

'The next step' – alumni students' views on their preparation for their first position as a physician

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Background: Although medical programmes are often thoroughly evaluated, these evaluations more seldom include workplace points of view. The present study focuses on how well a Swedish medical programme was judged to prepare students for work as a physician.

Methods: Thirty-two competences in physicians' work were identified through interviews. A subsequent questionnaire was completed by 123 programme alumni who had worked for 1–2½ years in different parts of the country. Alumni were asked to rate the importance of each competence, their self-assessed competence as well as how these competences were addressed during their medical training.

Results: The subsequent analysis identified areas where their training programme, according to the alumni, failed to prepare them satisfactorily. Problem areas included competences in clinical skills, handling stressful situations and in applied rather than foundational knowledge about common symptoms and diseases.

Conclusion: Despite extensive practical training, medical education still faces some problems in the transition from education to work.

Keywords: *medical education; alumni; evaluation; professional education; professional training*

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Given the importance of medical training, medical schools undoubtedly put a great deal of time and thought into the design and assessment of training programmes. In addition to course structure and content, other aspects taken into consideration are likely to include learning methods and student satisfaction. Nevertheless, less attention has been paid to how well such programmes prepare the student for *the next step*, their first positions as interns, as house officers or as newly registered physicians. This article concerns a study undertaken at a medical faculty in Sweden where the training programme was assessed through the views of alumni. The aim of this study was to describe and analyse alumni accounts of their medical education in order to evaluate how well their training prepared them for their current work as physicians.

A growing body of the higher education research points to a 'gap' between professional education and work (1). Labour market representatives, recruiters and employees often regard higher education as an entry ticket to a workplace competition where success is decided by other achievements (2). However, medical education may be better placed in this respect than other educational programmes. Generally, medical programmes have more

practical training than other university programmes; there are also strong ties between the profession and medical education (3).

A number of studies have addressed how graduate students view their training programme and curriculum. Generally, these studies report that many graduates feel unprepared for their first positions (4). Expressions of insecurity and anxiety about their first employment are themes in many alumni studies (5, 6). Lack of preparedness regarding decision-making, prescribing, treatment and practical skills is also reported (7).

However, these studies have often targeted a set of predefined competences. Graduates have been asked to rate their own competences in areas defined as crucial by the medical school, by the researcher, or from a standard list of generic or specific skills such as those presented in *Tomorrow's Doctors* (8, 9). Many such studies have also aimed to compare traditional medical training versus problem-based learning (PBL) (10, 11). Few studies have investigated the quality of education based on criteria other than those defined by the medical school or by teaching staff. What is felt important for graduates might differ from these predefined competences, as is shown by, for instance, Fitch et al. (12).

The present study seeks to broaden the debate concerning what a graduate in medicine should master. The central question leading up to this study concerns what the *alumni themselves* consider to be valuable competences in situations they have faced as new graduates. Essentially, this question seeks to establish what is felt to be important rather than what has been taught well during the programme. This study regards *the competent physician* as an entity which must be defined empirically.

The specific medical programme studied in this article is similar in length and curriculum to many other medical programmes in Europe. The core teaching programme lasts 5½ years, followed by approximately 1½ years of internship, roughly equivalent to the British pre-registration house officer (PRHO) system. While not being a ‘full’ PBL curriculum, the programme uses student-centred forms of learning and aims at vertical and horizontal integration. Furthermore, a 30-credit (European Credit Transfer System; ECTS) course in *professionalism* is included in the programme. The training programme has undergone revisions similar to those adopted in other European universities following the Bologna agreement and a shift towards outcome-based education.

Methods

The study employed a two-step enquiry procedure. First, alumni were interviewed in order to evaluate what they felt were the most important skills needed for the work they had just started. The aim of this first step was not to constitute a conclusive qualitative study, but rather to inform the creation of survey items, a method successfully used in other studies (13). Although the sample was rather small, it more than well filled this function. Second, a survey-based investigation was performed, using categories established from the interviews, to provide a statistical breakdown of the views of the alumni.

Interview

Nine alumni who had already worked as medical practitioners from one to three years were interviewed by phone. These alumni were selected with the objective of maximising the ranges of age, ethnicity, gender and geographical location. The initial enquiry sought to establish what they felt to be important for a (new) physician to know. Semi-structured interviews addressed the informants’ views on their medical training programme and their current work situation. The interview guide used is presented in Appendix 1. The questions presented were used as headlines for conversation and follow-up questions were asked where appropriate. Interview duration was approximately 30 minutes. A more honest rather than politically correct view of physicians work was desired. Therefore, the use of phone interviews

was not chosen entirely for practical reasons. It was felt that the issues dealt with during the interview might in fact be easier to discuss with a distance from the interviewer. Following these interviews, key competences were extracted and reformulated as skills, knowledge or attitudes relevant to working as a physician. The following quote from one of the interviews illustrates how these extractions were made:

It [being a competent physician] is first and foremost about a good doctor–patient relationship, that you respect the patient. I’m easily impressed by older colleagues who handle patients well. It’s also about listening to the patient’s needs, being a good listener . . . that you have a nice manner. And you also present things in a way the patient can understand. (Quotation translated from Swedish and adjusted for clarity)

Competences identified in this quotation include being able to (a) establish a strong doctor–patient relationship, (b) show the patient respect, (c) listen to the patient’s needs and (d) present information to the patient intelligibly. This step of interview analysis produced a list of 52 competences.

The second step in this analysis classified these 52 competences into a more manageable number. The number of competences was reduced by merging interview statements expressing similar meaning. Since the author (not being a physician himself) was not fully acquainted with medical terminology, two senior staff members from the medical school were consulted during this process. Formulation of the competences to be included in the survey aimed to preserve as far as possible the original wording as used by the informants at interview because changing the expressions employed might have altered the specific meaning attributed to them. This process identified 32 key competences in five major categories. These categories are as follows:

- Medical knowledge and skills – eight items.
- Interpersonal skills (patient relationships) – six items.
- Interpersonal skills (staff and workplace issues) – eight items.
- Life-long learning skills – five items.
- Intrapersonal skills – five items.

Survey

An electronic survey was prepared based on the interview data. The survey was sent to three cohorts of graduates ($n = 169$). The alumni had then been working for at least one year and a maximum of two-and-a-half years. Some were still working as interns, while others were newly registered physicians. Letters with a URL pointing to the electronic survey were sent to respondents’ home addresses. These letters also contained information about the purpose of the investigation. The response rate

was 73% ($n=123$). Two reminders were sent to non-respondents, in approximately two-week intervals. Of the non-respondents, 10 were contacted briefly by telephone and asked if they could comment on why they had not answered the survey. Time pressure and forgetfulness were the two major reasons given.

The 32 competences derived from the preliminary interviews each headlined a set of questions. Under this headline, three subsidiary questions were asked in which the respondents were asked to rate how *important* they thought the competence in question was, how they rated their *own competence* in the specific area identified and how much *attention* they felt this competence should have been given during their undergraduate training. Fig. 1 shows an example of a survey question.

An important principle, originating from the design of this study, is that interpretation of data has been done *relatively*. That is, any mark on the scale in the questionnaire should not be viewed as an absolute, but rather interpreted in relation to other answers. For instance, a noted five for importance is only considered in relation to how other competencies have been rated, giving the result that one competence was felt to be more important than another. This more careful interpretation allows for the reasonable assumption that newly graduated doctors are not the best judges of, for instance, their own competence, as have been shown in other studies (14).

In addition, each questionnaire contained several free-text sections in which respondents were encouraged to add, in their own words, any further information or comments they felt to be relevant or appropriate. These comments were coded according to topic and used for clarification and explanation of results in the discussion.

This survey was not piloted, as a pilot was seen as conflicting with the ambition to create survey questions from interview statements. A pilot with the purpose of changing survey questions was seen as incompatible with

(20) Ability to practice good leadership

1 2 3 4 5
 Unimportant competence Very important competence

To what degree did you master this competence when you graduated?

1 2 3 4 5
 Not at all Fully

In your view, how much attention should have been devoted to this competence during the medical programme?

-2 -1 0 +1 +2
 Much less It was dealt with appropriately Much more

Fig. 1. Example of a survey question.

an inductive approach and the ambition to preserve the wording from interview respondents.

Results

The findings are structured according to the category of competence identified in the first interview study. Competences under each category are presented as a table giving the mean respondent score and standard deviation for each question. Question titles in Tables 1–5 are abbreviations of the original questions.

Medical knowledge and skills

The results in the category of medical knowledge and skills are shown in Table 1. This category includes practical and theoretical knowledge specific to the medical profession. As we shall see, the other categories deal more with generic or transferable skills (15).

Two areas stand out in respondents' views on important competences. Specifically, '*Knowledge of basic bio-medicine*' and '*Perform medical research*' (mean scores 3.6 and 3.2, respectively) were seen to be significantly less important than other competences. This view was also reflected by responses regarding coverage where a score of 3 indicated 'appropriate' or 'sufficient' coverage during the training programme. The mean coverage scores for these two competences were close to 3. '*Knowledge of terms and conceptions*', while considered more important, was also rated close to 3 regarding coverage. In contrast, the mean coverage scores for all the other competences were closer to 4, indicating that the alumni felt that more attention should have been devoted to these areas. Practical skills and patient examination skills appeared to be of most concern, both regarding coverage and self-assessed competence.

Interpersonal skills – patient relationships

Abilities regarding the doctor–patient relationship are presented in Table 2.

In general, the alumni felt that competences in this category were very important. However, they also found themselves (with the exception of '*breaking bad news*') fairly competent with respect to their interpersonal skills. In addition, the respondents rated 'desired coverage' fairly low compared to the other categories.

Interpersonal skills – staff and workplace issues

This category deals with relations at work and ancillary duties (such as administration and night duty) that the alumni at interview felt to be of importance. The questions and responses are listed in Table 3.

Overall the alumni felt less competent in many areas concerning decision-making, conflict management and handling night duty. They felt ill-prepared for the possible eventuality that they might be reported to the Board. Night duty, in particular, was perceived to

Table 1. Competence regarding medical knowledge and skills

Competence	Mean rating and standard deviation (σ)		
	Importance (1–5)	Self-assessed ability (1–5)	Preferred coverage during programme (–2 to +2)
Knowledge of basic biomedicine	3.6 (0.9)	3.7 (0.9)	–0.1 (0.7)
Knowledge of symptoms and diseases	4.9 (0.3)	3.6 (0.7)	0.9 (0.7)
Patient examination skills	4.7 (0.5)	3.1 (0.9)	1.2 (0.8)
Knowledge of terms and conceptions	4.0 (0.8)	4.2 (0.8)	0.1 (0.4)
Treating common diseases and problems	4.7 (0.5)	3.4 (0.9)	0.9 (0.8)
Practical skills	4.2 (0.7)	2.8 (1.0)	1.0 (0.9)
Handle patients with somatic problems	4.6 (0.6)	3.2 (1.0)	0.8 (0.8)
Do medical research	3.2 (0.9)	2.6 (1.1)	0.2 (0.9)

be stressful. Alumni clearly would have wanted more coverage and/or preparation for these occasions.

Life-long learning skills

Several of the informants in the interviews stressed the importance of continuing education and related competences (Table 4).

In general, these competences were judged to be very important. However, there was marked variation in self-assessed abilities in this area. Learning from the books and colleagues appeared less problematic than finding and understanding the scientific articles. There was also a desire for more training in finding scientific articles and, notably, in critical thinking skills.

Intrapersonal skills

The final category, intrapersonal skills, addresses how the respondent personally handles workplace issues as interns or as newly registered physicians (Table 5).

The largest differences between ‘Importance’ and ‘Self-assessed ability’ were found in this category. This may not be surprising because this category deals with situations that are stressful or psychologically demanding. The

alumni clearly wished to be more prepared in dealing with stressful situations.

In the free-text sections many comments concerned ‘ability to work hard’. A substantial number of alumni appeared to be unhappy that they were expected to work hard and for long hours, even though they often acknowledged that the job demands this commitment.

Summary of results

This study has highlighted a number of areas where the alumni feel either well-prepared or unprepared for *the next step* and their first positions. Most competences listed in the survey were seen to be important in the work of physicians. This suggests, even though the interview sample was small, that the interviews covered the majority of areas that the alumni felt to be important. The following conclusions can be drawn from the results of the survey:

- The alumni considered that training in knowledge of symptoms, diseases and treatments was significantly more important than basic biomedical knowledge.
- The alumni reported a lack of training and preparedness regarding practical competences including patient examination skills.

Table 2. Competence regarding interpersonal skills – patient

Competence	Mean rating and standard deviation (σ)		
	Importance (1–5)	Self-assessed ability (1–5)	Preferred coverage during programme (–2 to +2)
Build a (good) doctor–patient relation	4.8 (0.4)	4.2 (0.7)	0.0 (0.7)
Build trust between doctor and patient	4.8 (0.4)	3.7 (0.9)	0.4 (0.8)
Inform patients intelligibly	4.9 (0.4)	3.9 (0.8)	0.5 (0.8)
Breaking bad news	4.6 (0.6)	3.1 (1.0)	0.6 (0.7)
Being humble in relation to patient	4.3 (0.8)	4.2 (0.8)	0.1 (0.7)
Acknowledge patient integrity	4.4 (0.7)	4.0 (0.9)	0.2 (0.7)

Table 3. Competence regarding interpersonal skills – staff and workplace issues

Competence	Mean rating and standard deviation (σ)		
	Importance (1–5)	Self-assessed ability (1–5)	Preferred coverage during programme (–2 to +2)
Practice good leadership	4.1 (0.8)	2.9 (1.0)	0.7 (0.8)
Being humble in relation to staff	4.2 (0.7)	4.3 (0.9)	0.3 (0.7)
Cooperate with staff	4.8 (0.4)	4.2 (0.8)	0.4 (0.7)
Knowledge of other medical professions	3.9 (0.7)	3.4 (1.1)	0.3 (0.6)
Conflict management	4.2 (0.9)	3.0 (1.1)	0.6 (0.7)
Administrative tasks	4.0 (0.9)	3.1 (1.1)	0.4 (0.7)
Handling night duty (on call)	4.7 (0.6)	2.9 (1.1)	1.0 (0.8)
Preparedness for being reported	3.9 (1.0)	2.3 (1.1)	0.6 (0.8)

- Many of the skills listed as important are in fact generic skills.
- The alumni were generally confident about their skills regarding doctor–patient relationships and cooperation with other staff.
- There were many concerns concerning their abilities to handle stressful situations at work. Issues identified included leadership, conflicts, being reported to the Board and handling night duty. Respondent scores on intrapersonal skills, including ability to prioritise, stress management and balancing work with free-time, reflected similar concerns.
- The alumni generally considered that life-long learning skills are important. While they felt fairly confident in this respect, browsing for and understanding scientific articles were areas where more training would have been helpful.

Discussion

The inductive approach used in this study has produced a list of important competences that differ somewhat from those found in other lists. For example, life-long learning was considered to be very important while other lists seldom include these items. Most of the lists have not discriminated between different forms of medical knowledge (basic and applied), an important finding in

the present study. One interpretation of Table 1 is that the alumni feel themselves to be adequately prepared regarding basic biomedical theory as required for their current positions and duties, and even in some cases overly prepared. However, the respondents felt they lacked practical skills and ‘clinical’ knowledge of symptoms, diseases and treatments – competences that have more direct practical applicability in the workplace than knowledge of the underlying anatomical or biomedical structures.

There are, however, many similarities with studies that have employed predefined lists of competences. Regarding the doctor–patient relationship, alumni generally felt themselves to be fairly competent in the area and did not advise more training. In another study, student graduates similarly provided high self-estimates of interpersonal competence compared to other general competences (10). One explanation of these results is that whereas the alumni consider these competences to be very important, they do not consider these to be ‘teachable’ or ‘learnable’ in a medical programme. A quote from one of the interviews might illustrate this opinion:

My competence in the doctor–patient relationship is much more because of my personality traits and my personal experience than anything we learned

Table 4. Competence regarding life-long learning skills

Competence	Mean rating and standard deviation (σ)		
	Importance (1–5)	Self-assessed ability (1–5)	Preferred coverage during programme (–2 to +2)
Browse books for knowledge	4.4 (0.8)	4.5 (0.8)	0.0 (0.5)
Browse databases for scientific articles	4.4 (0.7)	3.1 (1.3)	0.6 (0.9)
Understand scientific articles	4.2 (0.7)	3.3 (1.2)	0.5 (0.7)
Learning from colleagues	4.7 (0.5)	4.6 (0.7)	0.2 (0.5)
Critical thinking	4.8 (0.5)	3.6 (0.9)	0.7 (0.7)

Table 5. Competence regarding intrapersonal skills

Competence	Mean rating and standard deviation (σ)		
	Importance (1–5)	Self-assessed ability (1–5)	Preferred coverage during programme (–2 to +2)
Ability to work hard	3.2 (1.0)	3.9 (1.0)	0.1 (0.7)
Ability to separate work and spare-time	4.6 (0.7)	2.9 (1.2)	0.8 (0.8)
Stress management	4.7 (0.4)	3.0 (1.0)	0.9 (0.8)
Ability to get an overview and prioritise	4.8 (0.4)	3.0 (1.1)	1.0 (0.7)
Being confident	4.1 (0.7)	3.3 (1.1)	0.6 (0.7)

during the programme. Much of it is common sense and self-evident politeness in interpersonal relations ... It should not be taught in an academic setting.

However, there is evidence to suggest that students change their attitude toward training in communication skills after completing medical school. Watmough et al. (16) reported a similar attitude to learning interpersonal skills. In their study, students realised the value of specific courses in communication skills only after they had completed them.

No evident problems were identified regarding relations with other staff in the areas of cooperation and professional respect. In contrast, several comments in the free-text sections of the surveys indicated that the alumni felt themselves to be unprepared for the 'loneliness' of leadership and that they had to be much firmer than expected.

We are very well trained for working in teams by the methods from the programme, but when I am the only doctor on the ER a dark night, I alone must decide what to do.

Due to the number of similar comments, competence regarding firmness and 'standing your ground' should possibly be considered for inclusion if this study is repeated.

The present study is consistent with earlier studies reporting that alumni generally feel themselves unprepared for dealing with critical and stressful situations. They feel uncomfortable with their competence regarding prioritisation, stress management and issues regarding clinical leadership. However, the overall results suggest a rather consistent view that these skills are 'unlearnable' except in real life encounters. One of the interviewed alumni who had been working for 2½ years remarked:

This is not possible to learn or train for prior to working, and then things sort themselves out after a while. You are less stressed out, can prioritize better, and when your confidence increases, the night duty feels OK and even exciting at times.

Goldacre et al. (4) asks whether mismatches between education and work are short-term hindrances rather than critical flaws of undergraduate education. Some comments in the free-text sections as well as interviews with more experienced alumni suggest that these problems sort themselves out over a relatively short period of time. However, it may be possible to prepare students better for stressful situations in the first year of employment. There is evidence that shadowing a physician whose post a student is to take over can provide more security and familiarity (5).

Concerning life-long learning skills, the alumni highlighted a need for more training in finding and understanding scientific articles and in developing their critical thinking skills. Nevertheless, an important finding was that the alumni generally did not consider that an ability to actually *do* medical research was an important competence as a physician. It seems clear that a majority of the alumni picture their future careers in clinical practice rather than in research. This is a growing concern for members of the medical faculty in question. A 30 ECTS-credit student research project is currently scheduled for inclusion in the revised curriculum, with the expectation that this will raise students' interest in medical research.

Finally, an important note on the methodology of this study is offered. The author would like to stress that interpretation of means in Tables 1–5 should be done relatively rather than absolute. Viewing the mean ratings as absolute would give rise to unreasonable conclusions. For instance, considering 'preferred coverage', the answers would suggest that alumni would have liked 'more of everything' (since almost all competencies have been given positive numbers on preferred coverage). Instead, interpretation of data has consistently been done relatively, so that a high rating of one competence only means something in so far as it is rated higher than other competencies.

The following limitations of the study are noted: all interviews and subsequent analysis were carried out by the author alone. Ideally, more researchers would have been involved in the process of selecting items for the survey.

Additionally, this study has explored the views of graduates of a single Swedish medical school. Even if the results are perhaps most relevant to consider for the educators at that particular institution, there are features of this study that make results more general. The study does not ask questions about particular features of local curriculum but rather of general competences related to the first years of medical practice. In addition, as all Swedish physicians are accredited to work at the hospital of choice in Sweden as well as in other EU countries, the curricula have to be similar enough to make the results presented in this study possible to apply to other institutions.

Concluding remarks

Education research continues to emphasise differences between the educational and workplace environments. Graduates are seldom of the view that their education has provided them with a key set of skills and competences for their chosen career. Nevertheless, medical training programmes may hope to be better attuned to the needs of the trainee. Medical students, in view of long periods of internship combined with a tradition of clinical supervision, are likely to be better prepared for their future work than are students in other fields. However, despite these advantages, the alumni respondents in this study expressed several concerns about their preparedness for work as a physician.

As noted by some alumni, perhaps the perfect preparation for work as a physician is not attainable. Real-life situations such as encounters with sick patients, decision-making under pressure and conflicts with colleagues cannot be easily or realistically simulated. In addition, it may not be enough to discuss these situations in class or to read about them in books. It is therefore likely that the perfect medical curriculum that fully prepares graduates for working life may be impossible to realise.

The views of the alumni are likely to be helpful when revising the content of the medical curriculum. They suggest ways in which medical teachers might better prepare their students. Even so, it is important to bear in mind that there may be other equally important views regarding what medical education should focus upon. What do senior physicians consider to be the most important areas for inclusion; what in retrospect did they find most useful in their education? Conversely, what type of doctor do patients want to see in our hospitals? Finally, in addition to preparation for work, are there other aims or agendas that must shape the medical curriculum? Further studies will be required to address these issues.

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Appendix 1. Interview guide

1. Tell me, in your own words, how you experienced the transition from medical student to medical practitioner.
2. What do you consider to be important competences in your current work?
3. How did you acquire these competences?
4. Tell me about a critical incident that you encountered in your work. How was this situation resolved?
5. Tell me about an incident when you felt particularly competent or proficient. How was this situation resolved?
6. Could you describe in what ways you felt (1) prepared, (2) unprepared, for medical practice when you started to work?
7. What areas of your undergraduate training do you consider most helpful or important in your current work?
8. What areas of your undergraduate training do you consider unhelpful or unimportant in your current work?
9. Are there competence areas, important in your current work, which you consider to be missing or overlooked in the undergraduate programme?