

## Feedback in a clinical setting: A way forward to enhance student's learning through constructive feedback

Amber Shamim Sultan, Muhammad Arif Mateen Khan

### Abstract

Feedback is considered as a dynamic process in which information about the observed performance is used to promote the desirable behaviour and correct the negative ones. The importance of feedback is widely acknowledged, but still there seems to be inconsistency in the amount, type and timing of feedback received from the clinical faculty. No significant effort has been put forward from the educator end to empower the learners with the skills of receiving and using the feedback effectively.

Some institutions conduct faculty development workshops and courses to facilitate the clinicians on how best to deliver constructive feedback to the learners. Despite of all these struggles learners are not fully satisfied with the quality of feedback received from their busy clinicians.

The aim of this paper is to highlight what actually feedback is, type and structure of feedback, the essential components of a constructive feedback, benefits of providing feedback, barriers affecting the provision of timely feedback and different models used for providing feedback. The ultimate purpose of this paper is to provide sufficient information to the clinical directors that there is a need to establish a robust system for giving feedback to learners and to inform all the clinical educators with the skills required to provide constructive feedback to their learners.

For the literature review, we had used the key words glossary as: Feedback, constructive feedback, barriers to feedback, principles of constructive feedback, Models of feedback, reflection, self-assessment and clinical practice etc.

The data bases for the search include: Cardiff University library catalogue, Pub Med, Google Scholar, Web of Knowledge and Science direct.

**Keywords:** Feedback, Constructive feedback, Barriers to

.....  
Aga Khan University Hospital, Karachi.

**Correspondence:** Amber Shamim Sultan. Email: ams\_21y@hotmail.com

feedback, Principles of constructive feedback, Models of feedback, Reflection, Self assessment, Clinical practice.

### Introduction

Feedback is a dynamic process that involves both the learners and clinical supervisors meant to provide constructive feedback on student's performance in order to improve their clinical skills. It can be either formative to improve or modify the learner's behaviour or it may be a summative evaluation of student's performance. The purpose here would be different i.e to compare the learner's performance, assign grades or promote students to the next stage.<sup>1</sup>

The Liaison Committee on Medical Education (LCME), the body responsible for certifying the US medical schools established certain standards for structure and function of medical schools. According to the accredited standards, "courses and clerkships should provide formal feedback during their clinical experience so that they may rectify their shortcomings(ED-30 and ED-31 in the LCME'S).

### Types of Feedback

Feedback can be categorized as formal and informal. Ideally, both methods of feedback should be used to ensure continuous and timely information being transferred.<sup>2</sup> Informal feedback is the one that provides insight about student's observed performance. It actually adds value in the sense that important key points are not being missed. The benefit of this method is that, it seems to be situation- specific ensuring important elements are being covered. Many clinicians feel that this informal feedback is so much engrossed in the clinical environment, that it is provided unconsciously and hence it may not be considered as feedback.<sup>3</sup> On the other hand, formal feedback is provided within the workplace setting. There are few principles that need to be considered while providing formal feedback (Figure-1).

Several studies explore the types of feedback as directive or facilitative that can be used to support learners. Directive feedback actually informs the learner about corrections to be required. However, facilitative feedback provides comments and suggestions to facilitate learners for their own revision and improvement.

**Figure-1:** Guiding principles for formal feedback.

- 
- ◆ Awareness of learners about the time and place of the feedback session to be conducted.
  - ◆ Awareness of learners about the purpose of the session
  - ◆ All the relevant information to be gathered prior to the session
  - ◆ Ensure the aim and purpose of the interview and specific points need to be focused
  - ◆ Encourage learners to self-assess their own performance before providing the feedback
  - ◆ Reinforce positive behaviours/good practice
  - ◆ Encourage learner to identify possible solutions for poor performance
- 

Feedback can also vary in terms of its specificity. Specific feedback seems to be beneficial for initial change in learner's performance. Though, in the long run, it may demotivate from further exploration. Apart from that, it may also demoralize subsequent learning and independent performance.<sup>4</sup> Specific feedback may provide comments related to a specific task, but is not applicable for the transfer of knowledge to other task. Nonspecific feedback such as "you have performed the abdominal examination very well" may create uncertainty, which in turn may lead to a greater reduction in student's learning.

### Structure of Feedback

Apart from being of various types, feedback can be structured differently such as written, verbal or numerical. The format of feedback is directly related to the context. For instance, written feedback arising from a written assessment may be of greater help. In fact it carries more weightage and increases its effectiveness rather than just verbal comments, but negative comments require support to produce positive outcomes in student's learning.<sup>5</sup>

Students may find the written feedback very challenging because of its length and complexity. Such feedback loses its essence and is often ignored by the learners. Ultimately, the main message may be lost. This dilemma can be resolved by scaffolding. It may help learners through complex feedback along with prompts, clues, solutions and instructions.<sup>6</sup> This process provides motivation for the learner to work hard, deconstructs the task to make it more attainable, provides direction for future learning and above all, it also identifies the differences between the actual performance and what is expected at their level.

Feedback provided should be based on observations made while practicing in a clinical setting followed by supervisor's reflection on aspects of practice. It should be both reinforcing and interactive as it guides the learners of how they can improve their future performance.<sup>7</sup>

Feedback is taken as a staged broad educational process between the learner, teacher and the institution. All aimed to acquire balance between the ongoing education processes.

Feedback helps to identify the problems that the learner may encounter during the whole learning process. It is based on opinions and suggestions. In contrast to the standard, our current education system emphasizes less on building an effective feedback system. Due to lack of frequent, one to one supervision and a lack of coordination at both ends, there is consistent deficit of professional knowledge and skills development in our learners.<sup>8</sup> Apart from that, learners also seem to be more reluctant to share the same.

It is widely accepted that provision of quality and timely feedback is essential for learning but most medical students report that they hardly receive feedback from their faculty (AAMC Medical School Graduation). Similarly, in Pakistani Medical School system; students reported the same. The non-availability of feedback is due to the several reasons which in turn, may limit their academic development and restrict the supervisor's professional growth. The concept of feedback seems unclear to most of the clinicians as many medical institutes do not conduct workshops for developing the feedback giving skills of supervisors. Ultimately, there is a lack of constructive feedback and students may have false assumptions of their performance.

### Feedback "on the run"

Timing and frequency of feedback are equally important for quality of feedback to be delivered. Preferably, feedback related to an observed performance or encounter should be given as close to the event as possible. Learners and Clinicians need to understand the importance of feedback, as such sessions are meant for improving the performance. The learners should be actively involved in this process regardless of who initiates the feedback session. Due to busy clinical workload of the clinicians, students do not get an opportunity to receive feedback, but somehow it is learner's responsibility to ask for a constructive feedback on areas what went well, what could have done better and how to improve their future performance.

The process of constructive feedback depends on the basis of characteristics/ guidelines to be considered while providing feedback. As mentioned earlier, the process of feedback can be positive or negative provided in a constructive manner, as it helps the learners to sustain the positive behavior, solve the problems and encourage their academic development.

## Key features of providing Constructive feedback

There are some key features of constructive feedback that need to be considered while giving feedback to the medical students or trainees in a clinical setting. In the literature, several authors used different terms to discuss the characteristics of an effective feedback; we cluster all of them together as an essential component of a constructive feedback (Figure-2).<sup>9</sup>

Feedback is taken as a staged comprehensive system between the student, supervisor and institution. It is meant to keep balance between the continuing education processes. Feedback is considered not just as a teaching and learning process, but it may add benefits to the supervisors in terms of promoting their personal and professional growth.<sup>3</sup> It gives a feeling of satisfaction to the supervisors by facilitating the learner's learning along with their development.

The first principle to be considered in the feedback process is the need of both learners and supervisors to be committed and engaged in the process. This can only be possible if the purpose of feedback is quite clear to the learners (formative or summative). So basically, it is a skill that can be learned, practiced and improved upon by experience. Another important consideration is quantity; feedback is best utilized if it is provided in small chunks rather than as a banquet. It has to be limited to only one or two areas.<sup>10</sup>

It is equally important to ensure that the learners are aware of the criteria against which their performance will be assessed. If learners do not know about the criteria for good performance, than the information provided may not make any sense and learners will find it very difficult to identify the gap between actual and the desired clinical performance.<sup>11</sup> Feedback should also be based on performance that was directly observed and should be phrased in a nonjudgmental language.

**Figure-2:** Principles of providing constructive feedback.

- 
- ◆ Establishment of an appropriate interpersonal climate
  - ◆ Well planned, timed and expected ( agreed upon their common goal)
  - ◆ Based on direct observation of performance/first hand data (without involving a third person and through direct observation of performance)
  - ◆ Regulated in quantity (accurate and reasonable amount of information to be delivered)
  - ◆ Limited to behaviours that are remediable
  - ◆ Descriptive (non-evaluative)
  - ◆ Deal with decisions and actions, rather than assumed intentions
  - ◆ Deal with specific performance, rather than generalized behaviours
  - ◆ Confidential (keeping trust and respect)
- 

Feedback should focus on specific behaviour rather than on general performance. For example, a comment such as good job or well done! Or "you have done a wonderful job" does not make any sense and nor will it guide the learner to improve their subsequent performance. Feedback should bring about significant change in the learner's thinking, behaviour and performance. To accomplish this goal, learners need to understand what feedback is, its purpose and as well as how to apply it in a real life situation. The feedback conversation should include strategies and plans to fill the gap between actual and the desired performance and identify different ways by the learners to improve their clinical skills in future.<sup>11</sup>

## Self-Assessment and Feedback

Self-assessment is considered as an important component of the feedback process and is essential for self-development as well as for educational growth of the learners. It actually represents the learner's ability to self-assess for a particular task. The process of feedback should guide the learner to identify areas that need improvement. Changes required need to be decided by the learner, thus allowing learners to preserve their self-confidence. It may be useful to encourage students for assessing their own performance that ultimately help them to highlight deficiencies that the teacher is trying to convey.

Hence, it reduces the perceived negative impact of the feedback. Sometimes, students may raise the problems not thought of by the learner. This makes the process of feedback more interactive and challenging.<sup>12</sup> However, it seems to be an easy task but previous researches inform that our learners are not very good at self-assessment. Infact, it is recognized as one of the toughest skills as explained by Benjamin Franklin in 1750.<sup>13</sup>

Research has proven that there are multiple factors that impede the capacity building of learners for not being very good at self-assessment. These factors are cognitive, social and sociobiological factors. The current shift in the Medical Education paradigm towards competency based curriculum signifies the importance of self-assessment to feedback. We expect learners to achieve specified milestones that enable them to practice as competent physicians in their respective field.<sup>14</sup> Effective feedback helps learner to achieve those milestones. Similarly, many medical schools have been establishing simulation based medical education so feedback is considered to be a critical step in SBME.<sup>15</sup>

## Benefits of Giving and Receiving Feedback Establishing rapport with the supervisors

Promoting a positive and healthy learning environment is crucial to the feedback process. It is a bridge that

promotes the learning process and encourages learners to talk freely about their performance.<sup>9</sup> It also eliminates a major hindrance to a successful and powerful tool for development. By giving and receiving feedback can create an environment conducive for active learning. It also provides opportunity to the supervisor and learner to discuss the issues and concerns the students are facing during their clinical rotation.

### **Self-development of Instructor**

It has been accredited that supervisor's communication and interpersonal skills are markedly improved through the provision of effective feedback. A feeling of personal satisfaction is accomplished by promoting the learner's growth and enhancing their clinical knowledge and skills.<sup>3</sup>

### **Benefits to the students**

Feedback is essential for developing the learner's growth, providing direction for future learning, increasing motivation and self-esteem. In addition to that, it also helps to boost confidence of the learner.<sup>16</sup> In the absence of feedback, students may self-assess their performance themselves inappropriately. Ultimately, this can lead to decreased levels of student's self-esteem which may have a negative impact on their future performance.<sup>17</sup>

### **Acceptance of feedback**

Despite being considered as an essential component of the educational process, students still find that there is an inconsistency in the amount and quality of feedback received from their supervisors. Learners need to be sanctioned with the skills required to receive feedback and utilize it effectively. There is a need to have a clear understanding of student's responsiveness to feedback. Students with high self-esteem have a positive attitude towards receiving feedback.<sup>18</sup> Such students appreciate helpful comments and correlate it directly to their observed performance.

It is important to understand that students might perceive the feedback differently from the actual feedback received and considered it as a personal trivial.<sup>19</sup> To some extent, it may depend on the relationship between the student and supervisor. Students value comments, if there is an element of respect and feeling of being very well known by their supervisors. Hence, strong relationship may motivate students to seek timely and frequent feedback from their supervisors.

### **Obstacles to Feedback Increasing demands**

The clinical supervision can never occur in isolation from

the wider context of the clinical setup in which it takes place. Due to an increased demand of providing patient care as well as student's supervision, provision of quality feedback seems to be an enduring problem for the Consultants.<sup>8</sup> Supervisors give priority to patient care which ultimately results in minimal clinical supervision of students. Similarly, during intense ward activity, students require maximum supervision and constructive feedback from their clinician in order to improve their future performance, but unfortunately due to time constraint and more demanding clinical work, students do not get ample opportunity to receive feedback. Their clinical skills are not directly observed in a clinical setting.

### **Student Teacher Relationship**

For ensuring positive relationship with students, some of the clinicians avoid giving negative feedback. Actually, they think that it may affect their relationship with the students. Similarly, students seem to be more reluctant in receiving feedback, due to fear of criticism. Ultimately, they may rely completely on their self-assessment.<sup>2</sup> Several studies have highlighted that the weak students tend to over-rate themselves.<sup>20</sup> Arnold and Woolliscroft noted more conservative approach for self-evaluations by the high scorers.<sup>21,22</sup>

### **Reasons for inadequacy in carrying out Self-Assessment**

- ◆ Students who have scored high at school and have received positive feedback are much more confident ultimately, they are more reluctant to bring any modifications.<sup>22</sup> Similarly bright primary school children overestimate their abilities, whereas the situation is reverse in higher education.
- ◆ Students are unaware of the expectations required from them.<sup>23</sup>
- ◆ Considering compensation for poor performance as a defense mechanism.<sup>22</sup>

Majority of the students and trainees expect and prefer to receive feedback from their clinicians rather than from their peer.<sup>20</sup> In the absence of feedback, learners may rely completely on their self-assessment to determine what was done well and what went wrong and to identify areas that needed improvement.

For making self-assessment to be successful, a change in our educational culture is required, so that students and faculty both feel comfortable in making judgments about their own performance. One of the goals of higher education is to self-assess their own work critically. Researches have indicated that self-assessment improves

student's ability to assess their own performance in medical school.<sup>24</sup>

### Models for Providing Feedback

Several models have been proposed that provide flexibility to the supervisors for adapting instruction according to the needs of each learner and keeping in mind the environmental constraints as well. However, if a clinical teacher adapts any of these models, he or she needs to communicate what is expected from them and why. The two most commonly used and accepted models of providing feedback are adapted from the Education world. Among all the models, Pendleton's rule has been used as a conventional method of giving feedback. Another model, proposed by Silverman is known as agenda-led, outcome-based analysis or ALOBA. They are pretty much similar in a way that it reduces the chances of defensiveness from learners and makes it more constructive for learning. It also provides an environment conducive to learning. Both these methods can be used either as a group or on a one to one interaction basis.

#### Pendleton's rules

A structured approach for establishing a conversation about clinical performance between a learner and the supervisor was described by Pendleton.<sup>25</sup> This model is designed in such a way that the positive comments about the performance are highlighted first by the learner in order to create an environment conducive to learning, followed by the facilitator or group reinforcing the same. The learner then suggested "what could be done differently" followed by the person or group as a whole. Hence, defensiveness from providing negative comments/ weaknesses can be avoided and allows better self -assessment of their performance. There are some drawbacks of adapting this approach. This model creates an artificial scenario by forcing students to discuss their strengths first. Hence, opportunity to have an interactive discussion on important topics that may be relevant to the learner is lost.<sup>26</sup> There is also a possibility of inefficient use of time because the same topic is being discussed twice.

#### ALOBA

To counterbalance the disadvantages of Pendleton's rules, ALOBA approach was developed by Silverman.<sup>27</sup> The principle of introducing this approach was to identify the agenda by the learner and to reflect on areas that need to be improved upon. This early acknowledgement removes defensiveness and provides opportunity to focus on the feedback rather than thinking about the nature of the feedback. In the next step, the facilitator tries to determine the goals that the learner wants to achieve

preceded by identification of skills required for achieving that particular outcomes. This kind of discussion should be non- judgmental, descriptive and relating to behaviour that requires modification. This actually represents the true philosophy of feedback. This is followed by learner's self-assessment and self-problem solving. During this feedback process, learner was actively involved in identifying the hitches that may come across during the learning phase. So basically, learner is not just a passive recipient of the information.<sup>27</sup>

#### The feedback sandwich

In medical education, supervisors may select an approach that is not meant to be offensive or may embarrass the learners. Such approach is called as "Feedback sandwich approach" which is considered as a constructive approach. It includes both positive comments as well as reinforcing feedback in a few sentences. The commonest mistake that the clinicians make is to focus more on the positive comments leaving less time for areas that truly needed improvement. They often use the word "but" before providing the corrective comment. In that case, students quickly learn to focus on what comes after the "but" and ignore the positive comment. It is also important for a supervisor not to leave a false positive impression on learners about their clinical performance being observed. Learners are usually encouraged to express their views about how well they have performed the clinical skills and to identify their shortcomings by themselves. In this way, defensiveness can be reduced in response to the negative feedback and learners would be more receptive in getting both positive and negative feedback from their supervisors.<sup>2</sup>

#### The reflective feedback conversation

Another modified interactive approach was suggested, which focuses mainly on the essential goals of feedback. The main aim of this model was to encourage learners to reflect on their actions and to motivate them for subsequent improvement in their clinical performance.<sup>28</sup> This method is quite similar to Pendleton's teacher-learner conversation but emphasized more on the learner's own capacity to identify their performance deficits and includes an action plan of how to improve their performance further. It basically builds the learner's own self-assessment ability. With the passage of time, this strategy can be incorporated into daily clinical teaching and learning.

#### TELL Model

This model is an excellent example of creating an environment conducive for providing constructive feedback. It actually permits a two-way communication

**Figure-3:** Key elements of TELL Model.**Features of the TELL Model**

- ◆ TELL learners, specifically, about the behaviour to be repeated or corrected.
- ◆ Explain learners about the consequences as a result of either negative or positive feedback.
- ◆ For correcting the problem, supervisors listen to the ideas suggested by the learners
- ◆ Let the learners know about the positive or negative consequences, if the problem is corrected or not.

between the learner and the supervisor with capacity to discuss the issues related to the learner's performance and provided solutions for further improvement in descriptive form (Figure-3).<sup>29</sup>

**Models for Teaching**

Apart from different feedback models that can be adopted to provide guidance to the learners about their clinical performance, there are different models used for adapting the best teaching strategy in a clinical setup. All these models are flexible for adapting instruction according to the needs of each learner and the environmental constraints. Students are actively involved in all these learning and teaching process. They may get enough opportunity to share their experiences and reflect on their own shortcomings and identify areas that needed urgent attention. Two models are briefly explained here.

**The SNAPPS model**

The SNAPPS model is basically a learner centred, outpatient model including six steps that learner has to follow after having an interaction with the patients. The six steps that the learner controls are mentioned below:<sup>30</sup>

- ◆ Briefly summarize the history and examination findings
- ◆ Narrow down the differential diagnosis to two or three possible relevant possibilities
- ◆ Analyze the differential by comparing and contrasting the relevant possibilities
- ◆ Ask question about problems, any uncertainties or alternative approaches.
- ◆ Consider the patient's medical problems, plan management options as required
- ◆ Select a case related problem for a self-directed learning

Considering all these six steps, this model is appropriate for experienced learners, it basically encourages learners to initiate the feedback process and do most of the work for justifying their thinking and exploring what they don't understand.

**The one-minute preceptor model**

This is the most widely known teaching method. This involves identifying the needs of each individual learner along with teaching and providing feedback by using a

**Figure-4:** Steps of the One minute preceptor model.

- ◆ Probe students about student's understanding of the problem related to the patient
- ◆ Probe for underlying reason or alternative explanations
- ◆ Teach a general principle
- ◆ Provide positive comments about what the learner has done well
- ◆ Provide suggestions for improvement

five step approach (Figure-4).<sup>31</sup>

**Recommendations**

Feedback is considered as an effective tool for clinical teaching and supervision of learners. Without constructive feedback, good performance cannot be reinforced and poor performance or areas for improvement may not be identified at the expense of patients or colleagues.

Feedback sessions should be compulsory during the clinical teaching as well as the training years. Actually these feedback sessions form the basis for the progression of trainee's career. Every Medical Institute should put emphasis on the provision of feedback by the supervisors and encourage learners to reflect back on their own performance. Confidence will develop in the learner and they can freely talk about their progress with their supervisors. These sessions should require active participation of the learner so a sense of being actively involved in the discussion will be established and they can formulate their future line of action.

Giving constructive feedback is a skill that can be learned. It can improve learning outcomes and helps learner to develop an analytical approach to learning. It was identified by Knowles that adult learners welcome feedback if it is related to their performance being observed and tailored to their learning goals. In an educational setup, there is a need to incorporate both formal and informal feedback sessions but for that we need to train our clinicians especially those who are involved in clinical teaching as well as those who are on an educator track. They need to attend the training programmes or workshops on how to give constructive feedback in a busy clinical setting. In that situation, some clinicians or supervisors provide unhelpful comments which really challenge the learner's confidence and demotivates them to improve their performance further.

**Disclaimer:** None to declare.

**Conflict of Interest:** None to declare.

**Funding Disclosure:** None to declare.

## References

1. Bienstock JL, Katz NT, Cox SM, Hueppchen N, Erickson S, Puscheck EE. To the point: medical education reviews-providing feedback. *Am J Obstet Gynecol.* 2007; 196:508-13.
2. Clynes MP, Raftery SE. Feedback: an essential element of student learning in clinical practice. *Nur Educa Pract.* 2008; 8:405-11.
3. Clynes M. An exploratory study of preceptors' views and experiences of providing feedback on clinical performance to post-registration student nurses (sick children's nursing). Masters Thesis, University of Dublin. 2004.
4. Goodman JS, Wood RE, Hendrickx M. Feedback specificity, exploration, and learning. *J Appl Psychol.* 2004; 89:248-62.
5. Webb WB. The problem of obtaining negative nominations in peer ratings. *Piers Psychol.* 1955; 8:61-3.
6. Hartman, H., Scaffolding & cooperative learning. *Human learning and instruction*, 2002. 69.
7. Hafeez K, Wahaj A. Feedback In Pakistan's Medical & Dental Education System Feedback In Pakistan's Medical & Dental Education System. *J Pak Dent Assoc.* 2014; 23:175-8.
8. Sachdeva AK. Use of effective feedback to facilitate adult learning. *J Cancer Educ.* 1996; 11:106-18.
9. Hewson MG, Little ML. Giving feedback in medical education: verification of recommended technique. *J Gen Int Med.*1998; 13:111-6.
10. Cantillon P, Sargeant J. Giving feedback in clinical settings. *BMJ* 2008; 337:1961.
11. Ende J. Feedback in clinical medical education. *J Pak Med Assoc.* 1983; 250:777-81.
12. Chowdhury RR, Kalu G. Learning to give feedback in medical education. *Obstet Gynaecol.*2004; 6:243-7.
13. Dunning D, Heath C, Suls JM. Flawed self-assessment implications for health, education, and the workplace. *Psychological science in the public interest.* 2004; 5:69-106.
14. Krackov SK, Pohl H. Building expertise using the deliberate practice curriculum-planning model. *Med Teach.* 2011; 33:570-5.
15. Issenberg SB, McGaghie WC, Petrusa ER, Lee Gordon D, Scalese RJ. Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review. *Med Teach.*2005; 27:10-28.
16. Begley CM, White P. Irish nursing students' changing self-esteem and fear of negative evaluation during their preregistration programme. *J Adv Nurs.*2003; 42:390-401.
17. Glover P. Feedback. I listened, reflected and utilized: Third year nursing students' perceptions of their clinical learning environment. *J Adv Nurs.* 2000; 25:1299-306.
18. Young P. I might as well give up: Self-esteem and mature students' feelings about feedback on assignments. *J Furth Higher Educa.*2000; 24:409-18.
19. Eraut M. Learning contexts. *Learn Health Soc Care.* 2006; 5:1-8.
20. Evans AW, Aghabeigi B, Leeson R, O Sullivan C, Eliahoo J. Are we really as good as we think we are? *Ann R Coll Surg Engl.* 2002; 84:54-6.
21. Arnold L, Willoughby TL, Calkins EV. Self-evaluation in undergraduate medical education: the longitudinal perspective. *Med Ed.* 1985; 60:21-8.
22. Woolliscroft JO, Tenhaken J, Smith J, Calhoun JG. Medical student's clinical self-assessments: comparisons with external measures of performance and the students' self-assessments of overall performance and effort. *Acad Med.* 1993; 68:285-94.
23. Sullivan K, Hall C. Introducing students to self-assessment. *Assess Eval Higher Educa.*1997; 22:289-305.
24. Chur-Hansen A. The self-evaluation of medical communication skills. *Higher Educa Res Develop.*2001; 20:71-79.
25. Pendleton D, Scholfield T, Tate P, Havelock P. *The Consultation: An approach to learning and teaching.* Oxford, UK: Oxford University Press, 2003.
26. Kurtz SM, Silverman JD. The Calgary - Cambridge Referenced Observation Guides: an aid to defining the curriculum and organizing the teaching in communication training programmes. *Med Educ.* 1996; 30:83-9.
27. Silverman J, Draper J, Kurtz S. The Calgary-Cambridge approach to communication skills teaching 1: Agenda-led outcome-based analysis of the consultation. *Educa Gen Prac.*1996; 7:288-99.
28. Sargeant J, Mann K, Sinclair D, van der Vleuten C, Metsemakers J. Challenges in multisource feedback: Intended and unintended outcomes. *Med Educ.* 2007; 41:583-91.
29. Natural Assets. Three Feedback Models.[Online] 2006 [Cited 2016 Jun 11]. Available from URL: <http://www.naturalassests.org.uk/3waystofeedback.pdf>
30. Irby DM, Bowen JL. Time-efficient strategies for learning and performance. *Clin Teach.* 2004; 1:23-8.
31. Aagaard E, Teherani A, Irby DM. Effectiveness of the one-minute preceptor model for diagnosing the patient and the learner: proof of concept. *Acad Med.* 2004; 79:42-9.