

Evaluation of Teaching and Learning: A Basis for Improvement in Medical Education

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To the Editor: Individualized medical education is crucial for the quality improvement of physicians in hospitals. However, the capacity to acquire medical theory and clinical skills differs among different medical students, international medical students, residents, and training physicians.^[1] Their skills are at very different levels. Differences in learners' characteristics can contribute to a mismatch with historical teaching strategies.^[2] There are also different styles of mentoring in medical theory, clinical skills, management, and communication among different professors. Here, we identify that continuous evaluation of teaching and learning helps ensure effectiveness.

This study was designed as a bilateral questionnaire survey to investigate the demographics, training needs, preferred approaches, and teaching and learning effects with the aim of improving performance of the target population. The study population included medical students, Israeli senior medical students, training physicians, residents, and mentors in Daping Hospital located in Chongqing, China. There was a total of 397 local and international partners educated in the Intensive Care Unit in 2016. We used the Daping Hospital-adopted Training Needs Analysis Questionnaire, a self-reported, close-ended structured questionnaire with two core sets of items. One item refers to the tasks that are central to the role of learning and are categorized into six superordinate categories: responsible/active, on time/strict, clinical skills, preview/thinking, respect/concern, and network interaction. The other item refers to the tasks that are central to the role of teaching and are categorized into six superordinate categories: professional/interactive, experience/highlights, clinical skills, preview/case analysis, erudite/meticulous, and network interaction. Responses were on a scale of 1–6 (1 - not at all to 6 - very much/very highly). Responses were on a score of 100 (90 - excellent to 100 - outstanding). Ethical approval was obtained from the Research Ethics Committee, Daping Hospital, in 2016. Questionnaires to be answered anonymously were distributed at the end of each course. We take the trainees, teachers, and departments binding a medical education system.

The questionnaires were distributed and collected during November 2016–December 2016. Data were collected from 231 medical

students, 106 interns, 2 international medical students, 8 residents, 50 training physicians, and 80 mentors. Three hundred and ninety-seven partners participated in the detection system of learning quality assessment. Eighty mentors participated in the detection system of teaching quality assessment. Stratified convenience sampling was used. In total, 397 learner-oriented questionnaires were distributed. The response rate among medical students was 58%, and most respondents were medical students, interns, international medical students, training physicians, and residents. For the questionnaire survey to evaluate quality of teaching, eighty teaching-oriented questionnaires were distributed. The response rate was 100%, and all respondents were medical educators.

For residents and training physicians, the education program consists of five sections, including clinical work section, case writing section, teaching lectures section, caring patient section, and mutual evaluation of teaching and learning section in the Intensive Care Unit, Daping Hospital. For clinical work and case writing sections, every day, one training physician coached by our one attending physician is responsible for managing one intensive patient. A training physician coached by all attending physicians is responsible for discussing a critically ill patient in each week. For the teaching course, there is a 1-h education course in each morning from Monday to Friday. A 1-h caring patient section is at 17:00–18:00 on each Friday. Response rates were 100%. Respondents were training physicians (29%) and residents (12%). For the learning questionnaire, 96% quality evaluation of clinical internship in the Intensive Care Unit is very high (on a score of 100). Ninety-seven percent responses of coaching evaluate medical students' courses to

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Received: 26-01-2017 **Edited by:** Yuan-Yuan Ji

How to cite this article: Yang XF, Talmy T, Zhu CH, Li PF, Wang W, Zhang P, Zhang HW, Bulis S, Wang KX, Chen X, Wang YL, Jiang DP, Zong ZW, Zhou J. Evaluation of Teaching and Learning: A Basis for Improvement in Medical Education. Chin Med J 2017;130:1259-60.

Access this article online

Quick Response Code:



Website:
www.cmj.org

DOI:
10.4103/0366-6999.205851

a questionnaire distributed at the end of the course. Students reported a statistically significant increase in confidence in five different sections of interest.^[3] However, Israeli senior medical students' responses indicate that they desire more involvement in complex patient care and procedural skills.

The participants reported that the detection system of teaching quality assessment contributed to their understanding of themselves and to their interactions with learner in their personal and professional realms. From the evaluation results, a mean score of 5.0 from students evaluating the teachers is high, excellent rate is 100%. All students in the post-rate are 100%. Mean ratings of overall satisfaction were 5.4 and 5.0, and mean assessments of expectations of the contribution of the course to the role of physician were 5.0. Seventy-two percent responded that the course contributed highly or very highly to their personal development. Mentors require training in communication skills, management, clinical skills, and coaching methods. Merging forces of professors for medical education strengthens cooperation in critical care with local and international physicians and improves education quality. We also evaluated the use of mobile devices and online networks as part of medical education, all participants owned either a smartphone or tablet used during the internal medicine rotation (100%). Perceived major benefits included accessibility and interactivity. All medical students preferred clinical support-focused and case-based learning apps in medical education. Creating an environment allowing for teacher–student interaction can help promote a high degree of individualized medical education.^[4,5]

In brief, evaluation of teaching and learning is a basis for the improvement in medical education. In the process of teaching, the student evaluates the quality of teaching between the teachers,

while the teacher evaluates the students according to their learning and feedback. This could enhance the mutual understanding and could improve the level of teaching quality to achieve the ultimate goal.

Financial support and sponsorship

This work was supported by grants from the Society of Medical Education of Chinese Medical Association (No. 2016A-RC018), and the National Natural Science Foundation of China (No. 81200057).

Conflicts of interest

There are no conflicts of interest.

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