

# The medical instructional questionnaire used to assess the quality of South African medical education

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## Abstract

### Background

Clinical training for medical students in the USA moved away from teaching hospitals to outpatient settings in diverse communities. It was thought that this use of ambulatory settings might adversely affect the quality of training of medical students and complicate control of the opportunities to which the individual student would be exposed.

Concerns about the quality of medical training led to the development of a questionnaire to measure students' perceptions of their instruction. James and Shipengrover of the State University of New York at Buffalo developed and tested this student-completed questionnaire, the Medical Instructional Questionnaire ( Med Ed IQ ), which was based on quality improvement theory and grounded in experiential learning theory.

Four constructs that contribute to instruction are measured by the questionnaire: preceptor activities that facilitate learning, learning opportunities, the learning environment and learner involvement. These constructs are measured as processes and are not intended to assess student performance.

Many programme directors have an idea of which clinical sites and teachers provide better training, but a validated assessment of the process of instruction is necessary. To this end, the Med Ed IQ questionnaire has been tried and tested, and it has been suggested that, being a valid and reliable tool, it might assist in programme evaluation and provide benchmarks of quality over time to improve instruction in community-based practices.

The clinical demands on clinician- teachers are heavy, and it is very important to help them achieve their educational objectives without diminishing their productivity. Devoting attention to conditions that improve the processes of teaching and learning, and measures that help monitor the quality of instruction in these settings, can therefore be beneficial.<sup>3</sup> Among the implications of the use of the instrument is the provision of more specific feedback to preceptors on how to improve their quality of instruction.

At the University of Pretoria in South Africa, several clinics are used in the experience-based training of senior medical students. The quality of the education that these students receive may vary between the different clinics because of different trainers who handle the circumstances and the students differently, different settings with different opportunities, and different patients who present different kinds of problems.

We chose the Med Ed IQ questionnaire to elicit senior medical students' perceptions of the quality of training they received, their view of the preceptor and the benefits gained from active participation, and then compared the responses of the students who worked at the different clinics in order to identify problems and make recommendations to the clinician-teachers and the management of the different clinics.

### Methods

The Medical Instructional Questionnaire was used to determine students' perceptions of the quality of the training they received and to determine whether their perceptions of the different clinics varied. At the conclusion of their clinical training rotation in Family Medicine, 251 final-year medical students completed the 33-item questionnaire. Testing started in March 2003, and the last group completed the questionnaire in November 2003.

### Results

Differences between the different clinics used as training sites were identified on the basis of four constructs: clinician-teachers' impact on the learner, experience gained, benefits of and problems relating to the clinic.

### Conclusions

The results identify differences between the different clinics that can be used to identify problem areas and recommend to clinician-teachers where to improve their instruction. The results serve to verify the applicability of this instrument, which was first tested in the USA, to assess student perceptions of medical instruction in South Africa.

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## Introduction

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Many programme directors have an idea of which clinical sites and teachers provide better training, but a validated assessment of the process of instruction is necessary. To this end, the Med Ed IQ questionnaire has been tried and tested, and it has been suggested that, being a valid and reliable tool, it might assist in programme evaluation and provide benchmarks of quality over time to improve instruction in community-based practices.<sup>2</sup>

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beneficial.<sup>3</sup> Among the implications of the use of the instrument is the provision of more specific feedback to preceptors on how to improve their quality of instruction.<sup>2</sup>

At the University of Pretoria in South Africa, several clinics are used in the experience-based training of senior medical students. The quality of the education that these students receive may vary between the different clinics because of different trainers who handle the circumstances and the students differently, different settings with different opportunities, and different patients who present different kinds of problems.

We chose the Med Ed IQ questionnaire to elicit senior medical students' perceptions of the quality of training they received, their view of the preceptor and the benefits gained from active participation, and then compared the responses of the students who worked at the different clinics in order to identify problems and make recommendations to the clinician-teachers and the management of the different clinics.

## Methods

The Med Ed IQ was used to determine students' perceptions of the quality of training they received and to determine whether their perceptions varied on the basis of the site at which they received their instruction. A total of 251 final-year medical students completed the 33-item questionnaire at the end of their clinical training rotation in Family Medicine. Testing started in March 2003, and the last group completed the questionnaire in November 2003.

The researcher translated the questionnaire and, in accordance with the language policy of the University of Pretoria, provided it in Afrikaans and in English.

The researcher also changed a few words in the original questionnaire to reflect conditions applicable in the context of the consulting sites used by the Department of Family Medicine of the University of Pretoria. An open-ended question was added in which

students were asked to name the clinic they attended and to comment on their experiences. All questionnaires were completed anonymously.

The questionnaire was later adapted for computer processing. The Question Mark Designer Program was used to adapt the paper-based questionnaire. The wording was similar to that used in the paper-based test, with the last, open-ended question included.

## Analysis

The researcher compared the results for each clinical site according to four constructs:

- Students' perceptions of the effectiveness of the supervisors at the different clinics
- Students' perceptions of the learning opportunities at the different clinics
- Students' perceptions of their involvement at the different clinics
- Students' perceptions of the clinic that they attended as a learning environment

The questionnaire included items that have been reverse scored to ensure more discriminating information. Responses to three negative statements were reversed. All other statements are positive.

The responses to the statements are in Likert-scale format. The researcher counted the frequencies of every response category, for each respondent, and compiled charts for each of the four constructs of the questionnaire. Within each construct, the researcher determined the frequency of responses in each category of each construct.<sup>3</sup>

The researcher converted the frequencies to percentages to compare responses from the different clinics, as different number of students attended the various clinics and different numbers of responses were recorded. The four constructs of the questionnaire were analysed separately.<sup>4</sup>

Open-ended comments were sorted into positive, negative and

general, and then compared and reported on separately.

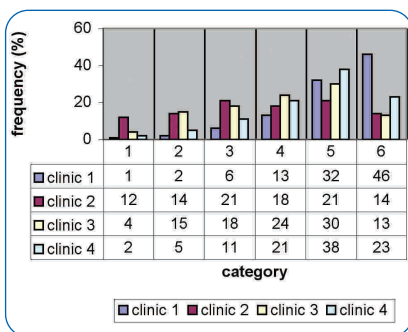
Two steps were employed to identify specific problems. The responses to individual items within a construct were scrutinised, to spot those questions to which more negative responses were given, and then the open-ended comments were analysed to verify the responses and add detail.

**Results**

The researcher identified differences between the different clinical training sites in terms of the clinician-teacher's impact on the learner, the experience gained, and the benefits of and problems relating to the clinic itself.<sup>5</sup>

Figure 1 shows the students' perceptions of the effectiveness of the supervisors at the different clinics. Responses to this section of the questionnaire were rated as 1: most ineffective, 2: very ineffective, 3: ineffective, 4: effective, 5: very effective and 6: most effective. For the purposes of reporting, the very effective and most effective scores (5 and 6) have been grouped as effective and all the ineffective scores (1, 2 and 3) are combined as ineffective.

**Figure 1: Students' perceptions of the effectiveness of supervisors**



**Clinic 1:**

Responses were very positive regarding supervisors at this clinic. Most of the students (78%) who attended this site found that their supervisors were effective, while only 9% of the students found their supervisors to be ineffective.

**Clinic 2:**

Responses from students who

attended this clinic were divided. Only 35% found their supervisors to be effective, while 47% perceived their supervisors to be ineffective.

**Clinic 3:**

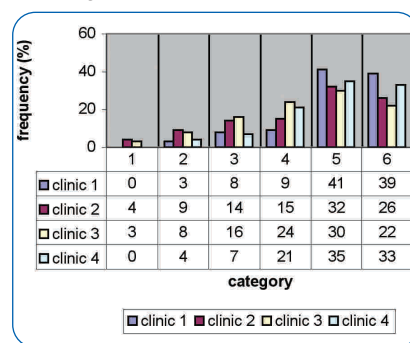
Almost half (43%) of the students who attended the third clinic found their supervisors to be effective, while 33% perceived their supervisors as being ineffective.

**Clinic 4:**

Responses from students who attended the fourth clinic showed a distribution pattern of responses similar to those for clinic 3. Of the students attending this clinic, 61% found their supervisors to be effective and 18% found them to be ineffective.

Figure 2 shows the students' perceptions of the learning opportunities experienced at the different clinics. Responses to this section of the questionnaire were rated as 1: no opportunities, 2: too few opportunities, 3: a few opportunities (inadequate), 4: a few opportunities (adequate), 5: many opportunities, and 6: ample opportunities. For the purposes of reporting, many and ample opportunities scores (5 and 6) were grouped as many opportunities, and the no or few opportunities (1, 2 and 3) were combined as inadequate opportunities.

**Figure 2: Students' perceptions of learning opportunities**



**Clinic 1:**

Responses were very positive regarding opportunities experienced at this clinic. Most (80%) of the respondents indicated that they found many opportunities for learning, while 11% found inadequate opportunities

for learning.

**Clinic 2:**

Responses from students who attended this clinic were mostly positive. More than half (58%) found many opportunities to learn, compared to 27% who found inadequate opportunities to learn.

**Clinic 3:**

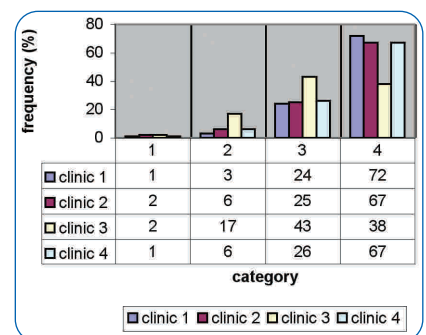
Most students who attended this clinic were satisfied with the opportunities offered. Half (50%) of these students found many opportunities to learn and 27% experienced inadequate opportunities.

**Clinic 4:**

Responses from students who attended the fourth clinic showed a distribution pattern of responses similar to those for clinic 3. More than half (68%) of the students found many opportunities to learn, while 11% experienced inadequate opportunities.

Figure 3 illustrates the students' perceptions of their involvement at the different clinics. Responses to this section of the questionnaire were rated as 1: no exposure, 2: observation only, 3: supervised participation with little responsibility, or 4: supervised participation with shared responsibility. For the purposes of reporting, no exposure or observation only (1 and 2) were combined as reflecting inadequate involvement.

**Figure 3: Students' perceptions of their involvement**



**Clinic 1:**

Almost three-quarters (72%) of the students who attended this clinic reported participation with shared responsibility, while 4% reported

inadequate involvement.

#### **Clinic 2:**

More than half (67%) of the respondents reported participation with shared responsibility, and 8% reported inadequate involvement.

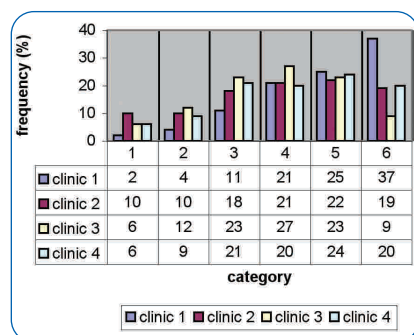
#### **Clinic 3:**

A few (38%) of the students who attended this clinic reported participation, while 19% reported inadequate involvement.

#### **Clinic 4:**

Responses from students who attended the fourth clinic showed a distribution pattern of responses similar to those for the first two clinics. Most (93%) experienced participation with shared responsibility, while 7% reported inadequate involvement.

**Figure 3:** Shows the students' perceptions of the suitability of the clinic that they attended as a learning environment. Responses to this section ranged from 1: totally unsuitable, 2: very unsuitable, 3: unsuitable, 4: suitable, and 5: very suitable to 6: totally suitable as learning environment. For the purposes of reporting, totally unsuitable, very unsuitable and unsuitable (1, 2 and 3) were combined as reflecting unsuitability, while very suitable and totally suitable (5 and 6) were regarded as suitable.



#### **Clinic 1:**

The responses received regarding perceptions of the clinic itself showed a progressively positive pattern. Most students (62%) rated the clinic suitable, while only 17% thought that the clinic was unsuitable as a learning environment.

#### **Clinic 2:**

Fewer than half (41%) of the respondents found the clinic suitable, and 38% perceived the clinic to be unsuitable.

#### **Clinic 3:**

Only about one-third (32%) of the

respondents perceived this clinic as being suitable as a learning environment, while a greater number (41%) perceived the clinic to be unsuitable.

#### **Clinic 4:**

Almost half (44%) of the students who attended this clinic found it suitable, while 36% of the students perceived the clinic to be unsuitable.

### **Discussion**

#### **The effectiveness of the supervisors at the different clinics, as perceived by the students**

At *clinic one*, the item that focuses on the understanding of radiology was regarded as not being attended to by clinician-teachers. A possible explanation may be the absence of an X-ray machine at this clinic.

At *clinic two*, four problem areas were identified from individual items. Students felt that little or no time was spent on preparing them for patient encounters, reviewing the history of the patient, focusing on understanding the taking of the patient's history and making follow-up appointments for when students were available. From comments made by participating students it became clear that the workload of the clinician-teachers at this clinic was too heavy to allow adequate time to accommodate the students' needs. The importance of the clinician-teachers as role models was also emphasised by students who commented on some of the clinician-teachers' negative attitudes towards one another and other staff.

At the *third clinic*, almost one-third of the students perceived ineffectiveness and a few problem areas were identified. Of the problem areas identified were that too few relevant topics were assigned for reading and that there was too little focus on the role of the healthcare team and the importance of self-directed learning. The students also found that little time was spent on specific feedback regarding presenting findings or cases and documentation. Comments referred to overbooked lists and an understaffed clinic, where clinician-

teachers have little time for students.

At the *fourth clinic*, students perceived problems regarding a focus on documentation. Some found the organisation at this clinic confusing and frustrating and a few commented on the lack of detailed information given to them at the orientation when they started this rotation. Students also commented on the perceived unprofessional behaviour of one or two of the clinician-teachers. Their comments focused on their disappointment when witnessing certain incidents.

#### **Students' perceptions of learning opportunities at the different clinics**

Almost two-thirds of the students' responses were positive in respect of learning opportunities.

The *first clinic* is in a rural setting, and the students perceived the problems of the patients to be mostly chronic, with very few dermatological or orthopaedic problems being encountered. At the *second clinic*, the students experienced a lack of opportunities to improve their communication skills with the doctors. No specific problem could be identified from individual items or from comments made by students attending the *third clinic*. The students who attended the *fourth clinic* commented on poor communication and the need for more translators at the clinic.

#### **Students' perceptions of their involvement at the different clinics**

The students displayed overwhelming consensus regarding their involvement in the different areas of clinical practice, with 90% of their responses being positive. This indicates that the students felt that they were involved in a variety of areas of clinical practice. No lack of involvement in a specific area could be identified from responses to individual items or from comments regarding any of the clinics.

### **Students' perceptions of the clinic that they attended**

The *first clinic* was viewed overwhelmingly positively, while the three other clinics were perceived as having room for some improvement. The students perceived the pace of patient care as being too slow at all of the clinics.

At the *second clinic*, the students perceived a lack of contribution to learning from the nursing staff, as well as a lack of coordination of patient care among agencies, specialist and hospitals. The problems identified at the *third clinic* include a lack of coordination of patient care among agencies, specialist and hospitals, time wasted in the consulting room and a lack of examining the social and cultural contexts of illness. Students who attended the *fourth clinic* perceived a lack of contribution to learning by the nursing staff.

### **Conclusions**

The students' perceptions of the differences between the clinics are clearly shown by the results.

- Supervisors were experienced differently at the different clinics attended by the students. The characteristics of clinician-teachers have a major influence on the effectiveness of an educational experience.<sup>6</sup> Effective and friendly communication is extremely important.
- The students' perceptions of opportunities for learning at the different clinics were that there were many and varied opportunities at the different clinics.
- Most of the students felt that they participated with shared responsibility.

- Responses regarding perceptions of the suitability of conditions at the four clinics as learning environments showed clear differences between the clinics.

These results can be used to identify problems and provide clinician-teachers with recommendations on where to improve their instruction. Information can also be communicated to the management of the different clinics, with recommendations regarding changes at the clinic that might benefit students.

The results of this survey serve to verify the applicability of the Medical Instructional Quality questionnaire to assess medical instruction in South Africa.

### **Acknowledgements**

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