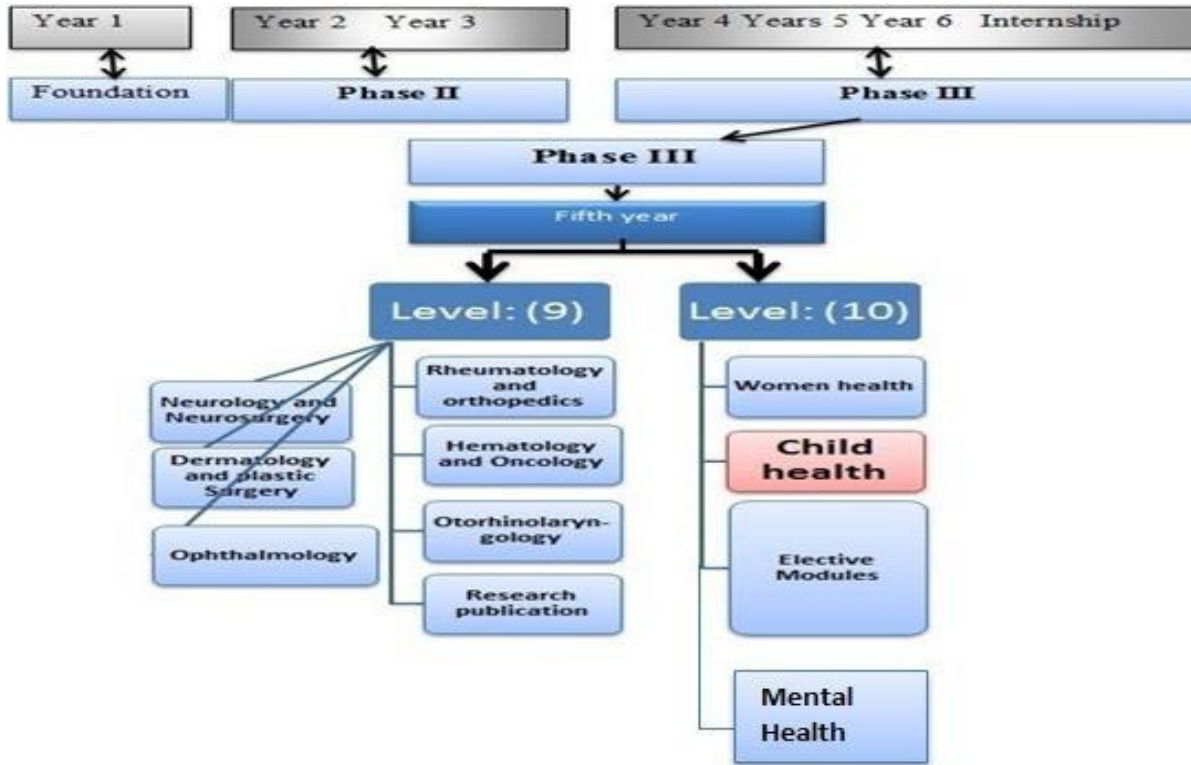


Figure 1. Shows the Modules alignment of the 5th year

In our 2012 curriculum, fifth-year medical students are assigned to clinical clerkships. They learn the core basic medical and clinical sciences in the first three years of their medical school. In the 4th year, the students start taking their clinical modules. Before starting pediatrics clinical rounds in the wards, referred clinics, outpatient department and emergency departments, they are taught theoretically how to deal with an ill child and how it differs from adult patients. Also, they are taught how to take history and examination when dealing with an ill children and their families (Abdelaziz and Koshak, 2014; Elfakey and Ahmed, 2016; Elfakey et al., 2015). As seen in figure 1, in addition to the CHM module, in the fifth year, the students are taught system-based clinical modules plus electives and a longitudinal Research Publication Module.

Clinical teaching takes place in the pediatrics ward which consists of separate beds. In this ward, there are responsible nurses of different levels of expertise lead by a head nurse. There are many doctors who are responsible for the follow-up of the patients in the ward as well.

The clinical teacher organizes and coordinates how the process of clinical teaching takes place with the unit consultants and working doctors. Since clinical teaching takes place in the ward which is a busy place, a well-planned timetable is required so that the teaching process does not affect other activities. Junior doctors

and nurses have a role in facilitating the process. The ward is basically prepared for service delivery and not for teaching. The patient service and solving their problems is the main priority. Though, it is well known that student teaching is very important, but it is not a top priority if compared with medical service delivery. The nurses and some of the doctors accept to play a part in the process of teaching. Doctors agreed to participate at the time of their presence in the ward by observing students as they take history from patients. Nurses accept to organize the whole process by speaking and preparing the patients and by providing the students with any necessary tools they may need. Also, nurses are required to be on standby to solve any problem that may arise during the learning process. Similar clinical situations and defining roles in clinical teaching are described by different reporters, Catherine Burns *et al* states that a variety of strategies is essential to increase teaching effectiveness and decrease stress for the busy preceptor who juggles the roles of a teacher and clinician (Burns et al., 2006).

Ward rounds are unique in that learning is provided in a natural health-related environment (Bassaw and Naraynsingh, 2011). It represents the approach of our curriculum in terms of being patient-oriented rather than disease-oriented. Furthermore, it has an inherent aim of facilitating students' problem-solving and clinical reasoning skills (Fitzgerald, 1993).

Table 1. Example of one-week timetable including hours allowed for hospital-based clinical sessions

	8-9	9-10	10-11	11-12	12-1	1-2	2-3
Sun	Lecture1	Skill lab 1:		Lecture 2		Lecture3	PBL1 BS
Tutor/ location	College theatres	Skill laboratory room		College theatres		College theatres	PBL rooms
Mon	Hospital Based Clinical Teaching Preparation, clerking and clinical teaching					Hospital Based Clinical Teaching Presentation and discussion	
Tutor/ location	Clinical teachers Hospitals and PHC centers					Clinical teachers Hospitals and PHC centers	
Tue	Lecture 4	Lecture 5	Skill lab 2			Seminar 1	
Tutor/ location	College theatres	College theatres	Skill laboratory room			College theatres	
Wed	Hospital Based Clinical Teaching Preparation, clerking and clinical teaching					Hospital Based Clinical Teaching Presentation and discussion	
Tutor/ location	Clinical teachers Hospitals and PHC centers					Clinical teachers Hospitals and PHC centers	
Thu	PBL1 DB		Lecture 6:	Lecture 8 :		PBL1 Expert lecture SDL1:	
Tutor/ location	PBL rooms		College theatres	College theatres		College theatres	

METHODOLOGY

The student's learning activities

1- After permission, the students are allowed to attend the major clinical rounds, listening to discussions, observing the patients, know how doctors are dealing with patients, taught about the management of ill children but not allowed to participate in discussions.

2- Following the round, the clinical teacher chooses two or three stable ill children, and distribute them to students and they are asked to take history, do an examination and derive broad differential diagnoses, investigation and treatment of the child, the time given to students is 45 minutes.

3- Then each group of students is asked to present their case at bedside. The teacher comes to review each case individually with the whole group of the students in the aspect of history and examination. These include corrections in the skills of history taking showing the correct procedures of examination and the best methods to elicit signs.

4- After a short break, students gather in a small room sitting in their chairs. In this room, in 50 to 60 minutes the teacher discusses cases seen by the students in aspects of differential diagnoses, investigations, complications and management plans.

5- The students write down in their logbooks all cases seen in the major round as well as the cases clerked and discussed and the logbook then signed by the teacher.

6- Following any clinical session, the teacher takes a feedback orally from the students through discussions and he will be able to know their opinion and the problems they faced and listen to their suggestions about

the cases seen and the discussions.

7- By the end of the child health module, students are asked to fill a feedback for about their opinion and problems they faced in these clinical sessions at the hospitals.

The Twelve roles described for medical teachers by Harden are implemented in this situation (Harden and Crosby, 2000).

This methodology in clinical teaching that utilizes in addition to the faculties, the workplace resources had succeeded in the majority, but not always. In occasions, the whole process may collapse as one of the patients in the ward developed an emergency and all of the doctors and most of the nurses will be busy with managing and resuscitation of that patient. This critical situation that may be faced makes the clinical teacher to think is this is an ideal situation or an ideal process for undergraduate teaching? This question and others may be answered after analysis of our results and discussing them.

In addition, the complexity of the teaching in clinical environment consolidates the idea that the medical teacher needs to be more than a medical expert (Ramani and Leinster, 2008).

RESULTS

The clinical teaching is planned to occupy two full days per week. The clinical teaching day is divided as mentioned above into 3 parts. Attending and preparing the suitable cases for teaching, clerking, presentation and discussion. A total of six hours is spent in the clinical teaching day including short breaks. Table 1 shows the clinical day and how it is divided.

Table 2. shows activities of child health module over 3 years

Year	Students No.	Participating Academic Staff No	Departments involved	Clinical Teaching hours in the module	Average number of cases seen per student per module
2014	34	12	3*	48	28
2015	26	10	3*	42	24
2016	44	14	3*	42	25

*=Pediatrics, pediatrics surgery, community and family medicine.

Table 3. Child Health Module, Clinical Teaching evaluation results, academic staff and students' feedback over 3 years. Obtained by a self-administered questionnaire of 5-points Likert scale

Academic staff and students feedback	Average Academic Staff satisfaction (out of 5)			Average Students level of satisfaction (out of 5)		
	2014	2015	2016	2014	2015	2016
Academic year						
Availability of cases	3.5	4.1	4.3	3.3	3.8	4.2
Quality of cases	4.4	4.8	4.5	3.6	4	4.5
Cooperation of hospital staff	3	3.9	4.1	3.9	4.2	4.5
Time spent on bedside teaching	3.8	4.5	4.8	4.1	3.8	4.1
Time spent on discussion	3.9	4.2	4.5	3.7	4	4.3
Availability of teaching rooms	4.5	4.7	3.9	3.9	3.8	3.7
Patients and co-patient's cooperation	4.6	4.8	4.5	3.8	4.5	4.8
Easy access to cases	3.7	3.8	4.1	2.8	3.5	4
Practicing chances	3.6	4.2	4.5	4.5	4.8	4.8
Attended procedures	4.5	4.6	4.8	3.2	3.5	3.3
Average/year	3.95	4.36	4.4	3.68	3.99	4.32

This workplace-based clinical training showed in table 1 is very flexible. If the cases are few or the ward was busy with service activities or very ill children, the teaching will be modified to take place in the emergency department or the outpatient clinics.

Implementing a child health module over 3 years revealed good results as explained in table 2. The average number of students been taught is 35 students in this module every year and about 10 to 14 of the clinical academic staff are participating in this teaching process. The results revealed an average of 44 clinical teaching hours in the module of child health and about 26 cases seen in the module in 5 weeks.

Academic staff and student's feedback

Table 3 showed the results of the evaluation of the students and the academic staff on the clinical teaching in the child health module over 3 years. There is an improvement in the students and academic staff perceptions over the 3 years of the implementation. Despite the fact that this improvement is not statistically

significant, it may indicate that updates in the contents and implementation based on the feedback of the staff and the students are very important. The least item to score in the first implementation of the module in 2014 by the academic staff is the cooperation of the hospital staff, which scored only 3 out of 5 in the average. And the least evaluated by the students in the first implementation in 2014 was easy access to cases which scored only 2.8 out of 5 in averages. Both items improved gradually in the subsequent implementations. The hospital staff cooperation improved as stated by the academic staff to score 3.9 and 4.1 out of 5 in 2015 and 2016 respectively. Easy access to cases as evaluated by the students improved to be 3.5 and 4 out of 5 in averages in the years 2015 and 2016 respectively. These patterns of improvement are seen almost in all items evaluated by the academic staff and the students. Some exceptions are seen in the evaluation results. For example availability of teaching rooms in the hospital shows regression from the opinion of both academic staff and the students.

DISCUSSION

From the above results we can conclude that training of medical students in our clinical settings includes the following aspects:

- a) Transmission of experience
- b) Help students to adapt to the workplace and working environment
- c) Train students in the same environment as their future practice
- d) Dealing and observing the real problem and learn how these problems are dealt with
- e) Adapt and trained in working as a team
- f) Developing communication skills
- g) Understand the nature of work relations
- h) Dealing with the complexity of the medical service system.

Despite reports from the literature that stated the decline of the bedside clinical teaching due to changing nature of teaching hospitals, tendency of hospitals to adopt policies of shortening the admittance time of patients, in addition to the noise created by students and time constrains (Peters and Cate, 2014; Nair et al., 1998; Thibault, 1997), our experience gave good results as the teachers favored this teaching method and the students gained clinical skills. Analysis of this situation using workplace-based theories threw a light to our experience and may help us to improve in the future and help some other institutions with similar contexts to follow.

Analysis of our clinical learning situation according to Kolb's theory

This theory causes a revolution in clinical teaching as it describes the familiar learning cycle to consist of 4 corners as described in figure 1: 'concrete experience', 'reflective observation', 'abstract conceptualization' and 'active experimentation'.

And the theory is based on the fact that the clinical teacher needs to consider how students and trainee learn directly through taking part in workplace-based activities.

The Kolb's cycle reflects the complexity of learning through experience in the workplace.

The role played by the clinical teacher as he is a part of the workplace in addition to his role as a teacher and trainer will add to the strength of this concept (Kolb, 1984).

In our situation, both the students and the teachers took place to be a part of the workplace. All elements of the workplace took part in the teaching activities. This environment that we created gives the students the sense of being part of the place and activities and helps them to integrate knowledge with experience.

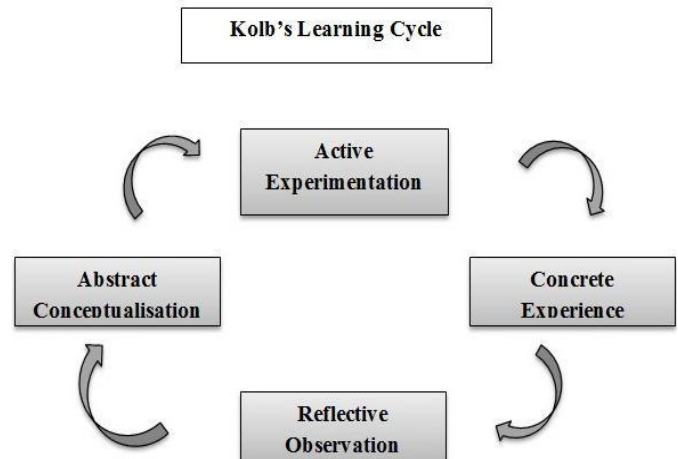


Figure 2. Kolb's cycle (adapted from Kolb's 1984) (Kolb, 1984)

Analysis of our situation according to the Dundee three-circle outcomes model for a teacher in the clinical environment (Hamilton, 1999; Harden et al., 1999; Friedman et al., 1999)

1- Task of a clinical teacher (doing the right thing)

a) **Time efficient teacher:** Despite good planning, problems with time may arise. Problems related to time have been seen in many similar reports (Nair et al., 1998). Teaching on a ward round may take more time than planned. Moreover, as the case in any process where a group of people participated, a delay due to any reason from any of them may occur. I can conclude that time problems arise several times in my situation, but it had little effect on the whole process of the clinical teaching.

b) **Inpatient teaching:** This is the most successful experience in our situation as varieties of cases are seen. The student's logbook help to select cases that had not been seen before or clinical signs which students did not see and practice eliciting.

c) **Outpatient teaching:** Though, this was not clearly planned in our situation, but being in the hospital with students for a long time gave a chance to see good cases present in outpatient clinics and this usually takes place when the ward is busy or the suitable cases are not available.

d) **Teaching at the bedside:** This is the core practice in our situation and it was successful and enthusiastic to the students. Students often develop good relations with patients and the working staff like nurses; it gives the observer a sense that those students are part of the place and the working staff.

e) **Work-based assessment of learners:** Well-practiced in my situation and gave good results as the students are assessed after any clinical teaching session and this is a part of the formative assessment of the CHM.

f) **Providing feedback:** Directly after any session, we got feedback from our students in addition to the planned feedback at the end for the module as a whole. This helps much in improving the environment in the coming sessions.

2- Approach to teaching (Doing the thing right)

a) **Showing enthusiasm for teaching and towards learners:** In this aspect the results in my situation were amazing. The students feel that they are part of the working environment and they were motivated by being part of the real work in the ward and then taught using the same patients.

b) **Understanding learning principles relevant to clinical teaching:** In our context, there is a narrow barrier between service delivery and learning process as each has its own principles and desired outcome. And while students observe routine clinical rounds in the ward, they will be able to understand the differences between clinical studying and service delivery.

c) **Using appropriate teaching strategies for different level of learners:** The situation and environment we created showed excellent differentiation between teaching a trainee and interns in a major round and teaching students thereafter.

d) **Knowing and applying the principle of effective feedback:** As the feedback is obtained immediately, the students were able to reflect the exact situation from the positive or negatives aspects.

e) **Modeling good professional behavior including evidenced-based patient care:** Teaching students in the environment of good practice help students in developing and acquiring good professional behavior which will guide their practice as doctors in the future.

f) **Grasping the unexpected learning moments:** In our context, this occurs more frequently and more than expected. To our surprise, students are more motivated when facing these moments than the planned. For instance, students will ask to attend procedures that arise suddenly in the ward or be motivated by changing the scheduled discussion cases to cases that are not frequently seen and found in the ward.

Table 4. A three circle outcome model adopted in the Dundee curriculum (Harden et al., 1999)

Outcomes related to the performance of tasks expected of a doctor	<input type="checkbox"/> Application of clinical skills of history taking and physical examination <input type="checkbox"/> Communication with patient's relatives and other members of the healthcare team <input type="checkbox"/> Health promotion and disease prevention <input type="checkbox"/> Undertaking practical procedures <input type="checkbox"/> Investigation of patients <input type="checkbox"/> Management of patients
Outcomes related to the approach adopted by the doctor to the performance of tasks	<input type="checkbox"/> Application of an understanding of basic and clinical sciences as a basis for medical practice <input type="checkbox"/> Use of critical thinking, problem-solving, decision making, clinical reasoning and judgment <input type="checkbox"/> Incorporation of appropriate attitudes, ethical stance, and an understanding of legal responsibilities <input type="checkbox"/> Application of appropriate information retrieval and handling skills
Outcomes related to professionalism	<input type="checkbox"/> Role of the doctor within the healthcare delivery system <input type="checkbox"/> An aptitude for personal development and appropriate transferable skills

3- Teacher as a professional (the right person doing it)

a) **Soliciting feedback on teaching:** We often request frequent feedbacks from students, not only on the process of teaching but also in the teaching environment and the results were good. Sometimes there are negative comments which call for discussion and correction.

b) **Self-reflection on teaching strength and weakness:** The whole process in our situation is real and actually it reflects what is happening in real life when students graduate and start practicing medicine.

c) **Seeking professional development in teaching:** This is clear and applicable in our situation and gives the students the opportunity to know how they will develop good practice attitude in the future.

d) **Mentoring and seeking mentoring:** In this situation, the students are taught and observed doctors and nurses practicing at the same time. The clinical teacher is playing both roles as a teacher and mentor which will add to the benefit of the student.

CONCLUSIONS

Clinical Teaching is affected by many factors and is very complicated. All parties of the workplace where the clinical teaching is taking place should be oriented and participated in the clinical teachings. Being a part in patients' service delivery, the clinical teacher will gain patients and other staff respect which will facilitate the process of clinical teaching

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