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Department of medical education; A personal history

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Abstract

This is a brief overview of the history of formal introduction of the art and science of education into the sphere of medical education in Shiraz. Before this introduction medical education was, and in the majority of other institutions world-wide still is, a simple transfer of knowledge from teacher to student. The students accepted their passive role because this was how they had been taught all their life. The teachers perpetuated this process because this was how they were taught themselves. After all, what was good enough for them was good enough for the students. All one needed to be a good teacher was to be an expert in ones field.

What the Department of Medical Education attempted to do locally and the Regional Teacher Training Center internationally, was to promulgate problem-based, learner directed teaching using the principles of adult learning and using evaluation methods that were valid and reliable.

This article describes the process used for this transformation and some of the results obtained.

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Introduction

I began my professional career in Shiraz in September 1967 in the Department of Pediatrics. As a pediatric cardiologist, I soon began to establish, equip and staff a cardiac catheterization laboratory. The lab was duly inaugurated by a number of VIP's and dignitaries complete with live demonstration of cine angiography with unplanned excitement, which is another story.

After four very fulfilling years, I took advantage of the University's generous sabbatical programs and traveled to California for a teaching position. Five months after this move, in the middle of a cardiology conference I had arranged, I got an urgent international phone call (a rarity in those days) from the Dean in Shiraz asking me to drop every thing, go to Chicago, get a Master's degree in Medical Education, return to Shiraz, start a Medical Education Department and direct the WHO Regional Medical Teacher Training Center for the Easter Mediterranean. This is one of the five WHO regions which consist of 22 countries from Pakistan to Tunisia.

I did not hesitate for a moment, dropped everything and in one week moved the family to Chicago, thus began the most eclectic, deeply satisfying 10 years of my life. But first there was the small matter of hitting the books for a year and a half, living in a tiny apartment recruiting colleagues as future department members.

During that year, I published two articles one of which entitled Physician Migration: Brain Drain or Overflow (1) got me in trouble with Savak. The theme was that countries that lost their medical graduates did so because they could not absorb doctors trained for a very different, i.e. Western, medical environment and needs. The article was quoted in Medical World News and Chicago Daily News at the very time that the Iranian regime was boasting that it would economically catch up with Britain in five years. I was not the first to publicize this issue. Dr Hossein Ronaghy had previously documented the sad mass migration of Shiraz medical school graduates to America.

Upon return to Shiraz, in July of 1972, the newly established Department of Medical Education began to develop and make its presence known. Eight members of medical staff became part time members of the Department after a one month fellowship at the Center for Education Development (CED) in Chicago. The full time staff consisted of three individuals with PhD's in education, two administrative assistants and an executive secretary. Additionally, we occasionally had visiting professors for varying lengths of time.

We were initially housed in a rented house behind the Medical School and then moved to a whole floor of a new administrative building. This also housed the Department of Community Medicine with which we participated in many educational projects.

Our programs could roughly be divided into three categories as follows:

1. Local Programs

In order to legitimize our existence and our message, we found that we would have to produce results at our home turf. It was decided that we should first encourage a shift in the medical staff's attitude from teacher-oriented educational philosophy to a more problem-based student-directed one(2). We began by holding 3-day workshops for our staff that emphasized defining observable educational objectives, designing instructional strategies based on principles of learning and formulating valid and reliable evaluation methods aimed at measuring the stated objectives. All activities during these three days were based on experiential learning. For instance, during the exercise called Principles of Learning, each participant was asked to relate an actual experience from his own life from which he learned something significant. Then gathering in small groups, each individual was then asked to share the experience and to define what made the experience so memorable, generating with the help of the group as many reasons as possible. Next, the groups were asked to complete the sentence: A learning experience should be planed so that the learner. Once the small group list was completed, a standardized list of Principles of Learning based on accepted principles of adult learning was presented. The small groups then had a friendly competition to see who had generated the most principles listed by the "experts". I go into some detail because this was the methodology we attempted to use in all our local and international programs. In other words, we wanted to practice what we preached.

Next, we decided the most effective way to influence the educational process was to work on the evaluation procedures. Various departments (the first was, I believe, OB-GYN) volunteered to let us look at their examination papers. We first started by analyzing what the prevalent exam methods actually measured. These were by and large multiple choice questions that measured little more than recall and recognition of isolated bits of information ('Rec & Rec") Next, we measured split half reliability of these exams and were able to show that they could not reliably distinguish upper from the lower third of the scores. Once the need for improvement was acknowledged we formed a school-wide Evaluation Committee to assume the responsibility of all important Comprehensive Examinations given to graduating classes. We gradually introduced problem-based MCQ's(3-4) and Patient Management Problems (PMP's) (5). These types of examinations, which can also be used for teaching purposes, consist of two sections: one is the visible print segment containing case presentations, questions, choices and various directions. The other section consisting of the corresponding answers, feedback and further directions are written in invisible ink, which appear if the student selects it by rubbing it with a developing pen. Scores are derived based on which of the latent images have been selected. Scores for each choice could be positive, negative or neutral.

Next, we began introducing small-group problem-based student-directed learning by designing a course for first year (second year at the university) medical and dental students, designated as "The Beginning Doctor"(6). There were 136 students divided into small groups of 5 to 6 each. Thirty medical school staff members participated in the planning and 24 worked with one or more tutorial groups strictly as "facilitators" and not "teachers". The background of the staff was variable but all had participated in various departmental workshops. The groups were given written case reports in the "raw" format devoid of any clues or predigested information. They determined what information they needed, researched it on their own and presented at the plenary sessions. Contrary to widely held assumptions that students are generally passive learners and need to have a lot of information, specially, basic sciences, presented to them before they could solve any clinical problems, the staff was pleasantly surprised to see the enthusiasm and competence with which the students tackled these unfamiliar problems and easily adopted the self-learning mode.

Another gratifying development was adoption of Problem-Based Programmed Lectures(7) by many of the clinical and some basic science departments. In this method, a single teacher can transform an amphitheatre into a small group, problem-based tutorial. Briefly, students are given a handout containing a number of written cases/problems each followed by one or two questions in either MCQ format or, less commonly, open ended ones. Before any discussion, the students are asked to individually or, as a variation, in consultation with a seat-mate, record their answers for one problem at a time. The teacher then gets a feedback by either asking for raised hands or with the aid of simple electronic individual response devices which are then collated and displayed for the audience. The teacher then conducts a group discussion based on the students' responses or clarifies the issues arising before moving on to the next question. As you can imagine,

the contrast between the stony glazed look of the students during one of their usual lectures and the sheer excitement of active and emotional involvement during a programmed lecture was striking. This was duly documented by hidden videotapes made during the two types of lectures.

As serendipity would have it, The Department of Community Medicine under the direction of Dr Hossein Ronaghy undertook to start a new medical school to serve as a model for producing graduates that would be best suited for the needs of the community. The location chosen was in Fassa, a small town of then 80,000 inhabitants located 180 km from Shiraz. The Medical Education Department was involved from the very beginning. It was an ideal setup to implement the educational philosophy espoused by the Department, namely problem-based, learner-oriented, objectives-derived curriculum.

The process began with staff selection and training. Details are given elsewhere(7). Briefly, much greater emphasis was placed on attitudes and a learner oriented outlook than on content expertise or experience. Acceptable candidates entered an intense full time program of training dealing with such matters as educational planning, group dynamics, principles and facilitation of learning, instructional design and valid and reliable evaluation. A process of self-selection was encouraged. As a result, about half of the original applicants opted to split off into a splinter group with somewhat different but still compatible philosophies and opted to join the staff of yet another new school at Mamasani under separate leadership.

The next big step was student selection. There was to be no formal entrance examination as was prevalent in the entire country. For screening purposes, it was decided to select candidates belonging to the upper half of their graduating high school class. They were to pass an examination designed to measure their understanding of written English. They then entered a structured detailed interview. There were four interviewing team each consisting of four individuals: a physician, a nurse, a non-academic staff member and a teacher from the city of Fassa. All teams underwent extensive training in the process, produced the needed materials and practiced on simulated interviews. Each member individually rated each candidate on a 5 point rating scale in the areas of general appearance and behavior, general knowledge, scientific and critical thinking, and social and emotional maturity. The individual ratings were then reconciled and an overall rating was agreed upon. Eighty four applicants completed the interview process.

Next came the most significant, labor-intensive part of the selection process called "Field Work". Eighteen top candidates were selected for this segment. In teams of six the students were to work in a village assigned to them. They were to select a health issue of their own choice to study in depth. They were expected to spend three nights a week in the village, returning to Fassa to study an aspect of life in the city and use the library for research. Each team had a physician and a nurse as tutors for two weeks before rotating to another team. This phase took six weeks. The experiences of each team as recorded in tutor and team diaries make for fascinating reading. The transformation of these recent high school graduates and passive classroom automatons into insatiable researchers and probers was indeed gratifying. Needless to say, all 18 candidates were accepted.

As a personal anecdote, shortly after the start of their formal training, I invited a group of mother school medical staff to observe students during rounds. One of the newly minted students presented a patient with chronic urinary symptoms. At the end of the presentation, one of the professors who happened to be an urologist was a little upset and said he had hoped to hear a regular student presenting rather than an intern from the school in Shiraz!

As a result of these activities and others, we were able to show a gradual shift in the Shiraz medical staff towards problem based student directed educational philosophy(6).

2. Regional Programs

A major part or responsibility of the Department was to fulfill its role as World Health Organization's Health Professional Teacher Training Center for the Eastern Mediterranean Region consisting of 22 countries from Pakistan to Tunisia. We offered a number of programs for the Region's medical institutions.

A) Regional Workshops

These were two weeks in duration held mainly in Shiraz and consisted of very intensive series of small and large group activities in the areas of group dynamics, principles of adult learning, definition of learning objectives, designing problem-based instructional strategies and producing valid and reliable evaluation methods. Initially, chancellors, deans, and department heads were invited to legitimize and facilitate the movement in their institutions at home. Later representatives from various departments including basic sciences were invited. Each participant was expected to design an educational project to implement upon their return. Now it was not all hard work; we made sure there was plenty of entertainment and sightseeing included. There were a total of eight Regional workshops.

B) Itinerant workshops

These were 3-5 day workshops given over a three-week period in three different institutions frequently in three different countries. Three members of the Regional Teacher Training Center (RTTC) conducted these with very important roles given to those members of the local staff who had participated in regional workshops or other RTTC activities. The topics were similar to those described above but more compressed. Sometimes a specific subject was highlighted such as evaluation, problem-based instruction, etc.

C) Fellowships

These were in depth one to three month programs offered in Shiraz for the selected few who were destined to form their own educational units or departments locally. They acted as associate members of the RTTC who worked on projects of their own choice and received a diploma.

3. International Programs

Members of the Department of Medical Education – RTTC were involved in a number of projects beyond the Eastern Mediterranean Region. These included membership on international committees sponsored by WHO in Geneva such as panel on Health Services and Manpower Development and Collaborative Center for assessment of impact of Teacher Training on Health Education. There were presentations by invited speakers in educational conferences in Copenhagen, Mexico City, Rio de Janeiro, Sydney, Bangkok, Hamilton Ontario and Geneva. Other activities consisted of in-depth, on-site study of various institutions with innovative medical education programs, most notably, in Maastricht in the Netherland, McMaster in Canada, Dundee, Scotland, The Ben Gurion University, and Southern California University, the A36 program in Mexico City and the Medical Faculty, Rio de Janeiro. The results were published as WHO Temporary Advisor Reports.

Another noteworthy international program was the Fifth Shiraz Medical Conference devoted to medical education where a number of renowned international educators participated.

During these years our group planned, conducted and evaluated 62 National and International educational workshops for some 2500 health professional teachers from 50 institutions in the 22 countries of the Eastern Mediterranean Region of WHO and beyond. In all the work culminated in 33 published articles and reports and 20 presentations.

Conclusions and Recommendations

Now all of this is rather ancient history. I am not personally familiar with what exactly has happened in Shiraz in the last 30 plus years but from what I gather, the seeds of educational innovations planted so long ago have taken roots despite the turmoil of the recent past. A clear evidence of this is the publication of this journal which is reviving the old RTTC journal, The Learner. This is indeed heartening. I would, therefore, take the liberty of making the following recommendations.

1. Evaluation of Clinical Competence.

Nothing sends a stronger message to the students than the way they are evaluated. All the lofty aims of producing scientific self-learning minds skilled at solving patient and community problems will be ignored if we grade students on their ability to recall isolated bits of information. I am thrilled to learn that a start has already been made in using Objective Structured Clinical Evaluation (OSCE) (9, 10).

2. Problem-Based Instruction

Yes, it is labor intensive but to see students motivated to independently identify the problems they have to solve and search for answers to these problems and succeed in finding them is extremely gratifying. Whether in small groups (6) or large, in the form of Programmed Lectures (11), the students' reactions are vastly different than one can observe in a group passively listening to one-sided lecture presentations no matter how fancy the slides may be.

3. Staff Development

I should have mentioned this as the number one recommendation. Teachers' attitudes and their educational philosophy determine how successful or long-lasting any innovation will be. However, the way to achieve No.3 is to encourage acceptance and practice of No. 1 and 2 by offering various educational workshops to build skill and confidence (2, 8). Again, I understand the Department of Medical Education is busy doing exactly that.

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