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## Assessing through open book examination, case study analysis of homoeopathic aggravation: A case based learning model

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### Abstract

**Background:** In terms of assessment of students, it is generally agreed that Open-book Examinations (OBEs) foster an enriched environment by giving the student an opportunity to better understand and react to particular question. The current investigation gave the opportunity to investigate and formally test this supposition via case-based learning model.

**Methods:** In this learning model, 55 undergraduate third year Homoeopathic students were participated. The concept of Homoeopathic aggravation was already taught to those students. Then make them to analyze the concept, apply it in the given case.

**Results:** Their performance was evaluated using Performance Rating Scale and feedback of learners assessed by using Likert's rating scale.

**Conclusion:** It was concluded that their learning objectives were achieved and their higher level of excellence shows the higher level of attainment of skills associated with the concept.

**Keywords:** Assessment, case-based learning, homeopathy, homoeopathic aggravation, open-book exam

### Introduction

Many teachers have focused on enhancing the value of each academic activity as students who participate in tests experience high or low levels of anxiety. In light of this, for a considerable amount of time, open book exams as a learning tool have satisfied the needs of both an assessment tool and a student-centered approach to education as a method to lower the stress of students [1]. OBEs assessments exhibit the student's level of skill in analyzing, synthesising, and evaluating the course materials and specified learning outcomes in exams in a measurable and mainly standardized fashion. Studies have shown that open book examination exhibits the higher order thinking skill of students [2].

Open-book exams are believed to better reflect real-world scenarios in which issues arise and almost infinite resources are accessible for development of useful solution to dilemma. In this way, by providing practice opportunities where all of Bloom's actions are interwoven in the solution of issues resembling those found in real-world settings, educators hope to better prepare students for life [3]. As OBE deserves the best place in student's learning assessment protocols, thereby it applies in Homoeopathic education.

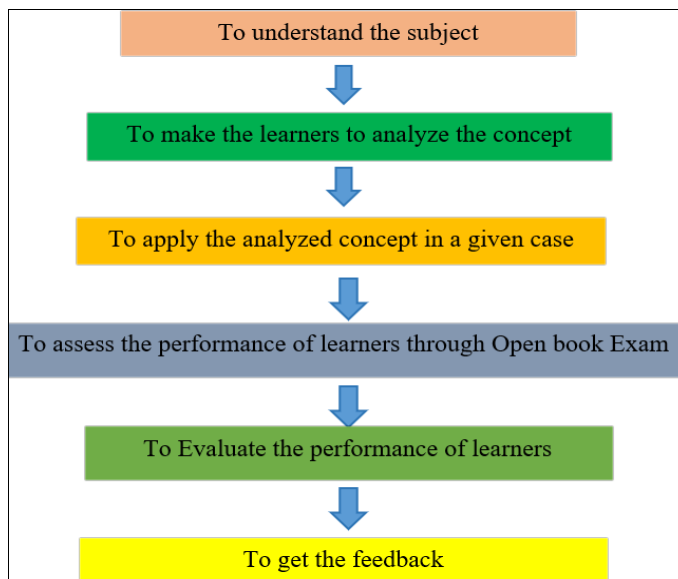
Organon of medicine is a subject of importance for every Homoeopathic students. It is the book written by the founder of Homoeopathy, to direct every followers in the clinical aspects of Homoeopathic practice. Among these, Homoeopathic aggravation is an important observation after administration of similar medicine. Understanding the concept of Homoeopathic aggravation by teaching in regular classes, analyzing the key points and applying it in the case study encourage the students more to realize. Apart from this, the routine questioning in the theory and viva voce shall be different to express and assess. The best way of realizing the concept is Open book Examination, as suggest reference to master's experience [4]. Hence the Investigators had taken the study to teach, make students to analyze, assess it through Open book Examination about Homoeopathic Aggravation and to get the feedback to confirm the Master's direction. The purpose of this learning model is to teach the concept of Homoeopathic Aggravation, to make the learner to analyze the concept, to assess the applicability by OBE, to get the feedback about the Open book Model.

**Methods**

The test population consisted of 55 participants. They were third year Homoeopathic undergraduate students. The test students were completing the subject of Homoeopathic aggravation (Aphorisms 145 to 161) in 5<sup>th</sup> and 6<sup>th</sup> edition of Organon of Medicine. Prior to the assessment, students were directed to analyze the concept and apply this in a given

case study that was exhibited at the time of test. Thereby, they were directed to answer the questions related to the case displayed, then their performance assessed via Performance rating scale [5]. Their assessment of this case-based learning has done through Likert's 5-point scale [6]. It is shown in table 1.

**Table 1:** Flow chart of methodology

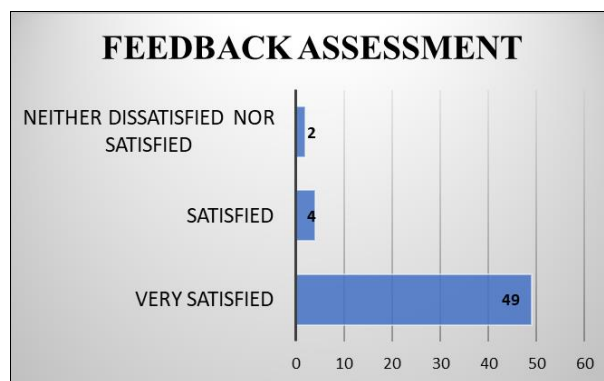


**Results and Discussion**

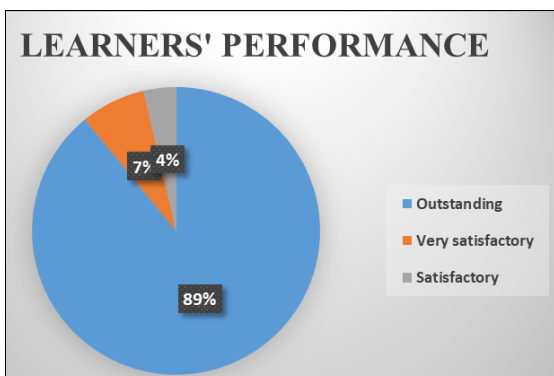
At first, the learners are taught according to the pre-prepared learning objectives in the textbook of Organon of Medicine related to the subject - Homoeopathic Aggravation. (See Tab 2.) Thereby they are directed to analyze the concept and preparing class notes. The analyzed matters and enquires are then tabulated. (See Tab 3.) Then the students were realized the concept of Homoeopathic aggravation to the given case. (See Tab 4.)

Later, the questions were prepared and directed them to answer by referring to what they have learnt in text book and notes they prepared. (See Tab 5.) Subsequently, the learner's performance was evaluated by their marks obtained through open book examination. This was shown in form of performance rating scale. (See Tab 6.) This is also shown in Fig 1.

This is shown in Fig 2.



**Fig 2:** Feedback Assessment of Learners'



**Fig 1:** Evaluation of Learners' Performance

Afterwards, Individual learners' feedback were analyzed in accordance with the questions prepared. (See Tab 7.) This feedback was evaluated according to 5-point Likert's scale.

**Table 2:** Learning Objectives

Learning Objectives
To know about the definition and nature of specific remedy
To know about the primary action of medicine
To explain about the cause of considerable disturbance
To realise about the similar but stronger medicinal disease
To understand about the role of unhomoeopathic symptoms
To understand the suitability of dose and suitability of similar medicine and their effects
To convince that this aggravation is very good prognostic
To appreciate the relation of smallness of dose and Homoeopathic aggravation
To enumerate the time of occurrence of Homoeopathic aggravation in different types of diseases
To anticipate the occurrence of homoeopathic aggravation after administering LM Potency
To suggest how to prevent the occurrence of Homoeopathic aggravation

**Table 3:** Analyze the concept

Enquiries about the Analyzed concept	
1.	What is specific remedy?
2.	What is the considerable disturbance expected after administration of similar medicine?
3.	Why the other symptoms of homoeopathic medicine, no way applicable to the case of disease in question?
4.	What is the extremely similar medicinal disease?
5.	What is the inference of when homoeopathic aggravation during the first hours?
6.	What is the relation of small dose and homoeopathic aggravation?
7.	Whether the homoeopathic aggravation is primary action of medicine? How?
8.	Whether the homoeopathic aggravation will occur after administration of medicine in renewed dynamization?

**Table 4:** Apply the concept in a case**Patient as a whole**

Name: Mrs. R Age: 59 years

Sex: Female

Address: Thikurichi (in bank of thamirabarani river)

**Presenting complaints**

Location	Sensation	Modalities	Accompaniments
Generals Since 4 days Respiratory system Since 4 days	Fever Cough without expectoration	< Night < Lying down	Dryness of mouth Bitterness of mouth Weakness Chilliness

**History of Presenting complaints**

Patient's complaint started as sneezing after exposure to cold air. Then presented with fever that worse at night. It is accompanied with dryness of mouth, bitterness of mouth, weakness and chilliness. She also has cough without expectoration with fever. She took allopathic treatment for this complaint and got temporary relief.

**Physical generals****Appetite:** Decreased**Thirst:** Decreased**Urine:** Regular Stool: Regular**Sweat:** Generalized Sleep: Disturbed**General physical examination**

Temperature: 100.6°F B.P: 110/80 mmof Hg

No signs of pallor, icterus, clubbing, cyanosis, lymphadenopathy and edema

**Homoeopathic management**

Date	Symptom assessment	Prescription
09.06.2017 11.45 am (1 <sup>st</sup> Prescription)	Fever with associated symptoms Temp: 100.6°F	R <sub>x</sub> <i>Eupatorium perfoliatum</i> 1m/ 1 dose (one 30-sized medicated globule in 10 ml aqua given orally at a time)
09.06.2017 03.30 pm (FU 1)	Temp: 101°F Weakness and chilliness better Bitterness of mouth persists Generals: Dryness of mouth without thirst better; Appetite decreased	R <sub>x</sub> Sac lac
09.06.2017 7.00 pm (FU 2)	Temp: 100.4°F Complaints better	R <sub>x</sub> Sac lac
10.06.2017 08.00 am (FU 3)	Temp: 99.2°F Complaints better; Cough persists	R <sub>x</sub> Sac lac
10.06.2017 03.00pm (FU 4)	Temp: 98.6°F Complaints better; Cough better	R <sub>x</sub> Sac lac
10.06.2017 08.20pm (FU 5)	Temp: 98.6°F Complaints better	R <sub>x</sub> Sac lac
11.06.2017 07.15am (FU 6)	Temp: 98.6°F Complaints better	R <sub>x</sub> Sac lac
11.06.2017 07.40pm (FU 7)	Temp: 98.6°F Complaints better	R <sub>x</sub> Sac lac
12.06.2017 08.00 am (FU 8)	Temp: 98.6°F; No fever and no chilliness Generals: Good	R <sub>x</sub> Sac lac

**Table 5:** Assessment through open book examination

<p><b>Open-book Examination</b>  <b>Case - based learning</b>  <b>Maximum marks: 20 Time: 30 minutes</b>  <b>I. Answer the following 4 x 1 = 4 marks</b>  1. What is the specific remedy in this case?  2. What is the type of acute disease in this case?  3. What is the amount of medicine given in this case?  4. What is the considerable disturbance in this case?  <b>II. Find out the reason for the following 4 x 2 = 8 marks</b>  1. Why it is called the primary action of medicine?  2. Why Homoeopathic aggravation has taken place in this case?  3. Why you said, the case has Homoeopathic aggravation?  4. How you confirm that the case has Homoeopathic aggravation?  <b>III. Answer the following 4 x 2 = 8 marks</b>  1. What is the basis for selection of specific remedy?  2. How long had to wait for homoeopathic symptoms to disappear?  3. What is the prognostic importance of this case?  4. How will you plan to reduce Homoeopathic aggravation in future?</p>
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**Table 6:** Evaluation of learner's performance

A total of 55 Undergraduate Third year BHMS students participated in this open book examination and their marks obtained were shown below as Performance rating scale:

Marks Categorized (out of 20)	1-4 marks	5-8 marks	9-12 marks	13-16 marks	17-20 marks
Participants (Total - 55)	Nil	Nil	2	4	49
Performance Rating	Poor	Unsatisfactory	Satisfactory	Very satisfactory	Outstanding

**Table 7:** Learners' Feedback

Individual learners' feedback is assessed through Likert's Scale (5-point)					
Rating Scale	Very satisfied	Satisfied	Neither dissatisfied nor satisfied	Dissatisfied	Very dissatisfied
Participants	49	4	2	Nil	Nil

### Conclusion

OBE is a good tool for assessing the student's performance if the question paper is designed in a way that it tests the higher-order thinking skills of the students. OBE challenges the traditional mode of examination, which merely requires recalling the textual facts on a sheet of paper. From the present study, it is evident that the attitude and approach to teaching and learning under the open-book conditions has made candidates' experiences more rewarding and satisfying. It has been clearly shown that students achieved their learning objectives and shows higher level of excellence than their peers. Through the rating scales, it is concluded that the participants achieved their higher levels of attainment in skills associated with the concept of Homoeopathic aggravation.

### Acknowledgement

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**Conflict of interest:** Nil

**Funding:** Nil

**Consent:** Nil

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