

## Understanding on assessment through Online ML Web discussion - A scholarly report

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### Abstract

In the current era of digital world with modernized technologies the teaching learning process also has turned to be online, web-based virtual learning system. It has widely reached the field of Medical education too. An active and healthy teaching learning shall happen in adult learning process and that has been successfully proved by a month long Mentor – Learner (M-L) Web discussion organized by PSG Institute of Medical Sciences and Research Centre, Coimbatore, Regional Centre for FAIMER- Fellowship of Advancement in Medical Education and Research. A month long discussion through M-L Web discussion promoted the learning strategies through online which would be more effective and beneficial in adult learning. This ML web discussion is one more evidence where it is proved by the discussion topics, inputs and resource materials shared among the participants. Assessment was fruitfully and beneficially discussed by participants in such a way, at the end of month's discussion, the effectiveness of ML Web learning was projected in the form of post-discussion survey results collected from the participants. Almost all participants unanimously agreed that ML web discussion no doubt is highly beneficially as it facilitates their learning at their ease and convenient time. With the advancements of newer technologies and techniques in medical education, the distant learning program has become a convenient tool to impart knowledge to the learners and in turn it shall bring a new approach in teaching modalities.

**Keywords:** Medical Education-ML Web learning-Assessment

### Introduction

Medical Education is a process of teaching and learning. It involves applying principles and strategies in understanding the human structural and functional map, diagnosis of diseased and treatments, which is the ultimate goal of Medical Education. In this process of teaching and learning, assessment forms a major component and forms the basis for judging the expected outcomes of learners. In the past few decades, assessment was done as a part of curriculum in Medical Education at the end of study period as per the norms of attached University. In late 90's and early years of current century, it is realized that assessment methods need to be modified and tailored according to the learners' need to meet the expected outcomes (Rita Sood). Recent changes occurring in Medical Education remains as a proof of setting up of new standards for the improvement in assessment methods to judge the expected outcome of Medical Undergraduates of the present era (Thomas. V. Chacko). It was also realized that the efficacy and efficiency of health care delivery not only needs knowledge testing but also it involves the skills testing and it is the time the modify the assessment methods to check the skills of the learners to create an evidence for expected outcome. Assessment should also involve testing the learner's analytical and critical thinking involving communication and counselling skills also. All these results shall remain evident in their practice only when it is assessed properly. Few decades before, assessment was done to test the knowledge at the end of curriculum. In later stage it was modified to test the

knowledge and skills. The present scenario revealed a need for effective assessment method by which the learners expected outcome will be assessed and matched whether the deliverables by the future doctors are up to the preset standards to meet the societal needs.

The current century is moving towards digital and online world. All the communications and connections are made possible in a few minutes through online, web interaction and are made digitalized and electrified (Phyllis). Many of the educational programs are being converted from traditional method of distance education program which were in the form of papers and books to digitalized education system called online programs (Geof Wong).

In this connection, FAIMER, an International Organization recognized for Fellowship programs in Medical Education has set Regional Centres in various parts of the World and conducts fellowship programs in Medical Education. One of the Regional Centres in India is PSG Institute of Medical Sciences & Research Centre, Coimbatore.

With regard to this, an online discussion was carried out to explore the various aspects of Assessment in the current scenario of Medical Education in India and the innovative ways which could be incorporated for the betterment of the same.

*This Scholarly report was prepared based on the M-L Web discussion carried out during the month of December, 2016 on the topic "Assessment".*

## Review of Literature

According to Graduate Medical Education (GME) in India, the assessment method should be set and developed with a systematic approach to ensure the expected learning outcomes whether attained or not. Also, it should check the competency level of future doctors. Good assessment is a major challenge in medical education. One of the obstacles of good methods of assessment is lack of familiarity on the part of medical educators with the concepts of psychometrics that underlie assessment (Anna Reinert, 2013). While developing such approaches, it was also suggested to develop a method with reliability, validity, feasibility, acceptability and cost-effective. There need to be a common board in every medical college which involves all departments for developing a commonly acceptable method of assessment and transparency. Students' assessment is a decision making process with many implications beyond the students' success. It also involves progress evaluation which means the effectiveness of the assessment program also is judged and that it will help improving the program. Basically, assessment focuses on Quality of learning and the resulting outcome of assessment in Medical education remains as an evidence of expected outcome of future doctors – the first contact person in the society in the health care sector. It has various challenges involved and only if it is well designed and focussed on the outcome; it will succeed in its goal. High time, there is a need to rationalize the examination system by giving due emphasis on the internal assessment, introduction of logbooks and supplementing the traditional long/short case examination with more valid and reliable instruments for assessment of clinical skills like Objective Structured Clinical Examination/Objective Structured Practical Skills (OSCE/OSPE). (Rita Sood, 2000). Students posted under a clinician are asked to assess their performance through a set of evaluation forms which will include the assessment of knowledge, procedural skills, professionalism, interest in learning and systems-based practice. But none of these attribute to students' education and further development in their skills and critical thinking. (Ronald M Epstein, 2007). According to A. Basheer, the assessment methods in India are unsuitable for a summative assessment of undergraduate examinees, destined to become primary care or first-contact physicians in the community. It is time to remodel the assessment methods which are Indian-specific and are capable of bringing out

assessment methods to fulfil the expected outcome of the future doctors. (A. Basheer, 2015)

## Objectives

Based on the review of various literatures available, the present report was prepared to focus on

- Effective online discussion on Assessment Methods in Medical Education
- Level of participation of participants and their inputs.
- Content of the discussion.
- Pros & Cons of the online utility for learning purpose.

## Materials and Method

- Pre-discussion survey results
- Inputs from participants on weekly basis on sub-topics.
- Articles and journals attached by participants.
- Post-discussion survey results to find out the effectiveness of M-L Web learning of the Month on Assessment.

Topic of the month was long back decided during 2<sup>nd</sup> classroom session conducted during June, 2016 at PSGIMS&R (Regional Centre for FAIMER). As per the schedule, blueprint for the month's discussion (Table 1) was planned and prepared in conjunction with Faimer fellows 2015 & 2016 with inputs received from alumni and faculty of FAIMER. A pre-discussion survey was conducted to identify the area of interest expressed by participants. Based on the survey results, a template was prepared on subtopics under the heading "Assessment". Each subtopic was further divided into weekly discussion and was moderated by Year 2016 fellows. Each week's discussion was planned, prepared, initiated and moderated by Year 1 (2016) fellows under different subheading relevant to the subtopic. The survey was to identify and intensify the discussion topics which are more commonly suggested by the learners through the survey. The survey report revealed the following topics were the more commonly suggested by the learners. So, according to the survey report the following schedule was planned.

Pre – discussion Survey was done during Nov. 27<sup>th</sup> – Nov. 30<sup>th</sup>, 2016 by Dr. Girija

Post – discussion survey was done during Dec. 29<sup>th</sup> – Dec. 31<sup>st</sup>, 2016 by Dr. Sandeep.

**Table 1: Month plan of discussion**

Week	Topic	2016 Fellows	2015 Fellows	Faculty, Co-Mentor, Alumni
I	Introduction & Basic Concepts, Blooms taxonomy, Millers Pyramid of clinical competence, Making assessment authentic, Blue printing	2 participants	3,1(2014 fellow) participants	9 participants
II	Applying the basics to Knows & Knows how, Assessment tools-their advantages, disadvantages and application, Attributes of good assessment tools, Item Analysis			
III	Applying the basic concepts to does and shows, Assessment tools - Advantages, disadvantages and application, Blue printing exercise encompassing 'knows' to 'does'			
IV	Learning from the community of practice, Experience sharing of good practices, Overcoming obstacles to implementation.			

Discussion inputs were analysed and summarized by the moderator every week. The following parameters were selected for the present study to analyse the knowledge and understanding about assessment and its various aspects by participants. Finally the effectiveness of the month's discussion was expressed by all participants through their reflection.

### Observation

A pre-discussion survey was conducted before the start of the month's discussion. This is to identify the area of interest by learners on Assessment and accordingly the month's discussion was planned. Survey result clearly stated that the learners were keen in learning about the Assessment and its attributes, types, pros&cons of various types of assessment tools and methods, blue printing and item analysis. Also, 59% of the learners agreed about need for a change in current assessment method in the Indian Medical Curriculum. Though 87% of the participants want to bring in new innovative changes in the current assessment methods, only 47% of them involve in innovations in Assessment methods. Remaining 53% of the participants say they have many hurdles to in innovating and implementing new assessment methods and the hurdles include stakeholders, infrastructure, unstructured curriculum, need for training on assessment for medical educators etc., Based on the overall survey report, the month's discussion was planned as mentioned in the table 1 with weekly divided subtopics. The number of mails received and the resources provided by participants were tabulated and discussed. (Table 2, 3)

**Table 2: Details of Inputs**

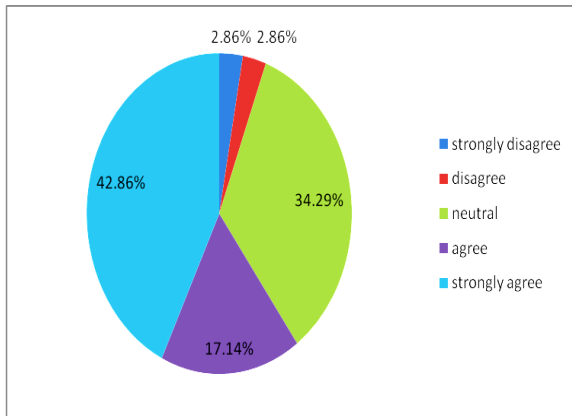
Pre-discussion Survey	Week 1	Week 2	Week 3	Week 4	Post-discussion survey
<i>(in terms of number of responses)</i>	<i>In terms of number of Mails received</i>				<i>(in terms of number of responses)</i>
36 responses	141	127	150	44	22

**Table 3: No. of Resource materials received**

Week 1	Week 2	Week 3	Week 4
24	27	19	03

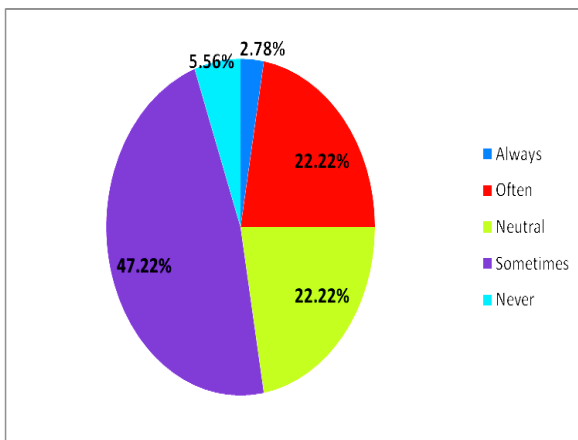
**Pre-Discussion Survey:** Before kicking of discussion, an online survey was conducted to find out the participants priority of topic of interest to discuss. Analysis was done using the survey result and that it revealed the following result. Nearly 60% of the participants are not in agreement with the current assessment system which is not in

alignment with the expected outcome for a IMG and 87% of them want to bring in changes in Assessment methods (Fig. 1).



**Fig. 1: View on current assessment system**

Nearly 86% of the participants expressed their views that learning objectives are not in alignment with the assessment methods. Even though more than 87% of the participants wanted to bring out reformation in Assessment methods, only 47% of them tried new methods in the form of projects (Fig. 2).



**Fig. 2: Participants who tried for innovative assessment methods**

The remaining participants say various reasons for not able to implement new methods. The two main reasons what they expressed were the stakeholders and he unstructured curriculum.

Based on the response from the survey, the following topics were selected for discussion for the month of December, 2016.(Table 4)

**Table 4: List of topics suggested and selected**

S. No.	Topics Suggested	Topics Selected
1	Domains	Introduction & Basic Concepts of Assessment
2	Pros & Cons of each assessment Method/Tool	Applying the basics to Knows and Knows How

3	Item Analysis and Blue Printing	Applying the basic concepts to does & shows
4	Concepts & Objectives	Learning from the community practice
5	Attributes	
6	Changes needed in Assessment Methods	

The selected topics were discussed under the following subtopics on weekly basis:-

Introduction & Basic Concepts of Assessment

Bloom’s Taxonomy,

Miller’s Pyramid of clinical competence,

Making assessment authentic

Blue printing

Applying the basics to Knows & Knows how

Assessment tools their advantages, disadvantages and application

Attributes of good assessment tools.

Applying the basics concepts to Does & Show How

Assessment tools - Advantages & Disadvantages

Application

Exercise on Blueprinting(Hands-on) encompassing ‘knows’ to ‘does’

Learning from the community of practice

Sharing of Experience of good practice

Overcoming obstacles to implementation

**Week 1**

Introduction & Basic Concepts

Blooms taxonomy,

Millers Pyramid of clinical competence,

Making assessment authentic,

Blue printing

During this week, there are 141 mails received with various inputs from participants and fellow mentors. From the inputs it was evident that most of the learners are well aware of basic concepts, hierarchy in teaching and learning methodologies. Their awareness was well proved by the presentation of their responses in the form of Miller’s Pyramid, Bloom’s taxonomy, Dreyfus model etc., during this week almost all the participants agree with almost the same facts. The following concepts and principles which can make the assessment authentic were accepted and presented by the participants.

Bloom’s Taxonomy of Learning

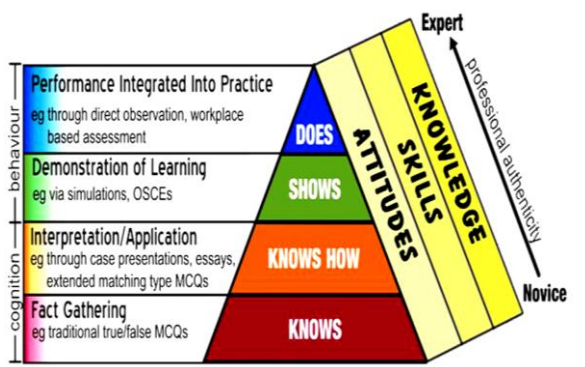
Dreyfus model of Skills acquisition

Miller’s pyramid for mapping assessment

Overall summary of the week revealed that the participants were very much aware about the various learning principles under various domains of Knowledge, Attitude and Skill. Also, almost all the participants were very well aware about various guidelines of medical education like ACGME, Can Med, IMG etc.

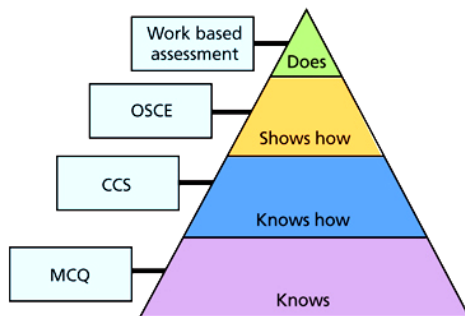
### Week 2: Applying the Basics to Knows & Knows How

**How:** During this week, the participants discussed about various assessment tools and methods which are helpful to assess the first two levels of millers pyramid(Fig. 3).



**Fig. 3: Miller's pyramid-from novice to expert**

MCQ, SAQ, MEQ, CQ, OSCE, OSPE, OSLER, GOSCE were commonly accepted by the participants to assess the knowledge and application level of the learners as per the tools mentioned on Miller's pyramid (Fig. 4).



**Fig. 4: Miller's pyramid**

Also, it was discussed about the advantages and disadvantages of each type of assessment method and tools used in the present assessment system. Many participants discussed about the distracter in MCQ, how to choose with the SAQ and other questions based on the need of assessment. It was also discussed about the advantages and advantages of the essay questions how they are beneficial in what context they can be used.

### Week 3: Applying the basic concepts to Does & Shows How

**How:** During this week of discussion, many inputs were given by participants on various aspects of assessment tools and methods to assess the higher levels of Miller's Pyramid (Fig. 1). In this the commonly discussed tools and methods were found to be the OSPE, OSCE, OSLER, DOPS, MiniCEX. Along with these existing types of tools, new few tools were also introduced by the participants which many are not

familiar with it. They are the OSVE – Objective Structure Video Examination, OSATS – Objective Structured Assessment of Technical Skills, TOSCE – Team Objective Structure Clinical Examination. It was evident from the discussion that all these assessment tools were designed to assess the learners practical and clinical skill which remains as a evident for their performance. Most of the participants agreed with the point that the existing Log book system need to be replaced by A standardized portfolio which is the real evidence of the performance and skills acquisition by the learners. Items to be included in the portfolio suggested by the participants include the history taking, communication skill, performance during emergency situation, reflective practice, procedural skills etc., of these reflective practice was highly suggested by all participants.

### Week 4: Learning from the community of Practice:

This week discussion found to be very interesting as it was the experience shared by the participants. They discussed about the implementation of their innovative assessment methods and tools, how they designed it, what and who are the hurdles and how did they overcome that. Out of the experiences shared by the participants, the following were found to be the commonly faced hindrances and hurdles.

Co-faculty co-operation

Co-operation from the stakeholders

Policy decision of private managements and certain Universities

Time constraint

Existing assessment system does not allow to introduce newer tools

Shortage of clinical materials restrict the implementation of newer tools.

Non-availability of trained faculty

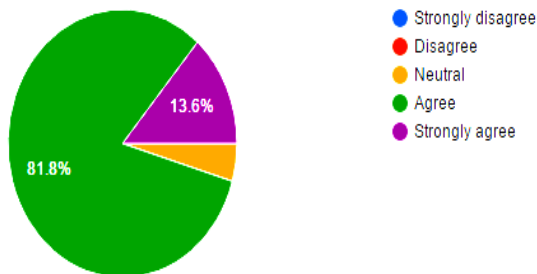
Insufficient knowledge in designing the blueprints.

**Post Discussion Survey:** The post discussion survey revealed the opinion expressed by the participants on various aspects of the online discussion on Assessment. Post discussion survey question were framed and validated by Dr. Sandheep and responded by 22 participants. It is seen from the survey result that the participants were much happy and satisfied with the online discussion on Assessment and they also expressed their views on how it benefitted them. The overall views of the participants collected through post-discussion survey was tabulated and presented (Table 5).

**Table 5: Post-discussion survey results (in %)**

Week	Strongly Agree	Agree	Neutral	Strongly Disagree
1	13.6	81.8	*	*
2	45.5	50.0	4.5	*
3	77.3	18.2	4.5	*
4	81.8	13.6	4.6	*

Almost 13.6% of participants strongly agree and 82% agree to the point that the ML Web discussion found to be very effective in understanding the various concepts and basics and the hands-on were found to be a real training on assessment. (Fig. 5)

**Fig. 5: Effectiveness of December ml web discussion on assessment**

**Reflection:** All the participants expressed their views through reflective practice in which they all mentioned about various aspects of discussion carried out on Assessment. Reflection of most of the participants revealed the effective discussion happened in the month which facilitated their learning on Assessment and its attributes along with advantages and disadvantages, various tools and methods etc., some of the commonly expressed views of the participants through their reflection are listed below.

Moderation of the week's discussion by the moderator which found to be well planned and time bound.

Uploaded resource materials by participants facilitated the learning on their own available time which helped them to utilize the content to its fullest.

Hands-on training especially on Blueprinting found to be very effective in learning process how to prepare an evaluation paper.

During some discussions, the pre-reading material provided by the moderator, was said to be very helpful to complete the activities of the week provided by the moderator.

Some felt that inhibition of using the online sharing and learning has been removed and was made easy by the moderation of the month's discussion. They felt the ML Web discussions user friendly in the process of learning.

### Reflective Critique:

#### What went on Well?

Participants involved enthusiastically in pre and post discussion survey

Activities were well responded by the participants especially on experience sharing

Learning happened on the participants on their convenience time and space.

Participants were given choice of responding to the activities and not compulsion based. That facilitated the learning ease which is evident from the post-discussion survey

#### What did not work well?

Repetition happened on the activities like define, state, enumerate etc., where the participants were giving the same answers to the activities.

Too many articles uploaded by the participants and moderators did not allow the participants to go through all the articles due to time constraint. Also some articles were found to be repetitive.

Too many activities found to be tiresome for the participants. They expressed that activities could have been minimized and had been split into smaller ones. This is because most of the participants are health care educators involving in teaching and training the medical graduates and involving in research activities. Along with that, they found it hectic to respond if it is too many activities initiated.

### Summary

From the month long discussion on various aspects of assessment tools and methods, participant explored their existing knowledge and learnt a lot about pros & cons of assessments tools and methods. During every week, there was a healthy discussion and inputs done by participants on the topic concerned enabling the others to get familiar with newer things put in by the participants. Various assessment tools and methods which can fulfil the various levels of Miller's pyramid. At the same time, it was evident that when using an assessment method or tool care should be taken to validate the tool and should fulfil the SMART. The experience shared by the participants helped the peer how to be careful while trying to implement newer tools and methods in Assessment.

### Conclusion

Assessment is a process of documenting one's knowledge, skills and attitude levels. It is a part of educational process which fulfils the criteria for the completion of the education process in one's learning activity. As far as the medical education is concerned, it is the high time we need a reformation in assessment system in medical education. As far as the medical education system in India is concerned at Undergraduate level, the assessment is not focussed on what is expected as outcome at the end of the course to

meet the societal needs. The current assessment system is no doubt not in alignment with the Teaching – Learning Process in Medical Education. The current assessment system entirely based on the knowledge level in the form of essay, short answers and one word answers. This is to be changed and should be reformed to assess the real skills and performance of the learner who is expected to possess the skills to become the first contact person in the society in the health care delivery. Lots of research need to be done in the assessment system to align it to meet the needs and in partial fulfilment of the process, the online discussion was organized and carried out by PSG-FRI. During last few decades, many research works, workshops, hands-on training and other modes of interactions are going on among health care educators to find out a solution for the problems involved in Assessment system in medical education. As the current world is turning towards digitalized, the Online M-L web discussion remains as a healthy way of exploring our existing knowledge and create a new way to learn many new things. As health care educators, we all are expected to update our knowledge with the day to day up-gradation in the medical education system.

The online discussion is a real good platform for all who participate and they gain good amount of knowledge in the topic concerned with discussion. This online ML Web discussion on Assessment initiated by PSG-FRI extended a way of exploring, learning and sharing the knowledge and experience among the participants who are the FAIMER fellows, faculty and mentors of the FAIMER fellowship.

Based on the response, inputs and reflections from participants, it is evident that

- Online discussion was found to be very effective in understanding the discussion topic to a maximum possible ways.
- Participants uploads proved the level of interest in participating online discussions.
- Lots of resource materials provided by the participants and their response to the activities given remain as an evident for the quality content of discussion.
- Reflection by the participants explored the pros and cons of the online utility for discussion in a learning process.

### Acknowledgment

My sincere thanks to all my Batch fellows (2015), senior and junior fellows, faculty and mentors of FAIMER who facilitated the knowledge sharing. My special thanks to our month partner and my co-fellow 2015, Dr. Sandheep for sharing his post-discussion survey results which helped me to prepare this scholarly report. I wish to extend my acknowledgement to my mentor Dr. Marina Thomas, who has been supporting me in all the ways possible to prepare my Educational

project in an effective manner. I wholeheartedly thank my colleague who extended their helping hand in drafting this scholarly report. I wish to extend my sincere thanks to the moderators of the week's discussion during the month of December 2016, Dr Paricha and Dr. Joshi who have worked 24x7 the whole month to make the discussion very effective and a beneficial one.

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