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Instructional Skills of Surgical Tutors

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ABSTRACT

Aim of Study: This study was aimed at evaluating the pattern of instructional skills of surgical tutors in a university hospital and the effect of feedback on this pattern.

Method: Students who followed three clinical rotations at the Department of Surgery, Mubarak Al-Kabeer Teaching Hospital, Kuwait, responded anonymously to a structured questionnaire on the instructional skills of their tutors immediately after the rotation was completed. The questionnaire included six statements related to teacher-centred instructional skills and six statements related to student-centred instructional skills. The students indicated their perception on a five-point rating scale (very poor, poor, fair, good and very good). A summary of students' opinions was made available to the teachers soon after each rotation.

Results: The percentage of good/very good categories was significantly higher in the teacher-centred skills compared with the student-centred skills (median (range), 87.05% (85.9-91.7) compared with 79.6% (76.6-80.6), (p=0.004, Mann Whitney U test). This difference was significant in the first two rotations (p<0.005) but not in the third rotation (p=0.59).

Conclusions: This study shows that behaviours of teachers which dealt directly with the learner's role in learning received lower emphasis than the teacher-centred activities and that feedback may modify this behaviour.

Keywords: Clinical instruction in surgery, Student-centred learning, Student feedback

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INTRODUCTION

Teachers of pre-university students are routinely required to undergo specific training to obtain certain instructional skills. Such a stipulation has not been laid down for instructors involved in tertiary education, including those in medical schools. The need for medical teachers to acquire instructional skills gained wide acceptance after the World Health Organisation established a series of national and regional teacher training centres[1]. If instructors become better aware of effective clinical teaching skills, it may promote them to seek specialist attention in areas that they regard as inadequate[2].

Clinical teachers may consider themselves the centre of the educational activity as they may not be taking adequate cognisance of the central role of the learner in the learning process. Instructional programmes usually do not provide sufficient evidence of definitive planning for the learner to play a major role in acquiring the necessary skills. This state of affairs may be a vestige of the traditional teacher-student relationship in the society and an adaptation to deal with insufficient resources. Medical schools should strive to give the learner a more prominent role in the learning experience.

This study aimed to evaluate the pattern of instructional skills of surgical tutors in a university hospital and the effect of feedback on this pattern.

METHODS

Undergraduate medical students of the fifth and seventh years who attended a clinical rotation of six weeks' duration at the Department of Surgery, Mubarak Al-Kabeer Teaching Hospital were surveyed. Students spent three weeks in each of two general surgical units. They responded anonymously to a structured questionnaire administered immediately after the rotation was completed.

The questionnaire included six statements related to teacher-centred instructional skills, six statements related to student-centred instructional skills, one statement related to organisation and one statement showed the overall rating of the teaching (Appendix 1).

Teacher-centred approach means concentrating on teaching without actively involving students in the learning process, while student-centered approach accepts students as adult learners who

Appendix 1.

CLINICAL TEACHING ASSESSMENT FORM

Name of teacher: ..... Unit: .....

Consider all teaching sessions conducted by this teacher during appointment/rotation. Give your opinion of the quality of his teaching skills, using the statements below. Your comments will be kept confidential and used to identify areas in which the teacher needs to improve.

Answer **all** statements. Circle the number which most closely shows your view on each statement.

Key:	**very poor**	**poor**	**fair**	**good**	**very good**
Teaching rounds well organised and easy to follow	1	2	3	4	5
Speaks clearly and can be heard	1	2	3	4	5
Explains the subject matter clearly	1	2	3	4	5
Shows good knowledge of concepts and theories in subject matter	1	2	3	4	5
Has knowledge of current diagnostic and therapeutic procedures	1	2	3	4	5
Indicates clearly what is expected to be learned	1	2	3	4	5
Demonstrates/supervises physical examinations and procedures, reviews case notes	1	2	3	4	5
Allows students to ask questions and to ask for clarification	1	2	3	4	5
Actively involves students in class activities	1	2	3	4	5
Helpful and patient in dealing with students' learning problems, gives relevant feedback	1	2	3	4	5
Gives satisfactory answers to students' questions	1	2	3	4	5
Encourage the students to be responsible for his/her learning	1	2	3	4	5
Dynamic, energetic, enjoys teaching, stimulates student's interest in the subject	1	2	3	4	5
When all aspects of teaching are considered, my overall rating of this teacher is	1	2	3	4	5

Additional comments: .....

should take responsibility and be actively involved in the learning process.

The students indicated their perceptions on a five-point rating scale (very poor, poor, fair, good and very good). Each instructor was then provided with the feedback on his own cumulative ratings based on the assessments made by the students. Students' survey and feedback to instructors were repeated at the end of the next two rotations. The responses were analysed with all instructors being considered together for each rotation.

STATISTICAL ANALYSIS

Non-parametric methods were used because of the small number of observations[3]. For comparison between data, the categories of fair, poor and very poor were treated as one category while good and very good as another category. This was justified on the basis that assessment as fair could be interpreted as something more than the current state was desired by the respondents. In addition, this protects against students' reluctance to be critical to their teachers.

Analysis was performed using Fisher's exact test for categorical data. The Friedman test was used to define the changes of the percentages of good/very good ratings over time in each of the instructional groups. The Wilcoxon signed rank test was then used to compare the results on different rotations within each group. The Mann Whitney U test

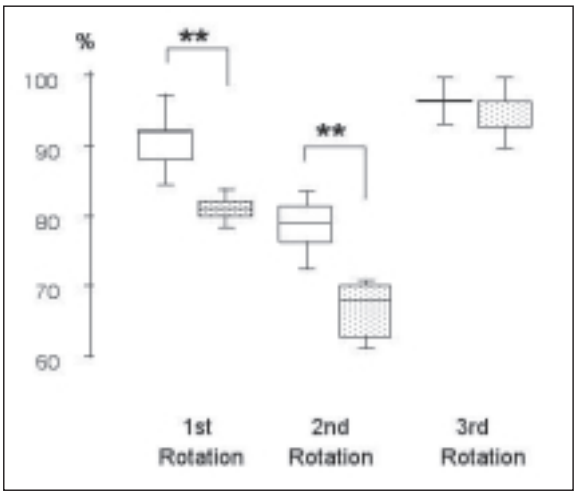

Fig. 1 Box plots of the percentage of good/very good categories in the teacher-centred skills (empty boxes) and student-centred skills (dotted boxes) in the three rotations. The horizontal line in the box indicates the median. **p<0.005 (Mann Whitney U test).

was used to compare the percentages of Good/Very good between the two groups at different rotations. A p value of less than 0.05 was accepted as significant.

RESULTS

At the end of the three consecutive rotations, 50, 43 and 28 opinion questionnaires were collected. The overall response rate was 94%.

Comparison across the three rotations showed that student-centred instructional skills had significantly lower rating than the teacher-centred skills in the first two rotations (p<0.005, Mann Whitney U test) (Fig. 1). The difference was non-significant at the third rotation (p=0.59, Mann Whitney U test). There was a significant change over time within each of the groups of instructional skills (p<0.01, Friedman test).

When all three questionnaires were combined together, the percentage of good/very good categories was significantly higher in the teacher centred skills compared with the student-centred skills (median (range), 87.05% (85.9-91.7) compared with 79.6% (76.6-80.6), (p=0.004, Mann Whitney U test).

The second rotation elicited the lowest overall rating in the good/very good category which was significantly lower than the first rotation (49/50 compared with 34/43), p=0.005, Fisher's exact test) while the third rotation became similar to the first rotation (27/28 compared with 49/50, p=1, Fisher's exact test). The third rotation has shown significant improvement in student-centred skills when compared with the first rotation, p<0.03, Wilcoxon signed rank test).

DISCUSSION

Students undergoing training constitute a useful source for evaluating the different aspects of educational activities undertaken and their judgements are reliable and parallel those of peers[4-6]. Many institutions use them to assess the quality of instruction as well as the organisation of courses[4,7], though some are cautious in their use[8].

This study has shown that the surgical tutors had initially a teacher-centred approach which was modified after supplying them with the feedback of the students. Behaviours which dealt directly with the learner's role in learning received lower emphasis than the teacher-directed activities. Attributes such as

Table 1. Responses in good/very good(G/VG) and very poor/poor/fair (VP/P/F) categories for instructional skills of all instructors in three surgical rotations.

Skills	First rotation n = 50		Second rotation n = 43		Third rotation n = 28		Total % n =121
	G/VG	VP/P/F	G/VG	VP/P/F	G/VG	VP/P/F	G/VG (%)
Teacher-centred skills							
Explains the subject matter clearly	49	1	36*	7	26	2	111 (91.7)
Gives satisfactory answers to students' questions	46	4	35	8	27	1	108 (89.2)
Knows concepts and theories	46	4	33*	10	27	1	106 (87.6)
Knows diagnostics and therapeutic procedures	44	6	32	10	27	0	103 (86.5)
Speaks clearly and can be heard	42	8	35	8	27	1	104 (85.9)
Allows students to ask questions	46	4	31*	12	27	1	104 (85.9)
Student-centred skills							
Indicates clearly what is expected to be learned	41	9	27	14	28#	0	96 (80.6)
Demonstrates/supervises procedures	41	9	29	12	26	2	96 (80.6)
Stimulates students' interest in the subject	40	10	30	13	27	1	97 (80.1)
Helpful in dealing with learning problems	42	8	27*	16	26	1	95 (79.1)
Actively involves students in class activities	40	10	30	13	25	3	95 (78.5)
Encourages responsibility for own learning	39	10	26	17	27#	1	92 (76.6)

* = significantly lower than the first rotation and # = significantly higher than the first rotation (p<0.05, Fisher's exact test).
NB: Missing values were not included when calculating the total good/very good perccentages.

encouraging learner responsibility, actively involving students in class, being helpful in students' learning problems, demonstration or supervision of physical examinations and procedures, stimulation of students' interest in the discipline and indicating clearly what was expected to be learned received lower assessments when compared with teacher-centred instructional skills. It was not possible to be certain of the reason for the apparent drop in the student perceptions observed on the second occasion; an end-of-term break that was approaching may have had an influence. This may reflect either decreased enthusiasm of teachers at the end of the term or students being more critical. It is possible, however, that the lowered assessment in the second rotation prompted the instructors to pay greater attention to the instructional skills during the third rotation, eliciting high positive ratings. The "end of term" phenomenon was also observed at the Department of Surgery of Auckland University and was attributed to the decreased clinical teacher enthusiasm[9].

The comparisons in Fig. 1 are between statements of the same questionnaire, which means that they are comparing the skills of the same tutors evaluated by the same students. A similar questionnaire distributed to medical students in our faculty during their paediatric rotations was previously validated[10]. Evaluation of medical education using a standardised method is not only useful to encourage teachers to improve but also to compare across disciplines and departments.

The lower emphasis on the role of the student in the learning process implies that clinical teachers should apply student-centred instructional strategies to a higher extent. Increasing the role of the learner is important because the knowledge that medical students are expected to gain for effective practice may be more than what they can learn in the time available under the prescribed courses[11]. The learner can be encouraged to identify the core of medical content that has to be mastered, integrate facts into a conceptual framework, learn to decide what information is needed for decision making and be able to gain access to, but not necessarily learn, additional information required for practice.

It is of interest to point out that less emphasis on supervising procedures was even carried out to our postgraduate surgical programme with more emphasis on theory than practical skills[12] and that this behaviour is not only limited to surgery but also extends to other medical branches[10].

It is essential to change our attitudes towards our students by giving them responsibility and confidence and adopting some of the thinking-provoking and problem-solving techniques that actively involve the students. Problem-based learning depends on the concept that medical students are adults who need, want and can learn[13]. This requires an active participation of the learner in the learning process[14].

Our tutors did not receive any training on medical education techniques during the study period. It is possible that their awareness of the study modified their behaviour. This implies that audit of medical education per se may improve our teaching skills. Besides that, suitable remedies such as workshops in clinical teaching may be instituted[15] as they may shift emphasis towards problem-solving orientation in instruction[16].

REFERENCES

1. Fulop T. The implementation of WHO s training programme for teachers of health professions, in Miller GE, Fulop T. (eds.): Educational Strategies for the Health Professions, Geneva, World Health Organisation, 1974; Public Health Papers No. 61 pp:89-98.
2. Bazuin CH, Yonke AM. Improvement of teaching skills in a clinical setting. J Med Educ 1978; 53:377-82.
3. Siegel S, Castellan Jr. Nonparametric statistics for behavioral sciences. New York: McGraw-Hill Book Company, 1988; pp:102-67.
4. Irby D, Rakestraw P. Evaluating clinical teaching in medicine. J Med Educ 1981; 55:181-6.
5. Schum TR, Koss R, Yindra KJ, Nelson DB. Students and residents ratings of teaching effectiveness in a department of paediatrics. Teach Learn Med 1993; 5:128-32.
6. Wolf FM, Turner EV. Congruence between student and instructor perceptions of clinical teaching in paediatrics. Med Educ 1989; 23:161-7.
7. Irby DM: Evaluating instruction in medical education. J Med Educ 1983; 58:844-9.
8. Tucker P, Scarborough A. Take students course evaluations with a grain of salt! Acad Med 1993; 68:614.
9. Abu-Zidan, FM, Windsor JA. Students evaluation of surgical seminars in a teaching hospital. Med Educ 2001; 35:673-80.
10. Premadasa IG, Hijazi Z, Moosa A. An instrument to evaluate clinical instructional skills. Med Educ 1995; 29:355-9.
11. Burrow GN. The body of medical knowledge required today far exceeds what students can learn in four years. The Chronicle of Higher Education 1990 June 20; Sect. 2:B1 (col. 1).
12. Premadasa IG, Abu-Zidan FM. Learning objectives in training esidents in general surgery in Kuwait. Med Teacher 1992; 14:215-22.
13. Abu-Zidan FM. The international conference on problem-based learning in higher education. Med Educ 1997; 31:390-3.
14. Folse JR. Presidential address: Surgical education-addressing the challenges of change. Surgery 1996; 120:575-9.
15. Stritter FT, Hain JD. A workshop in clinical teaching. J Med Educ 1977; 52:156-7.
16. Joorabchi B, Marjani F. Impact of teacher training: A shift towards problem solving orientation. Med Educ 1979; 13:172-4.