

# Undergraduate Medical Students' Perceptions Of Effective Medical Teachers In A Malaysian Medical School

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## Citation

S SINGH, N VERMA, N . SINHA, A KAUR, A L ABAS. *Undergraduate Medical Students' Perceptions Of Effective Medical Teachers In A Malaysian Medical School*. The Internet Journal of Medical Education. 2013 Volume 3 Number 1.

## Abstract

**Objectives:** The objective of this cross-sectional study was to identify the characteristics of effective medical teachers from undergraduate medical students' perspective.

**Methods:** A self-administered questionnaire specifically prepared to meet the objective of the study was used. The questionnaire required the respondents to rate 13 parameters (professional and personal qualities in the teachers) and responses were based on a 5 point Likert-scale. The data were analysed using SPSS v 13.0. T-test and one way ANOVA were used to compare differences between quantitative variables and the Chi-Square test was used to determine association of categorical variables with the outcome.

**Results:** The total number of participants who recieved the questionnaire were 316, out of which 226 (71.5%) responded. The top three qualities in this study were knowledge of subject (mean=4.5±0.6), enthusiasm (mean=4.3±0.6) and communication skills (mean=4.2±0.6). There was no difference of perceptions based on ethnic background, gender or undergraduate students' course year.

**Conclusions:** While subject knowledge will undoubtedly be the main asset an effective teacher possesses, it will be incorrect to conclude that it is the only one they need to be effective in the classroom. The results of this study has implications for undergraduate medical education and for faculty development programmes, as some of the qualities of an effective teacher can be acquired. Identification of these characteristics is vital for improvement in the teaching methodology of the clinical teachers in order to provide a more effective learning environment for the students.

## INTRODUCTION

Medical education has seen major changes over the past decade.<sup>1</sup> Medical education is an ever evolving field and many changes such as the development of core curricula with electives or options and more systematic curriculum planning have been advocated.<sup>2</sup> Alternatives to traditional didactic teaching such as integrated teaching, problem-based learning are also being increasingly implemented.<sup>3,4</sup>

With these changes in the medical curricula,<sup>5</sup> the role and attributes required of a medical teacher have also changed.<sup>6</sup> Changes in medical education curriculum like integrated learning and problem based learning requires the teacher role to be changed from that of a knowledge transmitter to that of a learning facilitator. In the setting of small group teaching, Steinert<sup>7</sup> described an effective teacher to be "an individual who promoted thinking and problem solving, was not threatening, encouraged interaction, did not lecture, highlighted clinical relevance, and wanted to be there". Hasan et al.<sup>8</sup> stated that the successful outcomes of these

curricula changes often lies in the hands of the effective teacher. Biggs<sup>9</sup> goes on to describe the art of teaching as the communication to students of the need to learn and he states that motivation to learn is the "product of good teaching and not a prerequisite".

The qualities that an effective medical teacher should possess has been a subject of debate and research. Sutkin et al.<sup>10</sup> while evaluating their own most "effective teachers" list five recurring features that the most effective teachers possess. These are "recognition of a relationship, emotional activation, generate responsibility, self-awareness and competence." They list the first four as noncognitive qualities that are often intangible when evaluating good teachers. Apart from knowledge and competence, it is important to be aware of the "non-cognitive" or the intangible qualities that an effective teacher possesses. These include instilling self-confidence in students<sup>11</sup> and encouraging creativity.<sup>12</sup> Rose<sup>13</sup> also lists fairness, empathy and humour as important characteristics.

In this Institute, where the study was conducted, there are teachers and students from diverse cultural and ethnic backgrounds such as Malay, Chinese and Indians. Cultural background has a definite effect on learning.<sup>6,14</sup> Azer<sup>6</sup> stated, "All medical educators should be aware of the impact of cultural differences on learning". According to Alweshahi<sup>15</sup>, "the learning that takes place during clinical teaching/learning experiences depends at least in part, on the teacher and his/her characteristics." Most clinicians do not have any formal teaching training. Most of the medical faculty learn to teach by observing their mentors or their teachers.<sup>16</sup> Therefore, it is vital that they are aware of the qualities that an effective teacher should possess in order to better deliver an ever evolving medical curriculum. This study attempts to identify the characteristics of an effective teacher, as perceived by the undergraduate students.

## **METHODOLOGY**

The study was conducted at Melaka Manipal Medical College (MMMC), Melaka, Malaysia after obtaining approval from the college research and ethics committee. This institute offers Bachelor of Medicine, Bachelor of Surgery course (MBBS). The first two and half years of the MBBS course is conducted in the Kasturba Medical College, Manipal, India and the remaining two and half years in MMMC, Malaysia. The participants of this study comprised of students (MBBS) from the 3rd to 5th years at MMMC. The study had a cross-sectional design. A self-administered questionnaire specifically prepared to meet the objective of the study was prepared by the authors after a review of the existing literature. The data form was refined and validated through a pilot study on a small subgroup of students and by obtaining input from medical education experts in the institution. Based on this input, the final data form was then drafted and used in the study.

Written informed consent from the participants was obtained. The questionnaire (hard copy) was distributed to the students by one of the co-authors in this study during the orthopaedic lecture classes. Participants were asked to fill out their age, gender, course year, ethnic group, marital status. The questionnaire required the respondents to rate 13 parameters (professional and personal qualities in the teachers) and responses were based on a 5 point Likert-scale i.e. 1=strongly disagree, 2= disagree, 3=neutral, 4=agree, 5=strongly agree. These parameters were knowledge of subject, enthusiasm, communication skills, approachability, sense of humour, publications/research, caring/empathy,

pleasant personality, inspirational/motivational, constructive criticism, patience/calmness, willing to learn/open to change, trust/respect for students/make the student feel important.

Each statement was discussed with the respondents to explain its meaning. The last section had an open ended question which required the respondents to describe their ideal teacher. The students submitted their response within 10-15 minutes. Anonymity was preserved during the data collection process.

The data were analysed using SPSS v 13.0. Descriptive data were reported in a frequency distribution table and in bar charts, where appropriate. Mean and standard deviation were computed for quantitative variables while percentages were used to display qualitative variables. T-test and one way ANOVA were used to compare differences between quantitative variables and the Chi-Square test and the Fishers Test were used to determine association of categorical variables with the outcome. Significance level was set at  $p < 5\%$ .

## **OBSERVATIONS**

The total number of participants who received the questionnaire were 316, out of which 226 (71.5%) responded. Distribution of participants according to course year, gender, ethnicity and marital status is shown in table below.[Table 1] The mean age of respondents was noted to be 23.2 years. (Not in Table)

**Table 1**

Distribution of respondents according to perceived knowledge of medical sciences, gender, ethnicity and marital status (n=226)

Variables	Number (%)
<b>Course year</b>	
5 <sup>th</sup> year	67(29.6%)
4 <sup>th</sup> year	91(40.3%)
3 <sup>rd</sup> year	68(30.1%)
<b>Gender</b>	
Male	66(29.2%)
Female	160(70.8%)
<b>Ethnicity</b>	
Chinese	67(29.6%)
Malay	125(55.3%)
Indian	34(15.0%)
<b>Marital status</b>	
Single	219(96.9%)
Married	7(3.1%)

The most important teacher quality as perceived by students in this study was knowledge of the subject (mean=4.5±0.6) followed by enthusiasm (mean=4.3±0.6) and communication skills (mean=4.2±0.6). The quality of teacher which least impresses the students in this study was publications/research (mean=3.5±0.7). Sense of humour, publications/research, caring/empathy, pleasant personality, constructive criticism had a mean response less than 4.0 on the Likert scale. The rest of the items regarding the qualities of an effective teacher had a response more than 4.0 on the Likert scale. [Figure 1]

Both male and female students followed the same order of preference. Overall their perceptions were the same.[Table 2]

**Table 2**

Effective Teacher Characteristics via quantitative analysis amongst male & female students (n=226)

Independent Variables	Chinese Mean (SD)	Malay Mean (SD)	Indians Mean (SD)	p Value
Knowledge of subject	4.4 (0.4)	4.5 (0.4)	4.5 (0.7)	0.77
Enthusiasm	4.4 (0.4)	4.3 (0.5)	4.3 (0.4)	0.48
Communication Skill	4.3 (0.7)	4.2 (0.4)	4.4 (0.4)	0.43
Approachability	4.2 (0.7)	4.0 (0.8)	4.2 (0.7)	0.11
Good sense of Humor	3.9 (0.7)	4.0 (0.7)	4.0 (0.7)	0.94
Publications/Research	3.4 (0.8)	3.5 (0.7)	3.7 (0.7)	0.11
Caring/Empathy	3.8 (0.7)	3.8 (0.7)	4.0 (0.9)	0.53
Personality	3.9 (0.7)	3.9 (0.4)	4.1 (0.7)	0.39
Inspirational/Motivational	4.1 (0.7)	4.1 (0.7)	4.3 (0.5)	0.38
Constructive Criticism	4.0 (0.7)	3.9 (0.8)	3.9 (0.8)	0.40
Patience/Calmness	4.1 (0.8)	4.2 (0.4)	4.1 (0.7)	0.54
Willing to Learn/Open to Change	4.1 (0.8)	4.2 (0.7)	4.2 (0.7)	0.80
Trust/Respect for students/Make the student feel important	4.1 (0.8)	4.2 (0.4)	4.1 (0.8)	0.51

Note. 1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree.

There was no observable significant difference of the perceived qualities with reference to the ethnic origin of students [Table 3] as well as the year of study. The sample size of 7 married couples is too small to draw any meaningful comparison with the single population. However, they do perceive research and publications higher as compared to the unmarried students.

**Table 3**

Effective Teacher Characteristics via quantitative analysis amongst ethnic groups (n=226)

Independent Variables	Chinese Mean(SD)	Malay Mean(SD)	Indians Mean(SD)	p Value
Knowledge of subject	4.4 (0.4)	4.3 (0.4)	4.3 (0.7)	0.77
Enthusiasm	4.4 (0.4)	4.3 (0.5)	4.3 (0.4)	0.48
Communication Skills	4.3 (0.7)	4.2 (0.4)	4.4 (0.4)	0.43
Approachability	4.2 (0.7)	4.0 (0.8)	4.2 (0.7)	0.11
Good sense of Humour	3.9 (0.7)	4.0 (0.7)	4.0 (0.7)	0.94
Publications/Research	3.4 (0.8)	3.5 (0.7)	3.7 (0.7)	0.11
Caring/Empathy	3.8 (0.7)	3.8 (0.7)	4.0 (0.9)	0.53
Personality	3.9 (0.7)	3.9 (0.4)	4.1 (0.7)	0.39
Inspirational/Motivational	4.1 (0.7)	4.1 (0.7)	4.3 (0.5)	0.58
Constructive Criticism	4.0 (0.7)	3.9 (0.8)	3.9 (0.8)	0.40
Patience/Calmness	4.1 (0.8)	4.2 (0.4)	4.1 (0.7)	0.54
Willing to Learn/Open to Change	4.1 (0.8)	4.2 (0.7)	4.2 (0.7)	0.80
Trust/Respect for students/Make the student feel important	4.1 (0.8)	4.2 (0.4)	4.1 (0.8)	0.51

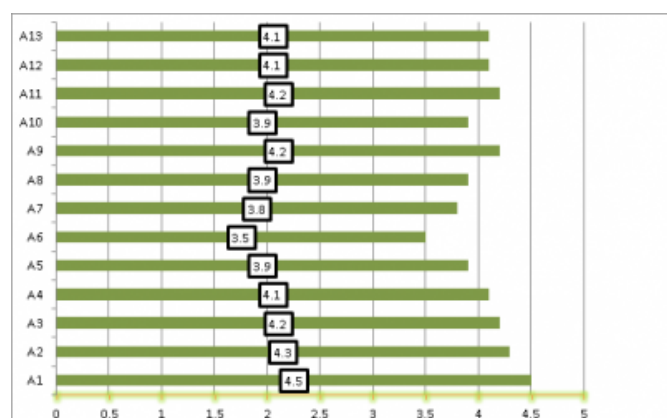
Note. 1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree.

Regarding the response to the open ended question, only 23 students responded. Most (11) of them felt that an ideal teacher should be unbiased. Some (8) felt that the teacher should be punctual. A few of them (4) felt that the teacher should be lenient in giving marks during evaluation of students during the examination.

Note. 1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree.

**Figure 1**

Mean score of the characteristics (n=226)



- A1- Knowledge of subject
- A8- Pleasant personality
- A2- Enthusiasm
- A9- Inspirational/Motivational
- A3- Communication Skills
- A10- Constructive Criticism
- A4- Approachability
- A11- Patience/Calmness
- A5- Sense of Humour
- A12- Willing to Learn/Open to Change
- A6- Publications/Research
- A13- Trust/Respect for students/
- A7- Caring/Empathy
- Make the students feel important

## DISCUSSION

The aim of the study was to identify potential characteristics of an effective teacher from the point of view of our students that could identify and rank these traits/ characteristics considered important for lecturers to possess. Students from the 3rd to the 5th course year were included in the study since we felt these students had spent enough time in the college to be able to provide an informed opinion.

The most important teacher quality as perceived by students in this study was knowledge of the subject (mean=4.5±0.6) followed by enthusiasm (mean=4.3±0.6) and communication skills (mean=4.2±0.6). These results, putting “knowledge of the subject” as the most desired characteristic of an effective teacher, is consistent across gender and student ethnicity. According to Adediwura and Tayo17, it has been established that there is high correlation between what teachers know and what they teach. Thus, the ability to teach effectively depends on the teachers’ knowledge. The results from a recent study among students in a medical school regarding perceptions of the good teacher demonstrated

“knowledgeable, clinically experienced, well-prepared and enthusiastic” as the qualities of a good teacher.18

In our study, we found that enthusiasm, communication skills, approachability and sense of humour were important qualities students look for in what they perceive to be an effective teacher. All of these characteristics were scored similarly and thus a formal ranking is perhaps not valid. Many researchers such as, Cruickshank, Jenkins and Metcalf19 have highlighted that an effective teacher possesses characteristics such as sense of humor, warmth and enthusiasm which is supported by Malm20, citing effective communication skills, respecting others,

confidence, responsibility, consistency and sense of humor as qualities of a 'good' teacher. Goldhaber et al.<sup>21</sup> found intangible aspects of teacher quality such as enthusiasm and skill to convey knowledge as major attributes of teachers' influence on student achievement. Moreover, both of these qualities can be acquired.

While subject knowledge will undoubtedly be the main asset an effective teacher possesses, it will be incorrect to conclude that it is the only one they need to be effective in the classroom.<sup>22,23</sup> An effective teacher also acts as a role model and eventually helps students to become better physicians. Gorham and Christophel<sup>24</sup> in their study on students' perceptions of teacher behaviours stated, "negative teacher behaviors are perceived as more central to students' demotivation than positive behaviors are perceived as central to their motivation."

It is interesting to note that all of the "personality-related traits" have a similar importance in our list. In a study on 214 nursing students using professional competence, interpersonal relationship, personality characteristics and teaching ability as indicators, Tang et al.<sup>25</sup> found that while both effective and ineffective teachers were similar with respect to subject knowledge, it was the other three "personality-related" features that distinguished an effective teacher from an ineffective one. This view is supported by the work of Patalano<sup>26</sup> and Bousefield<sup>27</sup>.

In our study, publications/research was ranked the lowest. This result is consistent with the findings of Wright<sup>28</sup> and Lublin<sup>29</sup>. Students are not concerned with research and publications of the teacher. Hattie and Marsh<sup>30</sup> found no correlation between teaching and their research. Voeks<sup>31</sup> stated, "Competency in research and publishing signify nothing, one way or the other, about competency in teaching." However, these qualities are desirable during the faculty assessment for promotions or tenure.

There are a number of criteria for teacher effectiveness, ranging from the level of knowledge that a teacher possesses and how it is imparted in the classroom to those that emphasize how that knowledge is attained, Okpala and Ellis<sup>32</sup>. Wilson et al.<sup>33</sup> concluded that a large proportion of effective teacher studies emphasize teachers' knowledge and qualifications and pay little attention to their personality traits that may shape how that knowledge is imparted to students. According to Banner and Cannon<sup>34</sup>, we as teachers, see success as a product of our level of academic development but we tend to overlook the importance of our own personality traits in determining our success or failure as teachers. According to Ingersoll<sup>35</sup> the quality of a teacher

is determined by his/her personality traits, teaching applications and level of academic development. Griffith<sup>36</sup> and Shea & Bellini<sup>37</sup> have shown that students are able to identify effective teachers, and that they learn more from those that they identify. Further, according to Cashin<sup>38</sup> the information from student evaluations is considered valid and reliable.

In any course and in particular a medical course where time is premium with respect to the amount and scope of knowledge to be learned, it is vital that a teacher, either in the classroom or by the bedside, be at his/her most effective in helping students learn. The limitation of this study is that it was a single centre study. The study population belongs to a single discipline, that is medicine. The results may not be generalized to different disciplines. It will be interesting to compare the perceptions of students with that of teachers. Nevertheless, the results of our study have implications for undergraduate medical education and for faculty development programmes, as some of the qualities of an effective teacher can be acquired. For example, the cognitive components like "subject knowledge" of the questionnaire can be learnt; the affective components like "communication skills and empathy" can be acquired with training and other soft skills can be improved after sensitization and self-introspection. Identification of these characteristics is vital for improvement in the teaching methodology of the clinical teachers in order to provide a more effective learning environment for the students.

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While subject knowledge will undoubtedly be the main asset an effective teacher possesses, it will be incorrect to conclude that it is the only one they need to be effective in the classroom.<sup>22,23</sup> An effective teacher also acts as a role model and eventually helps students to become better physicians. Gorham and Christophel<sup>24</sup> in their study on students' perceptions of teacher behaviours stated, "negative teacher behaviors are perceived as more central to students' demotivation than positive behaviors are perceived as central to their motivation."

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stated, "Competency in research and publishing signify nothing, one way or the other, about competency in teaching." However, these qualities are desirable during the faculty assessment for promotions or tenure.

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In any course and in particular a medical course where time is premium with respect to the amount and scope of knowledge to be learned, it is vital that a teacher, either in the classroom or by the bedside, be at his/her most effective in helping students learn. The limitation of this study is that it was a single centre study. The study population belongs to a single discipline, that is medicine. The results may not be generalized to different disciplines. It will be interesting to compare the perceptions of students with that of teachers. Nevertheless, the results of our study have implications for undergraduate medical education and for faculty development programmes, as some of the qualities of an effective teacher can be acquired. For example, the cognitive components like "subject knowledge" of the questionnaire can be learnt; the affective components like "communication skills and empathy" can be acquired with training and other soft skills can be improved after sensitization and self-introspection. Identification of these characteristics is vital for improvement in the teaching methodology of the clinical teachers in order to provide a more effective learning environment for the students.

## **CONFLICT OF INTEREST:**

None

## **References**

1. Harden RM, Crosby JR: The good teacher is more than a lecturer – the twelve roles of the teacher. *Med Teach*; 2000; 22(4): 334-7.
2. Harden RM, Davis MH: The core curriculum with options or special study modules. *Med Teach*; 1995; 17: 125-48.
3. Walton HJ: Proceedings of the World Summit on Medical Education. *Med Educ*; 1993; 28(1):140-9.
4. Harden RM, Sowden S, Dunn WR: Some education strategies in curriculum development: the SPICES model. *Med Educ*; 1984; 18: 284-97.
5. Jones R, Higgs R, de Angelis C et al.: Changing face of medical curricula. *Lancet*; 2001; 357(9257): 699-703.
6. Azer SA: The qualities of a good teacher: how can they be acquired and sustained?. *J R Soc Med*; 2005; 98: 67-9.
7. Steinert Y: Student perceptions of effective small group teaching. *Med Educ*; 2004; 38: 286-93.
8. Hasan T, Bani I, Ageely H et al.: An Ideal Medical Teacher. *Educ Med J*; 2011; 3(1): 54-9.
9. Biggs J: What the student does: teaching for enhanced learning. *High Educ Res Dev*; 1999; 18: 1.
10. Sutkin G, Wagner E, Harris I et al.: What Makes a Good Clinical Teacher in Medicine? A Review of the Literature . *Acad Med*; 2008; 83: 452-66.
11. Roush DC: What makes a good teacher?. In GW Thomas and DG Ferguson (eds): *In Celebration of the Teacher* (11-16); Las Cruces; New Mexico State University; 1987. (ERIC Document Reproduction Service No. ED 230080)
12. Simmons B: Characteristics of a good teacher. In GW Thomas and DG Ferguson (eds): *In Celebration of the Teacher* (11-16); Las Cruces; New Mexico State University; 1987. (ERIC Document Reproduction Service No. ED 291682).
13. Rose AC: What do effective teachers do?. *The Clearing House*; 1989; 63(4): 181-3.
14. McLean M: Is culture important in the choice of role models? Experience from a culturally diverse medical school. *Med Teacher*; 2004; 26: 142-9.
15. Alweshahi Y, Harley D, Cook DA: Students' perception of the characteristics of effective bedside teachers. *Med Teach*; 2007; 29: 204-9.
16. Hueppchen N, Dalrymple JL, Hammoud MM et al.: To the point: medical education reviews- ongoing call for faculty development. *Am J Obstet Gynecol*; 2011; 3: 171-6.
17. Adediwura A, Tayo B: Perception of teachers' knowledge, attitude and teaching skills as predictor of academic performance in Nigerian secondary schools. *Educ Res Rev*; 2007; 2(7): 165-71.
18. Schiekirka S, Reinhardt D, Heim S et al.: Student perceptions of evaluation in undergraduate medical education: A qualitative study from one medical school. *BMC Med Educ*; 2012; 12: 45.
19. Cruickshank DR, Jenkins DB, Metcalf KK: *The act of teaching*; New York; McGraw-Hill; 2003.
20. Malm B: Personal values, professional roles: Eight montessori teachers tell their stories; Malmö; GM Educational Consulting; 2003.
21. Goldhaber D: The mystery of good teaching: Surveying the evidence on student achievement and teachers' characteristics. *Educ Next*; 2002; 2(1): 50-5.
22. Shulman LS: Those who understand: Knowledge growth in teaching. *Educ Res*; 1986; 15(2): 4-14.
23. Goulding M, Rowland T, Barber P: Does it matter? primary teacher trainees' subject knowledge in mathematics. *Brit Educ Res J*; 2002; 28(5): 689-704.
24. Gorham J, Christophel DM: Students' perceptions of teacher behaviors as motivating and demotivating factors in college classes. *Commun Q*; 1992; 40(3): 239-52.
25. Tang FI, Chou SM, Chiang HH: Students' perceptions of effective and ineffective clinical instructors. *J Nurs Educ*; 2005; 44(4): 187-92.
26. Patalano F: School psychology graduate students' perceptions of effective and ineffective teachers. *Coll Student J*; 1978; 3: 360-3.
27. Bousfield WA: Students' ratings of qualities considered desirable in college professors. *Sch Soc*; 1940; 51: 253-6.
28. Wright S, Wong A, Newill C: The impact of role models on medical students. *J Gen Intern Med*; 1997; 12: 536.
29. Lublin JR: Role modelling: a case study in general practice. *Med Educ*; 1992; 26: 11622.
30. Hattie J, Marsh HW: The Relationship between research and teaching: A meta-analysis. *Rev Educ Res*; 1996; 66: 507-42.
31. Voeks VW: Publications and Teaching Effectiveness: A Search for Some Relationship. *J High Educ*; 1962; 33(4): 212-18.
32. Okpala CO, Ellis R: The perceptions of college students on teacher quality: A focus on teacher qualifications. *Education*; 2005; 126(2): 375-83.
33. Wilson SM, Floden RE, Ferrini-Mundy J: *Teacher preparation research: Current knowledge, gaps and recommendations*. Washington, DC; Center for the Study of Teaching and Policy; University of Washington; 2001. (Document R-01-3).
34. Banner JM, Cannon HC: *The elements of teaching*; Connecticut; Yale University Press; 1997.
35. Ingersoll R: The problem of underqualified teachers in American secondary schools. *Educ Res*; 1999; 28(2): 26-37.
36. Griffith CH, Georgensen JC, Wilson JF: Six-year documentation of the association between excellent clinical teaching and improved students' examination performances. *Acad Med*; 2000; 75: 62-4.
37. Shea JA, Bellini LM: Evaluations of clinical faculty: The impact of level of learner and time of year. *Teach Learn Med*; 2002; 14: 87-91.
38. Cashin WE: *Student ratings of teaching: the research revisited*. (IDEA Paper No. 32). Manhattan, KS: Kansas State University, Center for Faculty Evaluation and Development; 1995.

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