

Assessment of different teaching modalities in gastroenterology and gastrointestinal surgery module on students' satisfaction

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Received: March 25, 2021; Accepted: April 23, 2021

ABSTRACT

Background: It is known that different teaching modalities will enrich the acquisition of knowledge and skills and lessen the flaws that emerge from using one teaching modality. **Objectives:** The aim of this study is to explore the students' satisfaction regarding these different modalities to establish an area for improvement and potentiate the method of knowledge conduction and modify the allocated teaching strategy to be best aligned with learning outcomes. **Materials and Methods:** A90 medical students of the 4th year, first semester (seventh level of the Phase III) studying the gastroenterology and gastrointestinal surgery module were entered in this study. The module included different teaching modalities; 41 lectures, three problem-based learning subjects, three seminars, two tutorial sessions, seven bedside teaching, one practical session, and three skill laboratory sessions. The degree of student satisfaction was investigated using Likert scale. **Results:** Students' satisfaction revealed different degrees of the satisfaction among the students toward these different teaching modalities with the highest satisfaction toward the skill laboratory teaching and lowest toward the lecture and practical session. Regarding skill laboratory session, the students' satisfaction revealed that 72 out of 90 (80%), 65 out of 90 (72.2%), 60 out of 90 (66%), 48 out of 90 (53.3%), 45 out of 90 (50%), 42 out of 90 (46.6%), and 40 out of 90 (44.4%) were strongly satisfied for skill laboratory, bedside teaching, problem-based learning, seminar, tutorial, lecture, and practical sessions, respectively. **Conclusion:** The students revealed strong satisfaction toward the learning modalities that deal with enhancement of skills acquisition, especially in the last phase of the medical curriculum. Hence, increasing the time specified for these activities will create a great chance for enhancing these skills.


KEY WORDS: Learning Style; Lecture; Problem-based Learning; Seminar; Skill Laboratory; Practical Session; Tutorial

INTRODUCTION

The Al Baha School of Medicine undergraduate program comprises three phases: Preparatory, basic, and clinical phase. Each phase is further subdivided into levels. The gastroenterology and gastrointestinal surgery module is mapped in the undergraduate program and allocated for the seventh level in the

Phase III.^[1] The module is of 4 weeks duration; four credit hours. It is delivered through different teaching modalities including lecture, problem-based learning (PBL), tutorial, seminars, skill laboratory, practical, and bedside teaching. As we know, using different teaching modalities in one course or module will alleviate the flaws that emerge from the using one teaching modality^[2] and will embrace the different students' learning styles; visual, audiovisual, and kinesthetic.^[3-5] Furthermore, the consistency and alignment of the learning outcomes with its suitable teaching strategy are more important in the process of teaching delivery and achieving the learning outcome accordingly.^[6]

Using different teaching modalities will create a different perception among the students and the students will favor one

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2021.03027202123042021	

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model than others.^[7] Hence, the aim of this study is to explore the students' satisfaction regarding these different modalities to establish an area for improvement and potentiate the method of knowledge conduction and modify the allocated teaching strategy to be best aligned with learning outcomes.

MATERIALS AND METHODS

This study was performed after taking the ethical approval from the ethical committee/Quality Unit of the Al Baha Faculty of Medicine, Saudi Arabia, taking REC/SUR/BU-FM/2020. A written agreement was also obtained from all the participating students included in this study. A90 medical students representing the two sections (male and female) of the 4th year, first semester (seventh level of the Phase III) studying the gastroenterology and gastrointestinal surgery module were entered in this study. The module included different teaching modalities, 41 lectures of 50 min each, three problem-based learning subjects of 3 h each, three seminars and two tutorial sessions of 2 h each, seven bedside teaching of 6 h each, one practical session of 2 h duration, and three skill laboratory sessions of 3 h duration each. The practical session represents the integration of basic sciences into clinical sciences.

The learning outcomes of the gastroenterology and gastrointestinal surgery module were refined by a committee formed by the gastroenterology faculty members in association with medical education unit. Furthermore, these learning outcomes were aligned with both the teaching strategy and assessment tool.

At the end of the gastroenterology and gastrointestinal surgery module, the degree of student satisfaction was investigated. A well-formed structured questionnaire to measure the students' satisfaction regarding these different teaching modalities was designed by a committee composed of faculty members gastroenterology and medical educator. Questions were formulated and revised thoroughly by the medical educator to provide its validity followed by a small pilot study on groups composed of junior faculty members and students, supporting its reliability. At the end of the module, a questionnaire was distributed to all the students included in this study. The questionnaire was designed against Likert scale which measures the degree of satisfaction among the participants and ranged from 5 (strongly satisfied), 4 (satisfied), 3 (neutral), 2 (dissatisfied), and 1 (strongly dissatisfied).^[8-10] One-way ANOVA test is used for the statistical analysis and SPSS version 17 is used.

RESULTS

Students' satisfaction revealed different degrees of the satisfaction among the students toward these different teaching modalities with the highest satisfaction toward the skill laboratory teaching and lowest toward the lecture and practical session.

Regarding skill laboratory session, the students' satisfaction using Likert scale for the 90 students revealed that 72 out of 90 (80%) were strongly satisfied, 7 students (7.7%) were satisfied, 2 students (2.2%) were neutral, 4 students (4.4%) were dissatisfied, and 5 students (5.5%) were strongly dissatisfied.

Regarding bedside teaching, the students' satisfaction revealed that 65 out of 90 (72.2%) were strongly satisfied, 5 students (5.5%) were satisfied, 9 students (10%) were neutral, 8 students (8.8%) were dissatisfied, and 3 students (3.3 %) were strongly dissatisfied.

Regarding PBL, the students' satisfaction revealed that 60 out of 90 (66%) were strongly satisfied, 8 students (8.8%) were satisfied, 9 students (10%) were neutral, 8 students (8.8%) were dissatisfied, and 5 students (5.5 %) were strongly dissatisfied.

Regarding seminar session, the students' satisfaction revealed that 48 out of 90 (53.3%) were strongly satisfied, 18 students (20%) were satisfied, 4 students (4.4%) were neutral, 10 students (11.1%) were dissatisfied, and 10 students (11.1%) were strongly dissatisfied.

Regarding tutorial session, the students' satisfaction revealed that 45 out of 90 (50%) were strongly satisfied, 22 students (24.4%) were satisfied, 10 students (11.1%) were neutral, 7 students (7.77%) were dissatisfied, and 6 students (6.66 %) were strongly dissatisfied.

Regarding lecture, the students' satisfaction revealed that 42 out of 90 (46.6%) were strongly satisfied, 18 students (20%) were satisfied, 10 students (11.1%) were neutral, 12 students (13.3%) were dissatisfied, and 8 students (8.88 %) were strongly dissatisfied.

Regarding practical session, the students' satisfaction revealed that 40 out of 90 (44.4%) were strongly satisfied, 21 students (23.3%) were satisfied, 24 students (26.6%) were neutral, 3 students (3.3%) were dissatisfied, and 2 students (2.2%) were strongly dissatisfied. All these results are represented in Figure 1 and Table 1.

DISCUSSION

The results of students' satisfaction measurement regarding diverse teaching/learning modalities used in the gastroenterology and gastrointestinal surgery module were ranged from strongly satisfaction to satisfaction. The strongest satisfaction of the students was highest toward skill laboratory sessions and bedside teaching (92% for both) followed by PBL (66%), seminar (53.3%), tutorial (50%), lecture (46.6%), and practical sessions (44.4%) in the descending manner. All the students revealed satisfaction as

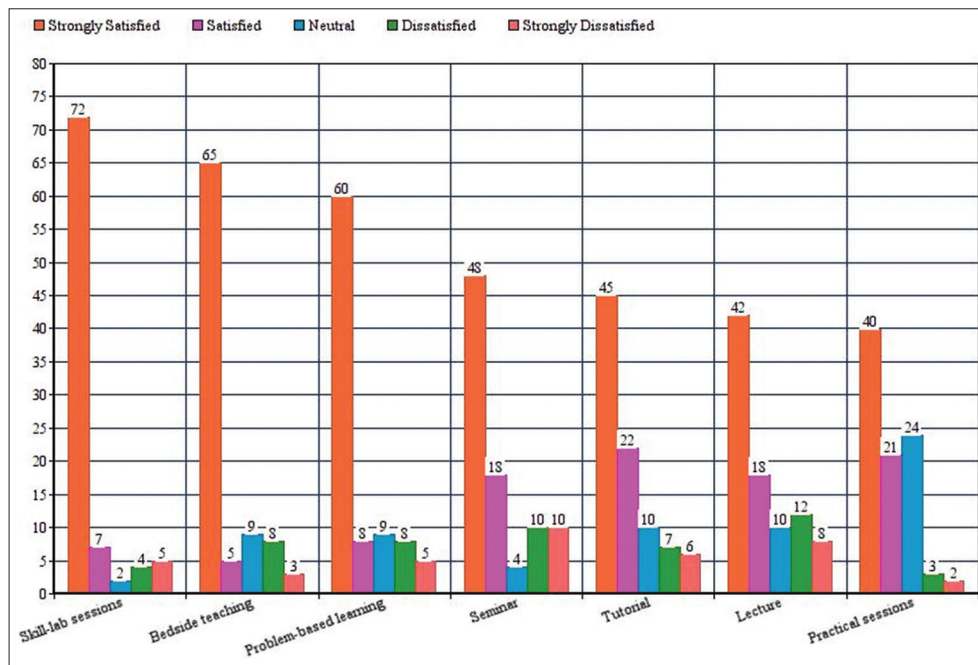


Figure 1: Students' satisfaction toward teaching and learning modalities in gastroenterology module

Table 1: Students' satisfaction toward teaching/learning modalities used in gastroenterology module

Modality	Strongly satisfied (%)	Satisfied (%)	Neutral (%)	Dissatisfied (%)	Strongly dissatisfied (%)	One-way ANOVA
Skill laboratory sessions	72 (80)	7 (7.7)	2 (2.2)	4 (4.4)	5 (5.5)	*P=0.0001
Bedside teaching	65 (72.2)	5 (5.5)	9 (10)	8 (8.88)	3 (3.3)	
PBL	60 (66)	8 (8.88)	9 (10)	8 (8.88)	5 (5.5)	
Seminar	48 (53.3)	18 (20)	4 (4.4)	10 (11.1)	10 (11.1)	
Tutorial	45 (50)	22 (24.4)	10 (11.1)	7 (7.77)	6 (6.66)	
Lecture	42 (46.6)	18 (20)	10 (11.1)	12 (13.3)	8 (8.88)	
Practical sessions	40 (44.4)	21 (23.3)	24 (26.6)	3 (3.3)	2 (2.2)	

Significant $P \geq 0.05$. PBL: Problem-based learning

7.7%, 5.5%, 8.88%, 20%, 24.4%, 20%, and 23.3% for the above-mentioned teaching/learning modalities sequentially.

This finding is consistent with the study of Atta *et al.*^[6] who assessed the teaching modalities satisfaction in basic imaging course and obtained results close to the present results. This result means that most of the students have a kinesthetic learning. Kinesthetic learning or tactile learning is a type of a learning style in which learning takes place by the students carrying out physical activities, rather than listening to a lecture or watching demonstrations.^[3-6] Furthermore, our results are closely related to many studies that described student's satisfaction in wide varieties of undergraduate programs.^[11-19] Moore *et al.*^[11] found that PBL students learned in a more reflective way, memorized less than their peers, and preferred active learning and attain students' satisfaction. Furthermore, it agrees with Hwang and Kim^[12] who reported that students learned in the PBL group attain more knowledge and had higher motivation toward learning compared to students in the lecture group, also they

reported that PBL was more effective for improving students' knowledge and satisfactions. In addition, this study is consistent with the study done by Khoshnevisasl *et al.*^[13] who explained the causes of the increased students' satisfaction toward PBL because of quality learning, motivation boost, practical usefulness of contents, knowledge retention, and class attractiveness. Moreover, Antepohl and Herzig^[14] found high students score and satisfaction toward PBL students than in other groups and concluded that students reported positive effects of PBL in terms of use of additional learning resources, interdisciplinary, teamwork, and learning fun. Doucet *et al.*^[15] found that PBL related to greater knowledge achievement and with greater development in clinical skills than traditional lecture-based model. Furthermore, the students' satisfaction toward PBL was reported in many studies.^[16-22] In the current research, we found that the students' satisfaction toward the lecture is somewhat low. Close investigation reveals that most of the lectures were traditional with no interactive activities involved. It is documented that amplified student participation shows the

way to change in attitude and learning outcomes.^[23,24] Hence, changing of these traditional lectures into interactive ones will motivate the acquisition of knowledge among the students and enhance their interpersonal and communication skills. Butler^[25] has shown that students who are actively concerned in the learning activity will learn more than passive students. Pajares^[26] found that the interactive lectures draw attention to the common fallacies detained by the students and give self-assurance to students to question, and thus increase their academic achievements. One of the drawbacks revealed from adoption of integration in newly adopted schools is the large class size^[27] and the introduction of the interactive lecture into this large class size will solve this pitfall as well as enhance the attendance of the students.^[27,28] Furthermore, the interactive lecture strengthens the educational value of lecture time,^[29] authorizes discussion,^[30] diminishes the monotony of the passive learning,^[31] and improves the students' intensity of understanding and their capability to produce and merge material.^[32] Introducing the interdisciplinary level of integration will utilize more than teaching strategy in the context of the learning process.^[33] The students' satisfaction was less toward the practical session due to most of the students give less importance to the practical session that deals with recalling of the students' knowledge toward the basic sciences, especially in the late undergraduate life.

The point of the strength of this study comes from using it as an internal monitoring/benchmarks and periodic evaluation of our teaching/modality and may be used as an external benchmark for other program either within the institute or externally for other programs. Furthermore, the data obtained should have to be globalized as an indicator for performance and put it in list of improvement priorities and plan. Low sample size may be the only limitation of the study.

CONCLUSION

We conclude that the students revealed strong satisfaction toward the learning modalities that deal with enhancement of skills acquisition (psychomotor, interpersonal, and communication skills), especially in the last phase of the medical curriculum. This is due to that most of the students prefer the kinesthetic learning style than other learning/teaching styles. Hence, increasing the time specified for these activities will create a great chance for enhancing these skills. Changing of the traditional lecture to be more interactive will raise the students' satisfaction and improve the acquisition of both knowledge and skills.

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How to cite this article: Alghamdi TH. Assessment of different teaching modalities in gastroenterology and gastrointestinal surgery module on students' satisfaction. *Int J Med Sci Public Health* 2021;10(1):57-61.

Source of Support: Nil, **Conflicts of Interest:** None declared.