

»» What Does Initiatives to Reform Fail?

D. Mårtenson

Department of Humanities, Informatics and Social Sciences, Unit for Research & Development in Medical Education, Karolinska Institutet

Background and Purpose

The purpose with this article is to highlight the conditions for educational development in medical schools in Sweden at the end of the Sixties, and then through some examples show the difficulties involved when introducing changes in a traditional setting such as the Medical School of Karolinska Institutet in Stockholm.

The article ends with some general comments on facilitating and hindering factors, as well as some general conclusions about reforming the teaching in traditional medical schools.

Curricular reforms in Swedish medical education

The National Board of Universities and Colleges was the central government authority for higher education in Sweden for long. It was responsible for implementing decisions by Parliament and it defined an „educational plan“ to ensure uniform quality at the various educational institutions. Legislation for higher education replaced a strong centralised control with greater local independence in 1977.

Undergraduate medical education in Sweden underwent no major changes in the period from 1907 to 1954. The undergraduate program was 7½ years long. In 1954 it was reduced to 6 years with a concluding 9 months internship. A reform in 1969 introduced a rigid curriculum with almost 3 years of pre-clinical studies followed by slightly over 2½ years of clinical training. After graduation the students have 21 months of paid general medical practice (internship). Courses in medical psychology, social medicine, cell biology, and genetics were introduced in 1974.

In 1971 the Swedish National Board of Universities and Colleges proposed a revision of the first three years of the undergraduate programs. They presented three alternatives and asked for the participation from the five medical schools in Sweden. One alternative was far reaching, another was modest, and the third one was very modest. One of the medical

schools responded to the request by endorsing the changes only if they could participate as a control group.

In 1978 another national group presented suggestions for introducing or increasing various subjects such as social medicine, medical psychology, general medicine, etc. The report was printed with a yellow cover and was given the nick-name „the yellow fever“.

In the mid-eighties a problem-based, multi-professional integrated, and community-oriented program started in Linköping. In the Swedish context it was a radical change. The base for being able to implement such a program was to a large extent political. It was also a survival strategy for the medical faculty in Linköping that provided Uppsala University with clinical training for a portion of their medical students.

The first two aforementioned reforms kind of failed. Some of the reasons for that might be due to the fact that the reforms were directed top-down together with the strong centralised control of medical curricula during that period.

Karolinska Institutet

At the Medical School of Karolinska Institutet in Stockholm, teachers complained since long about the lack of positive incentives for working with educational matters. For instance there were no criteria in use for assessing teachers' pedagogical merits for promotion. Though some medical schools used such criteria in other countries (Rippey 1981), and the issue was discussed in various committees at Karolinska, no serious attempt to define such criteria was made until 1982. A list of criteria was introduced in 1983, together with recommendations for applicants on how they should document their educational activities. The recommendations were followed in the medical and dental school for a number of years. A slight, positive effect could be observed. However, this faded away in the medical school in subsequent years. Teachers started again to complain about this, and recently competence portfolios for assessment of academic performance were introduced (Mårtenson et al. 1998). An ongoing evaluation is now taking place, and the *very preliminary results indicate that „two steps forward and one step backward“ has been achieved.* In most medical schools the issue of assessing and promoting teachers for their pedagogical ability is a hot issue. The aforementioned experience could be regarded as a failure. Maybe there must be two basic

conditions met in a very research-oriented institution such as Karolinska:

- a) The general climate for educational matters must be very positive and widespread among most of the department heads and teachers/researchers/clinicians.
- b) The institution needs to have a strong leadership determined for improving the undergraduate program.

At the Medical School of Karolinska a group was appointed in 1977 charged with the task to make a thorough revision of the undergraduate program. The report contained three suggestions for alternative curricula – all of them very different from the existing one. These plans were not formulated in detail; rather, their purpose was to serve as drastic examples of how a curriculum might look if it was designed on the basis of considerations of learning psychology, and health care policies. Another purpose was to initiate discussions within the entire institution. All professors and department heads were invited to a two-day conference to discuss the report. Almost all came, and there was discussion! At the end of the first day, the survival of the project was still uncertain, but the outcome was that the group was enlarged from 10 to 19 members, charged with the task to design a program following the intentions in the report. In 1984 a modified curriculum was implemented, and in 1992 another new modified program started. For the moment being there are discussions about a new reform to take place from year 2000. *In brief one could state that no major reforms took place, instead a series of modifications have been implemented.* That could be seen as a failure, on the other hand a distinct outcome has been a gradually increased positive climate for continuous improvement of the undergraduate program. Comparing the program of the early Seventies with the current curriculum, there is more of:

- a) Integration between basic sciences, as well as between basic sciences and clinical subjects.
- b) Basic science content has been reduced by one third and re-oriented towards more relevance.
- c) Active learning formats and some courses with a truly problem-based learning format.
- d) Small-group activities and seminars.
- e) Time for independent learning.
- f) Examinations aiming at assessing the students' ability to integrate and apply their knowledge as well as assessing the students' clinical reasoning and skills.
- g) Feedback sessions given in clinical practice.
- h) New subjects that were needed due to health care changes.
- i) Electives, in total 17 weeks.
- j) Early patient contact in the curriculum.
- k) Merged departments, with delegation of financial and administrative responsibility for the program.
- l) Interview based admission of students.

A four week long integrated course in preclinical endocrinology started 1980. The idea was first raised in 1972, but was tabled next year. In 1978 it was revived in a working group, and the course management first met in 1979. It took eight years from idea to realisation. At the department of biochemistry students had for long complained about the vast amount of formulas to learn by heart, and they also complained about the difficulty to get through with their complaints. Through a set of activities during the period of 1972 to 1974 such as: teacher training courses where the course directors of that department participated; through a task-force charged with a re-

view of the teaching in that subject; through a questionnaire about the students' knowledge in biochemistry sent to all departments of Karolinska; and through a small-scale experiment with a short course segment in biochemistry, a drastic change of the learning modes were introduced 1975. The short-term and long-term evaluation showed a considerable improvement in students' understanding of intermediary metabolism and their attitudes towards the subject. At the end of the course the students in 10 experimental groups (the new teaching) performed far better on the essay questions in the final examination compared to 15 control groups. Two years later after the course 3 of the control and 3 of the experimental groups were compared. Students with the new teaching performed better on a short-answer test, and found it easier to refresh biochemistry when needed in clinic, and remembered the course as oriented towards understanding principles more than rote-learning (Mårtenson et al. 1985). From 1977 and onward that department has been on the frontlines of educational issues and curricular improvements. These two examples show that *changes take time*. Is that a failure? It is well known that attitudes often change slowly, and experience has shown that in the beginning, development may seem to come slowly, but when a climate in favour of educational issues is present, needed adjustments and innovations occur continuously and more rapidly.

Facilitating and impeding factors

This part is mainly based on a publication by Mårtenson and Aspelin (1994). With reference to documented experience at Karolinska (Mårtenson 1989) and recommendations by WHO on how to implement change (WHO 1991), the following should be commented.

- In traditional well-established and research-oriented medical schools where teaching has a low status, implementing change will take time – sometimes a very long time.
- It is important to support teachers who wish to improve and evaluate a program, and to encourage and assist them to document their efforts. Visibility of the changes is vital for obtaining the „domino effect“ of good examples within the medical school. Small-scale experimenting, if carefully managed, tends to lead to further development. Sometimes it is preferable to have concrete actions, even if they are small, rather than extended periods of „just talking“.
- The introduction – and, just as important, the maintenance of change must be based as far as possible on the notion of ownership. It is self-evident that teachers who have not participated in the process of identifying the problems to be solved or in designing what remedies to implement, will probably not be efficient in carrying out the changes made.
- The attitude of the leadership is important. Within a medical school a non-supportive leadership will make educational development difficult. But in order for a visionary leadership to function well, there must be a sufficient large number of teachers who understand what the innovative ideas are all about. (The experience at Karolinska is more of a bottom-up development than a top-down approach.)
- In most medical schools educational efforts do not earn teachers merit for promotion, and that obstacle must be tackled. Despite the fact that teaching efforts at Karolinska have not been given due importance, significant educational improvements have been made. In part that could be because when attitudes become more favourable towards undergra-

- duate teaching, the priorities between the domains of research, clinical practice and teaching start to shift.
- Another lesson learned at Karolinska is that it can be advantageous to act ahead of foreseen governmental changes. Examples at Karolinska imply that a medical school can help to implement wide-scale change by contributing its own concrete experience from small-scale experiments. There has been a clear motivating difference between changes that have occurred from within, compared to those imposed from outside.

Reflection

In a literature review of empirical studies on how practising physicians improve professionally, a conclusion is that students in an undergraduate program need to train problem-solving, computer-based literature search, life-long learning, reflective thinking, etc. (Mann 1994). Other studies on how professionals think and work have shown the importance of reflection (Schön 1983, Fox 1989) as a part of the procedures (see Figure 1).

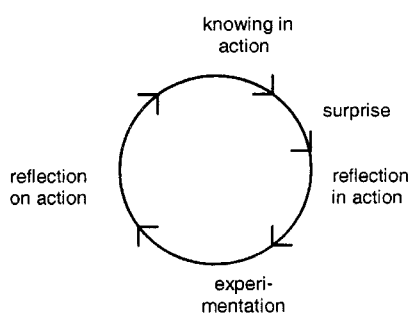


Fig. 1 A general procedure of solving clinical and research problems: When meeting patients the physician brings with him his/her knowledge and experience from previous clinical encounters (knowing-in-action). When a situation occurs

that does not make sense, for instance when the patient tells something that does not fit together with the clinical findings (surprise) will cause the physician to reflect upon possible causes (reflection-in-action). The consequence of that reflection may be that the physician will search for additional knowledge or to treat the patient in a different way (experimentation). The doctor will reflect on his/her intervention (reflection-on-action). That entire sequence will add to that doctor's experience and knowledge for the next encounter with another patient.

One can strengthen the students' experiences of the time given for reflection in a program. Several studies indicate that students, for instance in problem-based programs, feel that they to a greater extent have been stimulated to reflect upon the things they have learned.

Conclusions

Of course the conditions for implementing changes in medical schools are cultural-bound. My reflections about facilitating and impeding factors at Karolinska in Sweden might hence only to some extent be applicable in other institutions or countries. I would, however, underline the following as a set of general conclusions:

- Do not expect too much from changes imposed from above. If the teachers are not feeling an ownership, or do endorse, the changes introduced, there is a risk of not being successful.

- A supportive leadership is a very important help. If there is no supportive leadership, it is not impossible to work „bottom-up“.
- Good conditions, such as pedagogical merits being given credits, is of course a facilitating factor. But maybe not a must in order to get started.
- So-called failures do not always mean that there is a dead end. Bad results and failures may also function as a good starting point for further development. Successes and good examples normally are better for stimulating educational development, but failures could also be useful.
- Changes do take time. Especially in the beginning. But nothing will happen if no one is doing anything.

References

- ¹ Fox R, Mazmanian P, Putnam R. Change and learning in the lives of physicians. New York: Praeger, 1998: 1
- ² Mann K. Educating medical students: lessons from research in continuing education. *Academic Medicine* 1994; 69,1: 41-47
- ³ Mårtenson D. Educational development in a medical school: facilitating and impeding factors at the Karolinska Institute. *Medical Teacher* 1989; 11,1: 17-25
- ⁴ Mårtenson D, Aspelin P. Can a conventional school of medicine improve? *Changing Medical Education and Medical Practice*. Geneva: World Health Organization, WHO/EDH/NL/94.2, 1994
- ⁵ Mårtenson D, Dahllöf G, Nordenström J. Competence portfolios for assessment of academic performance at the Karolinska Institute. *Education for Health* 1998; 11,3: 297-303
- ⁶ Mårtenson D, Eriksson H, Ingelman-Sundberg M. Medical chemistry: evaluation of active and problem-oriented teaching methods. *Medical Education* 1985; 19,1: 34-42
- ⁷ Rippey R. *Evaluation of teaching in medical schools*. New York: Springer Publ. Co, 1981
- ⁸ Schön D. *The reflective practitioner*. New York: Basic Books, 1983
- ⁹ WHO. *Changing medical education: an agenda for action*. Geneva: World Health Organization, WHO/EDUC/91.200, 1991

Prof. Dick Martenson

Department of Humanities, Informatics and Social Sciences
Unit for Research & Development in Medical Education
Karolinska Institutet
17177 Stockholm
Schweden

E-mail: dicmar@mbox.ki.se