

What would the medical students like to know in laboratory medicine?

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Abstract:

What would the medical students like to know in laboratory medicine?

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Laboratory medicine is an important subject in medical education. According to the principles of student-based teaching, an evaluation of the students' perception towards the taught subjects is important. A questionnaire survey was performed on all 2nd year medical students who passed the course "Basic Pathology" of the Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University. All subjects were asked to grade (score 1-5) the 11 topics in laboratory medicine according to their perceptions or expectations for future usage. The average score for all topics was 3.92 ± 0.62 . The average score given by male and female subjects was not significantly different ($P > 0.05$).

Key words: *medical students, laboratory medicine, expectations*

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บทคัดย่อ:

อายุรกรรมห้องปฏิบัติการเป็นศาสตร์ที่สำคัญสาขาหนึ่งในทางการแพทย์ ตามหลักการสอนที่ยึดข้อมูลจากนิสิตเป็นหลัก การสำรวจการรับรู้ของนิสิตต่อหัวข้อที่เรียนเป็นสิ่งที่มีความสำคัญ ได้ทำการสำรวจนิสิตแพทย์ชั้นปีที่ 2 จำนวน 153 ราย ที่ได้ผ่านการศึกษารายวิชาความรู้เบื้องต้นทางพยาธิวิทยาคลินิก ณ ภาควิชาเวชศาสตร์ชั้นสูตร คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย โดยได้ให้กลุ่มตัวอย่างทั้งหมดทำการแบ่งระดับ (1-5) ของการรับรู้ในความคาดหวังที่จะนำความรู้ไปใช้ในอนาคต ต่อหัวข้อการเรียนทั้งหมด 11 หัวข้อ ทั้งนี้พบว่าระดับคะแนนที่นิสิตให้โดยเฉลี่ยสำหรับทุกหัวข้อเท่ากับ 3.92 ± 0.62 และไม่พบความแตกต่างระหว่างระดับคะแนนที่นิสิตเพศชายและหญิง

คำสำคัญ: นิสิตแพทย์, อายุรกรรมห้องปฏิบัติการ, ความคาดหวัง

Introduction

Laboratory medicine is an important subject in medical education. In the Faculty of Medicine, Chulalongkorn University, the department with the main responsibility for this subject is the Department of Laboratory Medicine. The medical student has to pass this subject according to the Faculty's curriculum. The course includes lectures, demonstrations and practical clerkship. The objective of the study of laboratory medicine is to apply the knowledge of medical sciences to fulfil the purposes of clinical pathology. The process of instruction aims to bring to the students such duties of qualified practitioners as are bound by law and medical regulations.

Thus, it begins with imparting a general knowledge of clinical pathology. Systematic lectures consist of clinical chemistry and clinical microscopy techniques. Various laboratory methods, such as complete blood count and urinalysis are included. These lectures are supplemented by lantern slides and museum specimens.

According to the present concept of quality assurance in education, a survey of the student attitude towards the learning is important.¹ Here, the author reports the results from a study of the medical students' perception towards the various topics in laboratory medicine taught by the Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University. The main question of this study was "What would the medical students like to know in laboratory medicine?" The main objective of this survey was to assess the students' ideas towards the basic laboratory medicine knowledge, which is taught by the Department of Laboratory Medicine, Faculty

of Medicine, Chulalongkorn University. The data from this study will be used in the improvement of the teaching of the department in the future.

Materials and methods

This study was designed as a cross-sectional descriptive study. The setting was the Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok. A questionnaire survey was performed on all 153 second year medical students (61 male and 92 female) who passed the course "Basic Pathology" of the department. This questionnaire was constructed according the suggestion of the experienced lecturer in laboratory medicine and the same type of questionnaire was tested in another group of medical students ($n = 10$), who joined the extraordinary summer course taught by the department. According to the results of this test, the questionnaire was edited, clarified and then tested by the test-retest method. Good agreement was achieved (100% agreement). The survey was performed on the last day of the course. All subjects were asked to grade the 11 topics in laboratory medicine (Table 1) according to their perceptions or expectations for future usage on those items. The 5 level-score was used for each topic from 1 = least important topic for medical practice or very useless to 5 = most important topic for medical practice or very useful. The frequency of given scores for each topic and the descriptive statistics, mean, standard deviation (SD) and percentage, were calculated. Comparison of distributions was performed using the Wilcoxon test at a statistical significance level $P = 0.05$.

Results

The frequency of given scores for each topic is shown in Table 2. The average score for each topic is presented in Table 3. The average score for all topics was 4.18 ± 0.72

(range 3.87 to 4.57). The average score given by the males (4.06 ± 0.64) and female (4.30 ± 0.77) subjects was not significantly different ($P > 0.05$).

Table 1 Short descriptions of the 11 topics in basic laboratory medicine taught by the Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University

| Topic | Short description |
|------------------------------------|--|
| Introduction to clinical pathology | Scope of Laboratory medicine, Laboratory system |
| Blood collection | Venipuncture technique |
| Basic technique in hematology | Manual hematocrit, hemoglobin determination, CBC |
| Peripheral blood smear examination | Blood smear examination |
| Renal function test | Basic renal function test, BUN, creatinine |
| Urinalysis | Urinalysis by strip and microscopic test |
| Quality control | Quality control, quality assurance |
| Automated hematology | Principle of automated hematology, scattogram |
| Hematopoiesis | Principle of hematopoiesis, reticulocyte study |
| Basic immunology | Antigen antibody reaction |
| Basic endocrinology | DM profile, lipid profile |

Table 2 Frequency of given scores for each topic

| Topics | Frequency in each topic (actual frequency/%) | | | | |
|------------------------------------|---|---------|---------|--------|-------|
| | 5 | 4 | 3 | 2 | 1 |
| Introduction to clinical pathology | 77/50.3 | 66/43.1 | 8/5.2 | 2/1.3 | 0/0 |
| Blood collection | 43/28.1 | 85/55.6 | 17/11.1 | 5/3.3 | 3/2.0 |
| Basic technique in hematology | 43/58.1 | 87/56.9 | 15/9.8 | 5/3.3 | 3/2.0 |
| Peripheral blood smear examination | 49/32.0 | 87/56.9 | 14/9.2 | 3/2.0 | 0/0 |
| Renal function test | 38/24.8 | 81/52.9 | 23/15.0 | 11/7.2 | 0/0 |
| Urinalysis | 39/25.5 | 96/62.7 | 13/8.5 | 3/2.0 | 2/1.3 |
| Quality control | 50/32.7 | 84/54.9 | 12/7.8 | 3/2.0 | 4/2.6 |
| Automated hematology | 39/25.5 | 76/49.7 | 21/13.7 | 13/8.5 | 4/2.6 |
| Hematopoiesis | 56/36.6 | 91/59.5 | 5/3.3 | 1/0.7 | 0/0 |
| Basic immunology | 52/34.0 | 97/63.4 | 2/1.3 | 2/1.3 | 0/0 |
| Basic endocrinology | 93/60.8 | 55/35.9 | 4/2.6 | 1/0.7 | 0/0 |

* The 5 level-score was used for each topic from 1 = least important topic for medical practice or very useless to 5 = most important topic for medical practice or very useful.

Table 3 Average score for each topic in laboratory medicine (out of 5 being high approval)

| Topics | Mean | SD |
|------------------------------------|------|------|
| Introduction to clinical pathology | 4.42 | 0.66 |
| Blood collection | 4.05 | 0.84 |
| Basic technique in hematology | 4.06 | 0.83 |
| Peripheral blood smear examination | 4.19 | 0.68 |
| Renal function test | 3.95 | 0.83 |
| Urinalysis | 4.09 | 0.73 |
| Quality control | 4.13 | 0.84 |
| Automate hematology | 3.87 | 0.98 |
| Hematopoiesis | 4.32 | 0.57 |
| Basic immunology | 4.30 | 0.56 |
| Basic endocrinology | 4.57 | 0.58 |

Discussion

Recently, essential content for medical students has been focused on medical education.² Based on this, the students are taught only the necessary thing for their future life. There are a lot of attempts to decide the essential content in the medical science by brain-storming of medical teachers. However, some studies have proposed a broader view to find essential content by surveying of the newly graduated students, such as the report of Nuchprayoon on the essential content in Pediatrics.³ Since the education can be classified as a type of service, the consumer theory of service should be applied.⁴ The student should be focused as a "client", the teacher should be focused as a "supplier or seller" and the teaching topics should be focused as a "goods or service".

At present, according to the principle of student-based teaching, the evaluation of the students' perceptions towards taught subjects is important. The data from such evaluations can be used as useful information for adjustment of the content in the course syllabus. Nevertheless, these surveys can be claimed as results from the view of the client in the service.⁴ Since human perception is based mainly on emotional desire and desire affects the practice,⁴ the perceptions or expectations for future usage of the students towards the learned topics can indicate the success of the teaching as well.

All items investigated in this study were included in the basic course of laboratory medicine in our setting, according to the basic medical requirement of the Thai Medical Council for newly graduated physicians to know and effectively perform. The main aim of this study was to know the perceptions or expectations of the medical students towards the learning topics in basic pathology. All of them had the same experience in the same course by the same teams of teachers.

In this study, their study attitude, as reflected in the expectations for future usage of the taught topics, was assessed. The conceptual framework of this study is presented in Figure 1. Indeed, the answers cannot lead to the fact that the taught topic is useful or useless for them in the future but it can reflect the attitude toward each topic. According to the consumer theory,⁴ the "belief" or "the expectation of usage" is an important sense for "the consumption" or "the future practice" in this study. Based on the consumer theory, the question for planning the teaching topics should be not only "what should the students know?" but also "what would they like to know?", since if the students would not like to know or had negative emotional desire, it will result in the poor satisfaction with the service or teaching, and consequently, they will not accept the contents of the taught topics (Table 4). In addition, in order to assess the sex effect on the students' attitude, we also tested the difference of the score between subjects of both sexes, with the primary hypothesis that there was a significant difference of score between the sexes. Of interest, we found no difference between the sexes and this finding confirms the previous report that attitude or expectation is mainly not dependent on any demographic factors.⁵

According to this study, most of the medical students gave a good score concerning the overall content of the subjects. It seems that they have more positive than negative ideas towards the basic laboratory medicine knowledge, indicating the importance they believed the subjects will have in their future medical life. The results from this study can be useful basic information for the lecturers in the department to improve the teaching in their corresponding topic, especially the topics to which the students gave low score. Improvement of the teaching methods including the addition of innovative educational media and repeated measurement by this method

in the next semester can be an alternative tool to indicate the continuous improvement in the education management of the department. This concept can be useful and applied to the other settings as well. Although there are some previous surveys on the topics taught for medical students³ concerning what the student should know, there is no previous study on

the student perceptions towards the topics. Presently, both concepts: what should the students know and what would they like to know, must be considered. We recommend continuous monitoring of the efficiency of the education management in any subjects taught in medicine focusing on these two concepts.

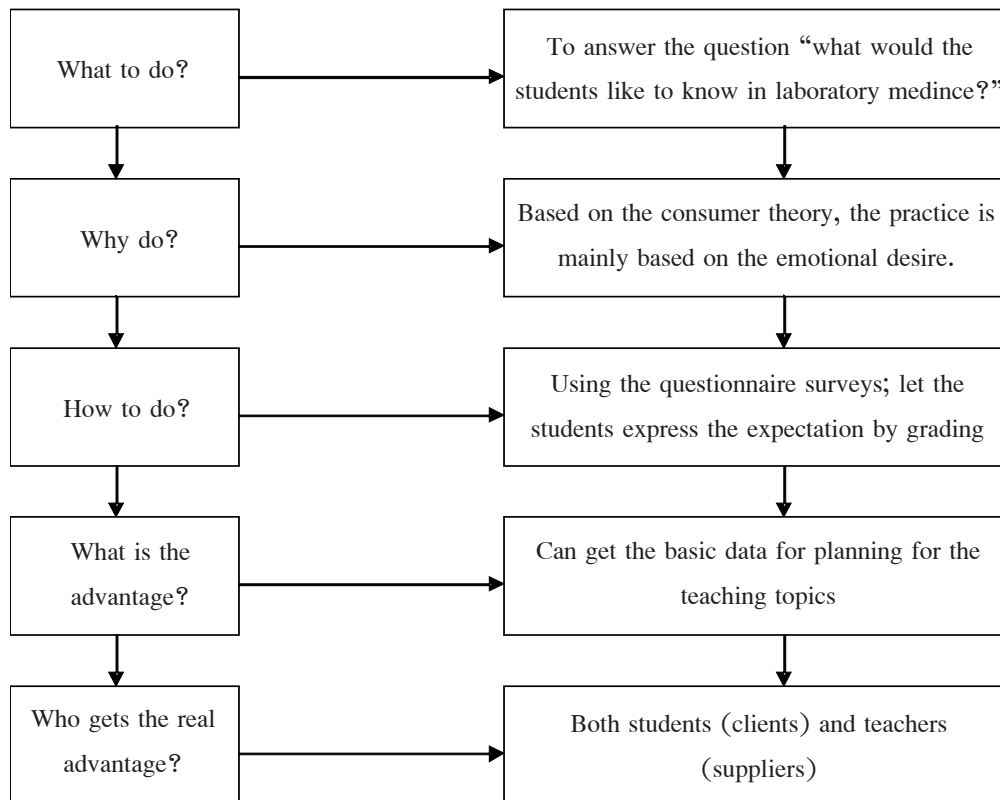


Figure 1 Conceptual framework for this study

Table 4 Comparison between the two concepts in planning for teaching topics

| items | "what should the students know?" | "what would they like to know?" |
|---------------|--|---|
| 1. background | Most topics come from brain-storming of medical teachers or "supplier-based" | Based on customer theory; emotional desire of the "client" or students is the main factor for future practice |
| 2. pro | The teaching contents are carefully evaluated by the experienced staff | Based on the clients, therefore, good satisfaction, resulting in good attitude and attention, is expected |
| 3. cons | Centralization, lack of satisfaction survey of the clients | The answers from the students might not reflect the reality, future usage is only expectations; the real useful or useless in the future cannot be guaranteed |

Conclusion

The author reported a study on 153 medical students' perceptions or expectations for future usage on the learning topic of "Basic Pathology" and found that the medical students gave a good score concerning the overall content of the subjects.

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