Review Article

Giving feedback in the new CBME curriculum paradigm: Principles, models and situations where feedback can be given

Thomas V Chacko[1],*

[1]*Dept. of Medical Education & Community Medicine, Believers Church Medical College, Thiruvalla, Kerala, India*

A R T I C L E   I N F O

A B S T R A C T

The new competency based medical education represents a paradigm shift from a teacher centered to a student centered learning of outcome competencies paradigm and so both the students and the teachers are unfamiliar with it. Giving and receiving feedback is central to the competency development framework. Only through frequent, timely and appropriate feedback there will be effective development of cognitive competence in its lead up to performance of competence. These concepts are illustrated to convey the importance of giving feedback to students.

As the teachers are expected to practice giving feedback to students, they were opportunistically asked prior to a faculty development workshop what their priority learning needs about giving feedback are. Based on this a focused review of literature was done to collect the information on the various models of giving feedback, the principles for giving feedback, the possible situations in curriculum delivery where teachers can and should give feedback to students.

The literature revealed some good practice models for giving feedback to the naïve as well as the mature students in ambulatory and clinical teaching settings as well as on their performance as revealed by their test results. Models of counseling which has strong element of feedback on the learner's performance and helping them choose the way forward after identifying the problem is also shared.

1. Introduction

In our traditional form of teaching that was in vogue prior to the new Competency Based Medical Education (CBME) curricular paradigm, mostly the only time that students received feedback on their learning, was when they came to know their marks that they received on the tests that were conducted mostly as "part-completion", Internal Assessment (IA) tests or the "model" (prior to university) exams or even worse, after their university exams when they came to know whether they had 'passed" or "failed".

However, with the changeover to CBME curriculum, the focus has shifted to ensure students acquire skills / competency outcomes listed and this requires frequent testing and giving feedback to students on their performance in the competency progression pathway toward the targeted level from knows to knows how to shows and does levels. The key to efficient progression along this pathway is through the feedback the students receive on what was done well and the areas that need further improvement.

Role of feedback in the above model of competency framework is linked to "Assessment for Learning" or "formative assessment". Here, for the feedback to be more effective and the learning more efficient, the assessment needs to move towards criterion referenced assessment which uses criteria that indicate whether the sub-component steps (often reflected in the deconstructed checklist for the competency) of the competency being assessed have been

* Corresponding author.
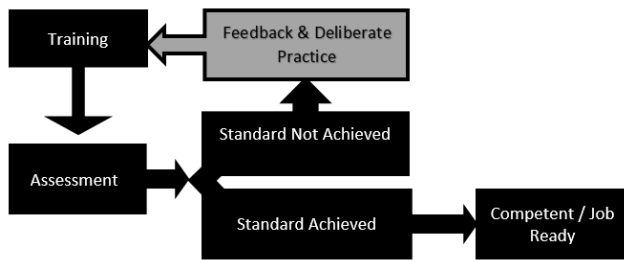E-mail address: drthomasvchacko@gmail.com (T. V. Chacko).

Fig. 1: Role of feedback in the competency development framework

correctly done or not. In CBME, the learning is progressive in a step-wise manner building on a knowledge base (knows & knows how) to demonstration of understanding of knowledge and components of the skill (shows, shows how) to finally doing it under supervision (does level) which demonstrates that the planned level of Competence has been reached. In the Undergraduate level, most competencies are expected to be reached at the level of advanced beginner and some at the competent level of professional task entrustable to a basic MBBS doctor. Post qualification, at the PG level feedback (from supervisor) continues and even post qualification as a specialist often feedback is through patient satisfaction or gap in care revealed via medical audits but mainly through self-reflection on practice with intent to reach the level of proficiency and expertise for that professional task or activity. The students need feedback and guidance at every level of these stages of competency development (developmental feedback) for helping them progress up the competency ladder.
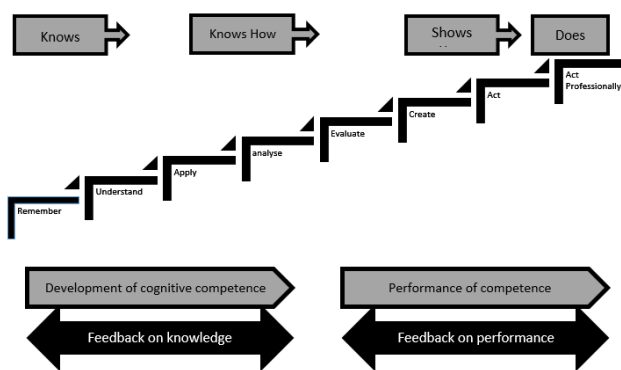

Fig. 2: Feedback at each step to help students progress up the competency ladder

2. Materials and Methods

As part of a national level Faculty Development Workshop on "Giving Feedback in the new CBME Paradigm", as part of their registration process, a "Learning Needs

Assessment" survey was done to identify their learning needs. Twenty-four participants responded expressing their priority topics related to giving feedback on which they would like to know more. A focused Review of literature on the needs identified is presented in this paper so that a larger audience through publication this article could benefit and put to practice in their respective settings.

3. Results from the Learning Needs Assessment
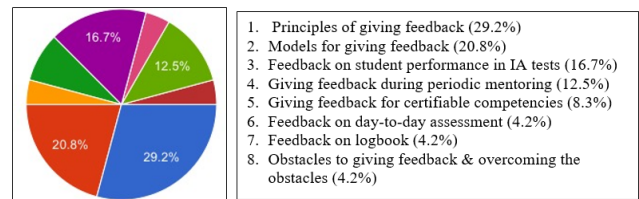

Fig. 3: Faculty's priority list of learning needs on aspects related to giving feedback (n=24)

The above shown data reflects the learning need of those who have recently transitioned from traditional curriculum to a new CBME curricular paradigm in which giving feedback is an important element and so were interested enough to attend a faculty development workshop. Although not representative of the entire body of teachers in the country, it indicates the current trend in this new context that the teachers want to know more about the basic principles of giving feedback and become familiar with the commonly used models that are built on educational theory. This could evolve over time when they actually become involved in giving feedback to the situations that they would actually be engaged with in the near future.

4. Gleanings from Literature on Giving Feedback

4.1. Models of Giving Feedback

Based on the principles of giving feedback as well as knowing the barriers to effective feedback, several "models" of giving feedback have been practiced in medical education. Becoming familiar with various models for giving feedback helps us choose the right model for the particular situation that requires feedback to be given and thereby help students progress more efficiently up the competency progression ladder.

Broadly we can classify the models that are useful for giving immediate feedback including in the clinical set up and those models that can be used by faculty as mentors to help students progress on the longer term.

4.1.1. *For novice learners in "on the go" situations (eg ambulatory settings)*

Here feedback is being tried with a CBME naïve student or to create a safe learning environment:

1. **The Feedback Sandwich:** Here the action done by the learner (and observed by the person giving feedback) that requires correction, is sandwiched between two positives of the performer of the skill. This is based on the fact that criticism (is like a bitter pill that is difficult to swallow) always puts that person in a negative (defensive / defiant) frame of mind that prevents receipt of even positive aspects that you have observed. Since the main purpose of feedback is to bring about a change (improvement), you begin and end with the positives (is praised for that) so that the recipient feels good and becomes ready to "take in" the negative critique that the giver of feedback wants the learner to change and improve in the overall performance of the skill. This model can be tried as an initial simple method to gain the trust of the trainee.[1]

2. **Pendleton's rules:** Are a modified way of delivering the "Feedback Sandwich" where students are actively involved through structured reflections on their performance while learning a skill. Here also, to create a safe learning environment, the positives are first elicited from the student (what are the positives i.e. what did I do well?) followed by what was done well as observed by the teacher. This process is repeated with a constructive purpose to identify areas for improvement where at first the student self-reflects to identify it and then after listening to the student, the teacher states the areas that have scope for improvement (what are the areas that need attention to make it even better?). Then finally both of them move to the positive practical front of reflecting / stating the possible ways / plan to improve the areas that were identified as needing more deliberate practice to improve and perfect it. The teacher offers or elicits more ways or possible ways from practicality point of view of implementation of the improvement plan.[2]

3. **SET-GO:** Represents the descriptive approach to giving feedback so that the receiver of feedback can objectively accept it. The steps in giving feedback to students are delivered in the following sequence:
   S: "What I **Saw**" (describe what the teacher mainly saw);
   E: "What **Else** did I see?" (describe what happened next);
   T: "What do you **Think**? (encourage the student to reflect to improve);
   G: What **Goals** are we trying to achieve? (clarify what competency or its level are we going to achieve); and
   O: "Any **Offers** on how you are going to achieve this goal?" (possible ways and concrete plans).[3]

4. **The Ask-Tell-Ask model:**[4] Is similar in concept but made simpler for both the learner and the teacher or supervisor to arrive at the diagnosis of the learner's further learning needs or areas that require improvement through deliberate practice:

First → ASK "what went well?" → TELL "this is what I think went well"
Then → ASK "what can be improved?" → TELL "this is what I think can be improved"

4.1.2. Methods for more advanced (Mature) learners

1. **ALOBA (Agenda led outcome based analysis):** Here the more mature student in a more supportive learning environment, has started engaging in reflective practice on their skills learning experience and as part of their reflection, identifies and asks for help from the teacher. This identified need now becomes the goal or AGENDA and so the student is less defensive about the negative feedback as it is now constructive in intention and motivates the learner to take extra efforts to achieve the Outcomes desired. The ANALYSIS part is where the teacher provides various strategies informed by educational theories, new concepts and evidence-based principles of skills acquisition that enable efficient and effective attainment of Outcomes. Teacher appreciates the efforts and steps taken by the student during each step towards achieving the outcome. Rather than focusing on what was done wrong, focus is on using an appropriate set of skills to achieve the outcomes. Here, the facilitator needs to be more experienced and knowledgeable to do the analysis and guide the learner.[5]
   Other models for giving feedback at the workplace/clinical setting**:**

2. **The six-step Chicago model:**[6] This is also similar to other models described but has the advantage of starting with recall of the aims and objectives that the learner is taken through to highlight the purpose of giving feedback. After the second step of giving an "interim" feedback of a positive nature, the stage is set for the third step that encourages the learner to give their self-appraisal of their own performance. The fourth step is focused on trainee's behaviour or actions (especially at the workplace) based on which the feedback is being given. The fifth step involves the trainer giving specific examples (based on notes taken) of what was actually observed. And finally the sixth step involves suggesting specific strategies for improvement..

3. **Precepting /mentoring models used in clinical teaching like five micro-skills$[7] one-minute preceptor,[8] MiniCEX:**[9] These are practiced widely and are described in detail in articles cited in reference and involves diagnosis of the learning gap followed by feedback based on this.

4.1.3. *Mentoring to improve performance in tests & achieve professional goals*

As teachers, we have to help the learners grow academically and professionally and giving feedback to the learner is one of the critical steps in the effective mentoring cycle. Several models are available and becoming aware of them will help fulfill our role as mentors and give effective feedback based on which the learner can then strategise, plan and take corrective and constructive action to go up the competency progression ladder.

1. Hattie & Timperley model of giving effective feedback: [10] The main purpose of this model is to reduce discrepancy (gap) between current understanding and the future goal. It becomes effective since the student becomes aware of this gap and so the students take more efforts and adopts more effective strategies or abandons unrealistic, unclear goals. Teachers help by providing appropriate, challenging and specific goals and then help students reach the goals through effective learning strategies and feedback.

The three guiding questions	Corresponding notion
1. Where am I going? (What are the goals?)	**Feed-Up**
2. How am I going? (What progress is being made toward the goal?)..	**Feed-Back**
3. Where to next? (What activities need to be undertaken to make better progress?)	**Feed-Forward**

2. The six-step problem-solving method: [11] This model is a useful tool to help student reach an agreement on what's gone wrong and where the problem lies. It is likely to work when the trainer-mentor is able to "connect" and develop rapport with the trainee and the expected outcomes are made clear. Then the process will be successful only if the trainee is made to realize and accepts that there is a problem and that only the solution of problem will lead to the expected outcome that is to be achieved. The six steps in this model are:

Step 1. The problem as observed by the trainer is presented to the trainee;

Step 2. Problem is discussed with the trainee;

Step 3. Trainee agrees there is a problem;

Step 4. Solution(s) are proposed that could solve the problem;

Step 5. Solutions are discussed in detail;

Step 6. Solution that needs to be pursued further is agreed.

This process of mentoring using the problem-solving approach comes naturally for health care professionals and so is easy to adopt and administer.

3. Using the Johari Window to counsel & mentor for change/improvement: When most methods of mentoring fail to identify an obvious issue, the Johari Window concept can be used to help the learner unravel it and bring it out from unconscious unaware to aware of the problem stage. To understand this, we must know the four quadrants of the Johari Window. [12] Quadrant I is the area of free activity that is known to both learner as well as others. This is mostly shared by the learner in their self reflections that we would have already known about from our observations. Quadrant II is the blind spot similar to halitosis where the person suffering from this bad-breath is not aware but others around are all aware. By eliciting the discovery of those aspects that the learner is unaware of, we can help the learner identify what is the problem or obstacle hindering progress. Quadrant III is the avoided or hidden area that the learner is reluctant to share with others (sensitive feelings or a hidden agenda) and similarly, Quadrant IV where the learner is not aware of activities that are harmful that are neither known to self nor to others. As mentors, only through exploration of these Quadrant III & IV may reveal the problem in the learning and thus be able to help them achieve their goals.

4.2. *Principles of Giving Feedback*

The principles of giving feedback to students in the field of clinical medical education propounded by Ende is very popular and states the following as "guidelines" : [13]

1. Feedback should be undertaken with both the teacher & students as allies with the common goal of improving the learning of the competency. In doing so, the teacher should take efforts to make the setting relaxed by creating a safe learning environment by agreeing to hold it at mutually convenient time & place so that the student is able to "internalize" the feedback received and plans the way forward in the competency-development pathway. As a "partner" in the process, the student also recognizes the role of feedback in competency progression and takes it seriously. The learners (& teachers) discover what skills & behaviours to improve, reinforce & augment & by the end of the clerkship or rotation, the teacher ensures that the student has time and ability to remediate deficiencies. [14]

2. Feedback is well-timed and expected: Timely giving of feedback soon after the learning activity helps the trainee to initiate remedial measures as the learning event is still fresh in their mind. The feedback culture should be such that the trainee expects that the teacher will be giving the feedback on their recently performed practice session or clinical encounter. Having a structured logbook that has space for teacher to document feedback on the learning experience as well as making it explicit the competency

progression pathway for that competency helps this expectation to be created. This also communicates to the trainee to ask for the feedback from the teacher/ supervisor. Feedback works best when trainee shows interest in receiving feedback to improve and progress up the competency level rather than the teacher imposing feedback on the student. Feedback that comes unexpectedly from the teacher creates a negative or defensive (even rebellious) mindset in the student that creates an obstacle to change and improve.

3. Feedback is based on first-hand observation/ data: The immediate supervisor / tutor who observes the performance of the student should be the one giving the feedback and not the one who sees someone else's observation notes. This teacher will know the context in which the performance was made (e.g. I saw your hands shaking) and so is more likely to be specific to a particular gap in performance by the learner.

4. Feedback should be regulated in quantity and limited to remediable behaviours: We must not overload the student with too many observations in the feedback. The quantity overload can be reduced by giving feedback on aspects that are critical and are remediable on the part of students through deliberate practice during the rotation.

5. Feedback is phrased in descriptive non evaluative language: When we give feedback our language should be descriptive (you missed this step while performing the procedure) rather than evaluative (your performance was hurried and insincere). Describing what was done in an objective way is acceptable by the student and it becomes amenable to change through practice. Evaluative and judgmental use of words ("you are lazy, disorganised" / made a "silly mistake") makes the student "close up" and they won't then listen to the rest of the feedback and your efforts are wasted.

6. Feedback should deal with specific performance rather than generalisations: First hand observation also makes it possible for the giver of feedback to share what was done well. So even this needs to be specific. Saying that "you did a terrific job" is a generalization. It implies a feedback on the person rather than the specific step in the task that was performed on which feedback is being given.

4.3. Situations for Giving Feedback during Curriculum Implementation

To help students learn and perform better, in the new CBME paradigm, there are plenty of opportunities for the teacher to give feedback to the student and help facilitate their learning to climb up the competency progression ladder (Figure 2). Some of the ways this can be done are described below:

1. Lectures / large group teaching: Giving feedback can be introduced as part of the lesson planning after each key message by asking questions to check correctness of their recall or understanding or even application of key message delivered. This will also serve in helping break the monotony of the lecture and reinforce the key message. Gagne's "nine events' framework to help instructional design includes providing feedback as part of any instructional design or lesson planning and this applies to all methods of instruction including for small groups (skills development). [15]

2. Small-group teaching: Feedback can be given to students on their correctness of higher cognitive learning that emerges from group discussion. Feedback can also be given on the group dynamics observed and the need to strive for collaborative learning from each other. Elements of processes observed that include self-directed learning and life-long learning (if it happened) or possible opportunities for this can also be pointed out. These are best done at the end of the group task as a debriefing on the learning from the group work or bedside teaching-learning experience.

3. Seminars: Student-led seminars provide opportunity for teachers to bring to the attention of the students any gaps in knowledge or factual incorrectness that students make and that come to the attention of the teacher. Feedback can also be given about other important resources that are reliable, evidence based can be made while summing up and commenting on the process used.

4. Tests, Internal Assessment Exams, etc: Feedback on their cognitive competence will help students in improving performance in future. First make sure whether the test is "formative" (opportunity for improvement is there) or "summative" (making pass/fail decisions). If it is a summative exam, feedback is not given during the exam as the aim is to certify whether the target competency level at the end of the course has been achieved for its certification. Maybe the results of such test are used for mentoring the students to improve the performance in the next summative exam. The "Internal Assessment Exams" as they exist in the current form are counted for pass/fail decisions at the university exam level. They are also used to encourage the student to reach minimum acceptable level for eligibility to appear for the university exam. In CBME this internal exam should ideally be at the end of a system/ rotation / part completion after having undergone formative tests where chance for remedial practice on the feedback received is given for the student to improve and achieve the target level of competence in the cognitive (knows/ Knows how) or psychomotor (shows how/ does) domain.

5. Practical Exams using DOAP, DOPS, MiniCEX, OSCE, OSPE & other ways of learning skills when used for formative assessment for learning provides teachers with opportunity for giving feedback on gaps in performance. [16,17] Thisinvolves identification of areas that need to be focused on for deliberate practice to improve performance and get ready for certification of competence or for summative university exams. Being an important method of skills development, teacher-student interactivity is important and should be structured. Various models of giving feedback are available and a suitable one that is appropriate and appreciated by students needs to be chosen to maximize the efficiency and effectiveness of the feedback in the skill acquisition and progression on the competency progression pathway identified and made known to the students upfront at the beginning of the posting/ rotation / semester etc.

6. Bedside teaching**:** Learning professional skills as a clinician are best learned at the bedside or perhaps on simulated patients in a clinical skills laboratory. In a study by Gonzalo et al, the various types of skills for which feedback was given has been classified as 1) those done during bedside (physical Examination, history taking, clinical reasoning, case presentation) ; 2) immediately after bedside round (as above but emphasizing in detail the gaps in performance by the students and ways to improve this etc.) ; & 3) After Bedside rounds in private one-on-one (deficiencies in history & note taking, missed important aspects, use of medical jargon with patients, deficiencies in providing feedback to junior residents/ students, an interaction of concern or unprofessional behaviour). [18]

7. Logbook, Portfolio, Reflective writing. These provide opportunity for not only giving feedback but also an avenue for documenting your feedback so that the student can act on it and see how the feedback has contributed to progression in competency level on a longitudinal timeframe across the course. While giving feedback, it is good practice to make the student first reflect on what went well and then state what are the areas that need to improve. Then when teacher starts giving feedback, s/he reiterates the "what went well" and then the "areas that need to improve" and finally eliciting from the student what s/he plans to do to for remedial deliberate practice to reach and progress to the target milestone or bench mark of shows how or does level. By including reflective writing in the portfolio, it encourages the student to become a reflective practitioner and prepares them to engage in Continuing Professional Development (CPD) after qualification.

5. Conclusion

Giving feedback in the new CBME paradigm is new both to the students as well as the teacher. Barriers to receiving feedback by the students requires to be overcome by creating a conducive environment where students expect to receive feedback as part of the new curriculum. [19] The foundation course at the beginning of the new Graduate Medical Education Course is the right time for teaching them the art of receiving feedback and engaging in reflective practice. The teachers must also undergo faculty development workshops to make them familiar with models and diligently practice the giving of feedback in the situations listed earlier. The use of logbooks and mentoring sessions should be used to help students in a longitudinal manner to ensure students climb up the competency progression ladder and achieve the targeted competency milestones identified in the new curriculum. The "Be FAIR to students" approach of Harden & Laidlaw captures the centrality of the giving feedback to students to ensure an environment that helps students learn better. [20]

6. Source of Funding

7. Conflict of Interest

The authors declare no conflict of interest.

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Author biography

Thomas V Chacko, Professor
Director of FAIMER Regional Institute at Coimbatore, India since 2007
Executive Committee member of SEARAME, the South-East Asia Regional Association of the World Federation for Medical Education
President of Academy of Health Professions Educators (AHPE) India in 2017