Teacher perceptions of desired qualities, competencies and strategies for clinical skills teachers

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Abstract

Introduction: Clinical skills centres (or Skillslabs) prepare students for patient-encounters. Evidence on teaching skills in these centres is lacking. What teaching skills do teachers view as effective in supporting the acquisition of physical examination skills in undergraduate medical training?

Method: Structured interviews of 10 teachers (1/3 of staff of Maastricht University, Skilllab) were conducted. Selection was based on even representation of age, years teaching experience, gender and previous experience at Maastricht University. A topic grid was used to ensure comparability. Interviews (average 70 min, range 33–95 min) were recorded and transcripts were analyzed independently by two researchers.

Results: Teaching skills identified include the ability to adapt content of the training, level of depth and teaching method according to the needs of any particular group. Thorough comprehension of students’ context (level of knowledge, prior experience and insight in the curriculum) is considered helpful. Explicitly inviting students to ask questions and providing relevant literature is seen to stimulate learning. Providing constructive feedback is essential, as is linking physical examination skills training to clinical situations. The ideal attitude includes appropriate dress and behaviour, as well as the use of humour. Affinity for teaching is regarded as the most important reason to work as a teacher.

Conclusion: Desired characteristics for undergraduate skills teachers resemble findings in other teaching roles. Affinity for teaching and flexibility in teaching methods are novel findings.

Introduction

Over the past decades, clinical skills centres (or skills laboratories) have been introduced as specifically designed and designated educational facilities to prepare medical students in a safe environment for patient-encounters (Ledingham & Harden 1998; Bradley & Postletwaite 2003). Several types of skills are taught in these centres, ranging from communication skills to physical examination skills.

Clinical skills centres complement the theoretical strand of the curriculum and precede the practical phase of clinical rotations. As such, the educational orientation of the clinical skills centre along the continuum of undergraduate education is ambiguous: not quite PBL, not quite bedside teaching.

These clinical skills trainings typically use a rather conventional instructional format. It involves a fairly teacher-centred approach, with the teacher demonstrating the physical examination and students practising with models, each other and (simulated) patients under their guidance (Anderson 1982). It appears that this type of education is based on a behaviourist approach to teaching and learning (Knight 1998; Torre et al. 2006); this contrasts modern approaches that typically rely on constructivist notions, such as PBL (Savery & Duffy 1995). This implies that teachers teaching physical examination skills potentially rely on other qualities.

Practice points

- The educational setting of clinical skills training (e.g. content, level of depth and teaching method) should be tailored to students’ needs.
- Clinical skills teachers should aim to develop students’ ability to identify their own educational needs and to enable them to take appropriate actions to fulfil these needs.
- Clinical skills teachers should show enthusiasm and should have a passion for teaching.
- Clinical skills teachers need the ability to adapt to varying conditions and to draw on a wide educational repertoire.
- Clinical skills teachers should actively engage students in their learning and encourage students to provide meaning and relevance to clinical skills taught.

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competencies and strategies than PBL-tutors. Although much research has been conducted on effective teaching skills for teachers in different settings, most studies on teaching clinical skills addressed teachers in the clinical workplace. Irby and colleagues identified seven features of excellent clinical teaching: (1) knowledge and analytic ability; (2) organization and clarity of presentation; (3) enthusiasm and stimulation of interest; (4) group interaction skills; (5) clinical supervision skills; (6) clinical competence; and (7) professionalism (Irby 1978; Irby & Rakestraw 1981; Ramsey et al. 1988; Irby et al. 1991; Ramsbottom-Lucier et al. 1994).

Further studies by Skeff and his coworkers combined Irby’s findings with general learning theories in order to develop an educational framework for clinical teacher behaviours (Skeff 1988; Skeff et al. 1992; Litzelman et al. 1998; Marriot & Litzelman 1998).

The few studies on teaching in skills laboratory limited themselves to investigating satisfaction amongst students and staff (Freeth & Fry 2005; Bradley et al. 2006); we therefore formulated the following research questions:

- What qualities, competencies and strategies do teachers view as effective in teaching physical examination skills in undergraduate medical training?
- To what extent resemble these findings effective teaching qualities, competencies and strategies in other teaching roles, such as clinical preceptors and PBL-tutors?

We conducted a qualitative study by interviewing clinical skills teachers.

Context of the study

The study was carried out at the Skillslab of the Faculty of Health, Medicine and Life Sciences at Maastricht University.

A considerable part of the 6-year medical curriculum consists of skills training. The curriculum in the first 5 years is organized in blocks, 6–10 week periods in which certain groups of patient problems or complaints are studied in PBL tutorials. The skills training in these blocks address skills that are relevant for these particular types of complaints and take place at the Skillslab, a specialized educational facility (Van Dalen 1990).

A skills training session for undergraduates (year 1–3) consists of a four-stage process involving tutor demonstration, followed by explanation, practice under supervision with feedback and corrective critique (Anderson 1982; van Merrienboer 1997). Students are provided with preparatory reading material.

The main objective of these training sessions is to prepare medical students systematically and gradually, under controlled circumstances for their clinical encounters with patients. Content of the training is fixed and staff meetings aim to achieve educational convergence. Physical examination ‘standard lesson plans’ are created by teaching staff (in consultation with clinicians) and skills are taught accordingly.

The Skillslab houses 27 part-time teachers. They are recruited on basis of their motivation for teaching and their clinical experience.

Methods

We chose to use qualitative research methods to explore teachers’ views on effective and desired teaching skills in order to elicit a wide variety of opinions. To allow maximum freedom to express opinions, individual structured interviews were chosen. This way, interference of group dynamics and interaction between different staff members with research outcomes was kept minimal. To ensure comparability, we constructed a grid with relevant topics based on educational literature (Irby 1991; De Grave et al. 1999). This grid was discussed by experts before we finalized the definitive version (DiCicco-Bloom & Crabtree 2006) (see Table 1).

We made a maximum-variation sample until saturation was reached (Kuper et al. 2008). We interviewed 10 Skillslab teachers (one-third of the staff): one male and nine female reflecting the gender distribution in our staff. The most experienced teacher started working at the Skillslab in 1987 (21 years of experience); the least experienced joined the staff 4 months before the interview was held. This represents the distribution in our staff.

We assumed that more than 5 years of teaching in the Skillslab warrants the qualification ‘experienced’: we will use this criterion in the ‘Results’ section. Neither incentives were used, nor was there any mention of adverse consequences in case of refusal to participate.

Interviews lasted on average 70 min (range 33–95 min), and were recorded on audio equipment with the consent of all interviewees. The interviews were conducted by the principal investigator (RD). The topic grid was used as a guideline to ensure comparability of the interviews. A second researcher (JvD) observed and made notes during the sessions. When considered necessary the observer interrupted and asked additional questions. After each interview we reflected on the data collected and compared field notes; this led to minor additions to the topic grid.

Transcripts of the interviews were coded independently by two coders (RD and JvD) using AtlasTi Software and analyzed by emergent themes. Central principle in our approach was constant comparison: issues of interest in the data were compared for similarities and differences. We discussed this process afterwards and reached consensus on inconsistencies (Strauss & Corbin 1998).

For the sake of reflexivity we feel we need to report that the principal investigator RD is a medical student. In order to prevent bias (based on RDs prior assumptions and experiences that might have shaped the data collection and analysis) we adopted the iterative process described earlier.

Results

We present the diversity of perspectives among research participants, including an interpretation that incorporates these variabilities. We will present our findings in categories based on an educational framework used to assess clinical teacher behaviour and modified to fit the setting of this study (Skeff 1988).
The learning climate: ambiance of teaching interaction

Strategy of addressing students

All teachers agreed on an ideal attitude that allows students to ask questions, without feeling any threshold. This can be achieved by being on first-name terms, and giving a short personal introduction at the beginning of the training. One teacher added the need to let students introduce themselves, since they are not always acquainted with each other.

Other examples mentioned to enhance the open atmosphere were making jokes, although caution need to be exercised according to some. Interviewee A: ‘We are not hired as stand-up comedians.’ Some teachers identify distinction between the styles used in Year 3 as compared to Year 1. Third-year students are regarded as closer to becoming a colleague and are able to understand medically-related inside jokes whereas first-year students need a more stringent approach, according to some.

Quality to keep enthusiasm

All interviewees regarded passion for teaching as the single most important reason to work as a teacher. Interviewee B: ‘To show them how well our body is constructed makes me happy.’ However, they reported several challenges in maintaining their enthusiasm. Some mentioned lack of expertise or interest in a given subject, whereas others indicated lack of students’ commitment or enthusiasm as frustrating. Furthermore, some teachers experience dissatisfaction in the lack of insight in long-term effects of their training. On the other hand, experiencing students’ enthusiasm and interaction first hand makes teaching worthwhile for most of the staff.

Control of session: the ability to manage, focus and pace the teaching encounter

Preparation by the teacher: competency

The majority of teachers reports to use the ‘standard lesson plans’ when giving a training for the first time. Assisting an experienced colleague in order to copy their working method is another technique mentioned. More experienced teachers described to adapt these standard protocols to suit their preferences or to respond to students’ needs. Interviewee D: ‘The protocols don’t really fit my teaching style; I’d rather deviate from them’. Interviewee B: ‘It’s good to have some reference to start with, but I always adjust them later on’.

Other methods of preparation mentioned include reading one’s own notes on earlier trainings (i.e. common questions), consulting colleagues (especially experts in a given field) or textbooks.

Strategies to handle students’ preparation

Most teachers indicated students’ preparation should be discussed at the beginning of every training session, mainly
to establish an overview of the level of students’ knowledge at entry of the training.

The main reason for this is that they want to respond to the level of understanding in later stages of the training session, and to be able to anticipate possible problems that might arise.

Interviewee E: ‘I just want to know who [what kind of students] I am dealing with’.

Teachers acknowledged the difficulty of checking the level of depth that students have reached when preparing for a training session, but stated they regarded this check very important. Interviewee A: ‘It’s not enough to know whether he/she flipped through an anatomy book or attended a dissection course; I want to get a clear idea whether he/she got it and understands the matter’.

Interviewees indicated that they intend to adapt the content of the training, the level of depth and their teaching method to the needs of that particular group. Teachers mentioned they encounter most difficulties when teaching a group with a heterogeneous level of proficiency. Interviewee B: ‘I find this very complicated; you don’t want well-prepared students to get bored. They have to be stimulated, while at the same time the less-prepared students need to be attended to as well. You have to know how to give and take a bit. After all you don’t want to compromise on quality to help out ill-prepared students at the expense of their well-prepared counterparts’.

A number of teachers expressed their concerns about the expected level of students’ preparation, especially with regards to first-year students. Interviewee F: ‘Students throw in the towel, and quit preparing altogether. We might be aiming too high; we should try to have realistic expectations. Mind you; these students just finished secondary education’.

Most experienced teachers pointed out the use of a variety of didactical ‘tricks’ in order to make this part of the training session more enjoyable for the students, such as a small quiz or a game.

A number of consequences of ill-prepared students were mentioned; most notably the effect on the level of profundity of the training session (which is lowered) and their own motivation to teach the students (which plummets).

One way to remediate the value of such a session is to advise students to go through the preparatory advice after the training. This way they expect the students to have gained some level of knowledge during the training session itself, which can be raised substantially by reading up on the theoretical background afterwards.

In the event of a group with well-prepared students, teachers show greater motivation to teach. They find this more challenging, and suspect that students learn more during a training session.

Communication of goals: expectations and outcomes

Competency to ensure horizontal integration

Most teachers find it important to have a certain level of insight in other educational activities in order to be able to relate to this in their training. They can thus answer students’ questions and have a realistic view on students’ prior knowledge. Few teachers report sufficient insight though, due to lack of time.

A number of teachers indicated the benefits of holding multiple positions within the medical faculty. They regard their work outside the Skilllab (i.e. on a course planning board or as a tutor) very valuable in gaining insight in the curriculum.

Other strategies to gather information reported include asking colleagues or consulting the electronic learning environment.

Teachers holding degrees from other universities reported more difficulties commencing their teaching position than UM-graduates. The influence of the Alma Mater extends beyond practicalities (acronyms and terminology) and can ultimately affect teaching performance.

Interviewee F: ‘Having studied in the PBL-environment enables me to understand how students are expected to work and learn.’ Assistance and support from experienced colleagues is highly appreciated.

Understanding and retention: teaching methods used

Strategies for demonstration

Teachers are more inclined to demonstrate complex physical examination skills. Simpler skills are easier and learned by students through immediate practice.

Interviewee G: ‘When the students can do no harm (to each other), they should start off with practising on each other. They can learn how to dot the Is and cross the Ts later’.

A much-heard method to maximize students’ learning herein is to provide them with a specific learning goal, or a directional instruction. This way students will reach a higher level of understanding; they go beyond simply following the act.

The majority of teachers said to exercise a certain level of reservation in using students as models to demonstrate the skill on. They emphasized to limit the length of time they use with students for demonstration in front of the entire group. They especially noted the need to take great care when students have to undress the upper part of the body. The intimacy and integrity should be guarded at all times.

Several strategies to handle this were mentioned:

- ask for volunteer (preferably male); pay attention to non-verbal signs of discomfort or embarrassment;
- start with practising in pairs/trios: gradual introduction in intimate situation;
- use humour, respectfully and never at expense of individuals.

Teachers valued the fact that students are confronted with feelings accompanying undressing; they view this important for future professionals who will have to ask the same from their patients.

Strategies for linking skills with clinical setting

Teachers mentioned linking physical examination skills training to clinical situations as an effective teaching method.

637
Some think illustrating this relation stimulates interest and motivation during the training, while others explained to aim for a more profound level of knowledge.

All teachers agreed on the main message they want to convey when linking skills to the clinical setting. Interviewee H: ‘The ritual trick is not the ultimate goal; you have to be able to detect abnormalities’. Examples mentioned by interviewees are sharing own professional experiences, providing a role-play or written case, asking questions about differential diagnosis.

One other aspect highlighted is the importance of clinical reasoning skills, not only because of clinical relevance but also to improve understanding of the physical examination skills. Some feel this should be taught more intensively, intertwined with the physical examination skills.

Interviewee D: ‘I try to let students link what they hear, feel or do with whatever knowledge they already have to make it a bit more inspirational’.

**Evaluation and feedback: how to assess learners’ achievement of desired goals and how to improve learners’ performance**

All teachers identified providing feedback as the most important aspect of their role. Individual variations exist in the methods used. The example most frequently mentioned involves asking students to demonstrate the examination skill while explaining the process step-by-step to the teacher. This way, errors in reasoning can be detected and corrected.

Most teachers reported to exercise restraint on the amount of explanation they provide. Instead, they try to challenge students by asking provoking questions emphasizing/building on prior knowledge. Additionally, some teachers report to encourage students to structure knowledge avoiding jargon, i.e. to express what they have learned in their own words.

Teachers value the pro-active attitude students have to adopt and the fact that they have to actively participate in their learning, as opposed to the more passive approach with the teacher explaining.

When discussing a student’s behaviour, most teachers address this on a one-on-one basis or in the working pairs. They are reluctant to provide feedback to an individual student in front of the whole group, due to the disruption this causes and to safeguard personal integrity.

As a rule, most teachers said to provide alternatives to incorrect manoeuvres and to discuss reasons with the student.

**Self-directed learning: enhancing learners’ abilities to identify and act on own needs**

**Strategies to answer questions**

Students should be encouraged to ask as many questions as possible; teachers identify this as one of the most powerful learning tools. Most teachers explicitly invite students to ask questions throughout the training by underlining this possibility during the introduction of the training.

Some teachers said to collect (i.e. not immediately answering) questions during the practical part of the training session, especially when they know the questions concern notorious problems, which the majority of students will encounter at some point. They would answer the questions later in a plenary session with the whole group to avoid having to answer the same questions several times.

This is only possible when the teacher is familiar with the training; inexperienced teachers did not report this behaviour.

A widely used method to answer questions as shared by the teachers is to bounce the question back to the student who asked it. This way, they try to encourage the students to use their knowledge and reasoning skills in order to come up with the right answer themselves. If this proves inadequate, the question can be passed on to other students. Sometimes, connections can be made with earlier trainings on the same subject (in previous years) or other educational activities/teaching activities available (i.e. anatomy dissection course or lectures).

Teachers justify this technique by referring to increased retention in students’ memory.

When confronted with a question they do not know the answer to, most teachers will be open about that and tell students so. Although most teachers advise students to use relevant literature in order to find an adequate answer, few teachers will actually themselves look for one after the training. Those who do said such questions provoke their own curiosity.
Asking feedback on own teaching performance

Teachers describe asking for feedback as pivotal in their own learning. Most notably the lesser experienced teachers regret the lack of feedback from students. Interviewee C: ‘It’s a real pity; they just say it went “OK”.’

Peer-feedback is highly appreciated, although only few have experience in asking colleagues with time being the constraining factor. Useful methods include video-taping and real-life observation.

Discussion

Desired qualities, competencies and strategies for undergraduate clinical skills teachers are summarized in Table 2. This study is the first to address the specialist environment in which these skills teachers operate; the increasingly popular clinical skills centre or Skillslab. We will discuss the outcomes of our study considering this unique setting by contrasting and comparing our results to adjoining teaching roles such as clinical preceptors and PBL-tutors.

Qualities

Our findings show that enthusiasm and enjoying teaching are qualities of good teachers. This is in line with findings of residents’ perception of their teaching role as well as described rewards for clinical teachers (Aron et al. 2000; Busari et al. 2002). The importance given to these qualities by our sample group marks a distinct difference from studies on other teaching roles, where this was mentioned as a mere side-stimulation of interest. Passion for teaching emerges in our study as a key-characteristic for skills teachers (Irby’s enthusiasm and stimulation of interest).

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<th>Table 2. Teachers’ perceptions of desired abilities for skills teaching.</th>
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<td><strong>Qualities</strong></td>
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| Attracted to teaching |-other important themes in our study included preparation of the teacher and educational background. McLean and Van Wyk identified that, apart from insight in PBL principles, facilitators of tutorial groups should also have working knowledge of different aspects of the curriculum (McLean & Van Wyk 2006). Teachers’ ability to adapt to varying conditions and to draw on a wide educational repertoire resembles findings in tutors (De Grave et al. 1998; Lohfeld et al. 2005) and clinical teachers alike (Irby 1992) (Irby’s organization and clarity of presentation).

Novel findings in this regard are the clear distinction between experienced teachers (>5 years of experience) when compared to relatively inexperienced counterparts. The former described to be more able to assess needs of individual students and to adapt their teaching methods accordingly. New teachers should be provided with support, training and guidance in order to master these techniques. In addition, our findings revealed that teachers value feedback from students and colleagues as it provides direction for improvement in behaviour and skills (Irby’s knowledge and analytic ability). |
| To respect students’ limitations without being pejorative | Knowledge of the curriculum and insight in the educational backgrounds | Thorough comprehension of the level of knowledge and prior experience of students |
| Clear idea about limitations in own knowledge | Knowledge of different aspects of the curriculum (McLean and colleagues as it provides direction for improvement in learning (Schon 1995). Stimulating students to think for themselves resembles findings in PBL-tutors where this phenomenon is called ‘scaffolding’ (De Grave et al. 1999). It implies that interaction and dialogue between the teacher and the learner or between peers plays a central role (Irby’s group interaction skills). Furthermore, teachers who make effective use of scaffolding make learning an active and constructive process whereby they seek to draw as much as possible out of their students; the Socratic style of teaching (Hogan & Pressley 1997). |
| To adapt the content of the training | To adapt the level of depth | Thorough comprehension of the level of knowledge and prior experience of students |
| the teaching method to the needs of any particular group | Explicitly inviting students to ask questions | Knowledge of the curriculum and insight in the educational backgrounds |
| Providing feedback on examination skills in a stimulating way | Providing feedback on examination skills in a stimulating way | Guarding intimacy and integrity by peer physical examination |
| Guarding intimacy and integrity by peer physical examination | Guarding intimacy and integrity by peer physical examination | Emphasize on the wider perspective: the formulation of differential |
| Emphasize on the wider perspective: the formulation of differential | Emphasize on the wider perspective: the formulation of differential | diagnosis and detection of underlying pathology |
| diagnosis and detection of underlying pathology | Stimulate contextual learning by linking physical examination skills training to clinical situations | Stimulate contextual learning by linking physical examination skills training to clinical situations |

Strategies

With regard to the physical examination skills, good teaching emphasizes not only providing a demonstration but also explaining decisions and encouraging students to reason with clinical information by asking probing questions (Irby’s clinical competence and clinical supervision skills). Furthermore, providing students with feedback is seen as a crucial aspect of teaching. Strategies mentioned by teachers include the use of reflective practice during the actual practice of physical examination skills or directly afterwards. As identified by Schon this method provides important adjuncts to learning (Schon 1995).

Stimulating students to think for themselves resembles findings in PBL-tutors where this phenomenon is called ‘scaffolding’ (De Grave et al. 1999). It implies that interaction and dialogue between the teacher and the learner or between peers plays a central role (Irby’s group interaction skills). Furthermore, teachers who make effective use of scaffolding make learning an active and constructive process whereby they seek to draw as much as possible out of their students; the Socratic style of teaching (Hogan & Pressley 1997).

Our findings indicate that teachers aim to develop students’ ability to identify their own educational needs and to enable them to take appropriate actions to fulfil these needs. At the same time, our teachers reported to actively engage students in their learning and to provide meaning and relevance. In other words, they promote self-directed learning by incorporating Knowles’ Principles of Adult Learning in their teaching approach (Knowles 1990).

This approach does not correspond with the described behaviouristic background of skills teaching. A more constructivist method of skills teaching might be more appropriate. This affects both educational setting (e.g. curriculum development) as well as teacher’s behaviour (e.g. faculty development). Further research could focus on the effects of...
using a more student-centred/self-directed learning model for clinical skills teaching on students’ learning.

Treating students with respect does not only contribute to their professional development, but also shows them the correct attitudes towards their patients and colleagues (Schmidt & Moust 1995; McLean 2003). This way the teachers can take on role models, although they should be well aware of this responsibility (Skeff & Mutha 1998; Bowman & Hughes 2005) (Irby’s professionalism).

To summarize, desired qualities, competencies and strategies for undergraduate clinical skills teachers resemble findings in other teaching roles.

We found that teachers in clinical skills centres need to adopt the best of two worlds (PBL-tutors and clinical bed-side teaching), in order to effectively teach students how to perform physical examination skills.

Although one might question the validity of the findings in this study based on the number of teachers interviewed, a number of circumstances compensate for this. First, we ensured comparability by conducting individual interviews in a structured method based on international literature published on other teaching roles. Second, by allowing for a maximum variation sample we ensured to include as wide a range of perspectives and backgrounds as possible to capture the broadest set of information and opinions. To further strengthen this approach we included outliers on several characteristics (i.e. years of experience, gender, previous experience at Maastricht University as a student) to incorporate a deviant sample (Kuper et al. 2008). Of these variables only experience was important to some extent as is addressed earlier. Third, the outcomes of these interviews were coherent in thoroughness between all interviewees so that data saturation has been reached.

To further strengthen the generalizability of our findings triangulation is needed. Future research should focus on possible incongruence between students’ and teachers’ perception of effective teaching skills.

These findings could prove valuable for faculty development programmes, carried out to improve overall quality of teaching and staff’s knowledge and confidence.

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