Implementation of an education development project in pathology to improve student competency-lessons learnt

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Abstract

Context: Basic medical sciences and clinical teachings are not coordinated in the present medical education system. They are not taught keeping in mind the outcomes required at the time of actual handling of patients in the community. Aims: An educational development project was implemented in the Department of Pathology with the aim that it will result in the student learning to link the pathophysiology of the disease to clinical scenarios and become fully competent for lifelong medical practice. Subjects and Methods: The pathology teaching of the second professional batch was modified by starting with defining the desired outcomes/competencies in the student's knowledge, skills, and attitude which were then addressed by lectures, demonstrations, practical classes and small group activities where case scenarios and laboratory reports were included. The outcome was assessed by Objectively Structured Clinical/Practical Examination and multiple choice questions. Force field analysis, faculty and student interviews, and questionnaires were used to assess the factors affecting its implementation and impact. Results: Totally 80 students of the 2nd Professional MBBS were exposed to a competency-based education development project. It was found that the system was appreciated by faculty and students, especially the integration with clinical scenarios. There were many factors which influenced the execution of this program, including motivation level of students and faculty, time, logistics and meticulous planning. Conclusions: There was a significant improvement in student's performance and satisfaction. Many factors including prior planning were a major determinant for the success of this education development project.

Key words: Competency, education development project, outcome

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Introduction

There is a need to establish the desired outcomes/competencies across the medical education curriculum to achieve high educational standards. The subjects are taught in the traditional subject-oriented approach. The desired outcome is usually not defined at the time of teaching of basic sciences and preclinical subjects in the second professional. Instead these subjects are taught with the objectives of teaching only the basics without special regard to whether students are competent enough to be able to implement these basic sciences at the time of actual handling of real life patients. Competency-based education has been recognized by educationists worldwide and it includes more than the possession of knowledge, skills, and attitudes and it...
focuses on the application of these abilities in the real patient scenario to achieve the desirable standard in management of various diseases. It includes designing, implementation, assessment, and evaluation of a medical education program using an organizing framework of abilities or competencies. Accreditation Council for Graduate Medical Education has defined general competencies as: Medical knowledge, patient care and procedural skills, interpersonal and communication skills, practice-based learning and improvement, systems-based practice and professionalism.\(^1\)\(^2\)

Competency-based education begins with a careful consideration of the competencies desired in the health professional workforce to address health care priorities, it provides a vehicle for integrating the health needs of the country with the values of the profession.\(^3\)\(^4\)

Another term that has been described in the context is the entrustable professional activity (EPA) which reflects the competencies expected that are a part of essential work for a qualified professional and is observable and measurable, leading to a conclusion. The concept “EPAs” connects the competence frameworks with the clinical practice.\(^4\)\(^5\)

It is also very important to ensure that the trainee has demonstrated the required competence and is ready to progress further in a career. This mandates the need for robust systems for assessment and evaluation to demonstrate that the trainee possesses the required capability to work satisfactorily in the clinical environment. Accordingly this study was planned to implement a comprehensive module addressing desired competencies and their evaluation.

**Subjects and Methods**

The education development project was executed for the MBBS 2\(^{nd}\) professional students of the Himalayan Institute of Medical Sciences. A total of 80 students of the 2\(^{nd}\) professional MBBS were exposed to the innovation in various sessions including lectures, demonstrations, practicals, and in small group activities. Ten faculty members and 15 residents were involved.

A need assessment questionnaire was prepared, validated from senior faculty members and administered to all faculty members of Pathology Department. All faculty members were sensitized to the details of the project planned. Permission was taken from the research committee, ethics committee and head of the department to conduct this project. The “must know areas” were discussed, before designing the module and finalized in consultation with senior Faculty of Pathology and Clinical Departments. The modified teaching modules were prepared including various case scenarios, lab reports, and activities. Assessment module was designed, including multiple choice questions and Objectively Structured Practical Examination. Interview questionnaires were planned for the faculty and residents for evaluation of the intervention. Student information sheets and informed consent forms were prepared. Feedback questionnaires for students and faculty were designed and modified after pretesting with colleagues.

The faculty members of Department of Pathology were sensitized to the new project for enhancing pathology teaching, its assessment and possible advantages to students. At the end, they were apprised with the results of this study and their experiences were shared. The student feedback was also shared with them. The discussion was held on the utility of the system.

All students were exposed to regular teaching sessions, including lectures on various topics. Following this they were exposed to the predesigned teaching modules in demonstrations, practical classes, and small group activities. Assessment was performed at the beginning and end of the new teaching modules. Faculty members were interviewed at the end of the system. Students were administered feedback questionnaires. Data were recorded and analyzed. Analysis was done using descriptive statistics and qualitative methods. Data were analyzed using statistical software IBM SPSS version 22 Customer No. 10063950; Customer ID: 224134 by International Business Machines Corporation, New York. Independent t-test was used to compare the mean of pre- and post-innovation scores of students. Faculty impressions regarding the achievement of desired competency were represented in the form of frequency and percentage.

**Results**

The mean pretest score of students was found to be 5.61 ± 1.52. After the intervention of competency-based education sessions, it was found that the mean of posttest score increased by 1.48. This difference was statistically significant \((P = 0.0001)\) at 5% level of significance. Faculty were interviewed and a force field analysis was performed at the end of the system [Table 1]. The faculty member appreciated the system and commented that the system should be implemented in other subjects also and will help in PG entrance too.

The students were given feedback questionnaire that asked them to specify the changes they felt had happened after the new system was implemented. All students reported that they felt confident and competent to perform the task given viz. laboratory report interpretation, making a diagnosis, etc. All students rated the new system as better in comparison to
The concept of “competence” and “competencies” have been utilized to connect the curriculum design with assessment and reported the correlation of disease morphology and pathogenesis with clinical scenarios. The study concluded that teaching systems need to be modified and re-planned based on the felt needs. Implementation of a system based on outcomes is useful but dependent on logistics, time required and faculty commitment and requires meticulous planning.

In this study, the teaching of pathology was aligned around predecided outcomes, and it was found that the system was appreciated by faculty and students specially the integration with clinical scenarios. The study concluded that teaching systems need to be modified and re-planned based on the felt needs. Implementation of a system based on outcomes is useful but dependent on logistics, time required and faculty commitment and requires meticulous planning.

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There are no conflicts of interest.

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