Education and Training

Pedagogical Issues and Renovative Approach in Health and Research Manpower Development in the Western Pacific Region

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What's Wrong with Medical Education?

Often, many educational institutions in the Western Pacific region are confusing the definitions and goals of "education" and "training". The impact of this misunderstanding seems to be more serious in many professional disciplines, and the medicine is not the exception. Furthermore, vague and unrealistic educational objectives together with inappropriate learning experiences in both undergraduate and postgraduate programmes have eventually made their products (graduates) irrelevant in their community services not only for health care setting but also in research promotion. So-called "scientific physicians" is the word that most of medical school deans prefer to call their end-products, but we have learned with great regret that none of them was sufficiently competent either as a primary care physician or even a medical scientist at the time of graduation to cope with his(her) future tasks. Scientific physician does not mean a physician who knows bulky amount of scientific knowledge but a professionally competent physician who concerns and solves the individual people's health problems using scientific methods. Nevertheless, we are immune to the erroneous educational programme by such conceptual misorientation and are continuously producing a physician in non-scientific way.

In conjunction with research manpower development, the postgraduate programmes in the developing countries have remained in a traditional, unguided apprenticeship, which simply reflects deficiency of effort on interdisciplinary educational integration. Actually, many educational planners or department leaders are not quite comfortable living with external surveillances and thus, the most difficult task among the faculty members to tolerate is the encouragement of their stu-

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dents to inspire broad knowledge and techniques from the neighboring disciplines. This sort of "shut-door education" made their students delayed in exposure to the vast explosion of high technologies during the postgraduate training course. Despite an explosive progress of allied sciences and rapid increase of student size, this "shut-door education" is still a widespread phenomenon in every aspects of medical disciplines. Consequence was a production of less creative and more expensive investigators who can little cope with sophisticated technology at their sites after training.

Moreover, the university and governmental authorities in many countries have lost an integrated, coherent and comprehensive direction to promote both undergraduate medical education and postgraduate research manpower development to meet the balanced national goals, partly because of long accustomed patience on bureaucratic decision-making process.

The purpose of this presentation is to describe some of current pedagogical problems and issues often encountered in fields of medical education and research manpower strengthening in a hope of stepping ahead toward the promotion of task-oriented educational strategies; the presentation is divided in three aspects as follows; (1) clarification of the concepts of education and training in both undergraduate and postgraduate medical educational programmes; (2) identification of the current trend of medical education and its recommended resolutions with regard to health and research manpower development to meet the national recognition and university's enthusiasm; and (3) an institutional roles of medical education directing toward the research strengthening in the twenty-first century.

Education versus Training

In many institutions the terms of "education" and "training" have been used interchangeably, but each has a different concept and approach to achieve the concerned objectives. "EDUCATION" is "an internal learning process through which the students change their behavior" directing toward the creativeness, while "TRAINING" emphasizes familiarity; the former is more or less cognitive-oriented and requires all possible methods to get their learners being acquainted in critical thinking, whereas the latter leans more into psychomotor-talency and encourages repetition of learning experiences to perform the required skills efficiently. However, the educational process in the postgraduate programme requires both creativeness and familiarity; critical thinking and repetition. Thus, it is essential among the faculty members in medical profession firstly to punctuate the area of competence (creativeness or familiarity) of their graduates and then to develop a pertinent educational programme in objective-structured ways.

Changing Patterns of Curriculum

Suppose we teach students "swimming". Some of faculty members may teach "swimming" with lectures and the students do their best to memorize various types of swimming and related sports

physiology rather than to practicing "how to swim." Jewish mother, in contrary, teaches their kids in a way that if they describe the fish well, they will suffer their whole life from hungry, but they will survive if they know how to fish. The above demotation can be reflected in nowadays medical education as well. To overcome such an overwhelming problem, current global trend in medical profession is focusing its best effort to produce more "performable" physicians rather than "knowledgeable" or just "capable" physicians by changing the discipline-oriented curriculum to interdisciplinary or integrated one and further to the innovative curriculum (problem-based vs community-oriented curriculum).

Integrated curriculum in the undergraduate educational programme is organized with synchronization of instructions in an intensive block course in which the related contents are put together in a logical sequence, horizontally and vertically, to minimize the gaps and overlapping within the traditional discipline-based instructions and to maximize learning efficacy. This is a type of interdepartmental approach and requires a tremendous mutual understanding and collaboration among the departments. "Medical Cell Biology Course" at the Seoul National University is a good example; instead of giving instructions with a series of lectures on normal and abnormal electron microscopy and molecular biology independently during the courses of anatomy, biochemistry, pathology and so on, scattered throughout the whole 4-year-undergraduate programme, an intensive "block course" is organized during the very early phase of the first year.

The concept of "CORE" and "ELECTIVE" is very critical in term of student career development. The essential elements among a wide range of instructions should be determined and separated from the elements "useful or nice to learn" through a pain-taking developmental process of specific behavioral educational objectives. Once the faculty members agreed upon the tasks of their graduates in the community precisely, the core contents are given in a compulsory course, and an opportunity for the remainders are provided under the elective course upon the student needs. In this setting the students are encouraged with individual learning according to their personal interest and in-depth study. Track system is an attractive alternative of the elective course.

One step advanced is a problem-based curriculum. In this educational planning the individual disciplines or traditional department concept are no more existing. Only students learn "how to solve the problems" by active participation in learning process; self-instructional approach is emphasized and little didactic teaching session including lectures is offered. Currently, several medical schools anticipate in "Community-based or in-situ programme" substituting the traditional institution-based education, which is, however, still in an experimental stage. Learning experiences are selected from the tasks they would expect to perform after graduation. To make our students performable, motivation of the learners plays a key role in learning situation.

Educational Cycle in Teaching and Learning Process

Educational process in every disciplines starts with development of appropriate general and specific behavioral objectives based on the need assessment and task analysis. At this point, need

assessment has to be carefully carried out and the priority should be determined not by the tradition or interdepartmental power game but with future needs in the coming century. Thereafter, development of pertinent learning experiences and teaching strategies follow, and finally the evaluation process takes place to confirm whether the original objectives were successfully achieved to meet the future assignment. The most important assurance among faculty members is the precise perception on teaching and roles of teachers. Teaching is an educational activity to help or facilitate the student learning. Thus, the teacher's major junction starts as an educational facilitator rather than simply a content provider. Having a general goal to produce a scientific physician, every teachers have to define the roles of scientific physician first and then to develop an appropriate programme suitable for their future scientific performance. This educational cycle comes exactly with postgraduate professional training programme for research manpower strengthening. Upon spelling out the every details of their future expectations, a wide range of intra-and extra-mural educational instructions should be offered and coordinated with other disciplines together with the intradepartmental promotion.

Balanced Effort for Teaching and Research

Medical School objectives are often totally different from what the faculty members felt in terms of education. While the school objectives being vaguely focused on the production of primary care physicians or scientific physicians, the professors and even young instructors have claimed continuously and given pressure to the dean's office on production of scientists or both (scientific physicians). Discrepancy between the school objective and the emphasis during the instructional programme in reality has made the curriculum and learning experiences crippled in terms of educational direction. The graduates are not competent to be primary care physician or scientist. Eventually, nowadays medical school is no longer the educational institution that produces physicians at the time of graduation but becomes a preparatory institution for postgraduate education. Actually, we have to admit the fact that the medical school graduates become physicians and specialists simultaneously only after a certain period of postgraduate training, not through a consecutive carrier development of "physician-then-specialist sequence". The major source of such discrepancies derives from that professors are more concerned about research than education while the community/students wish practice-oriented programme; general tradition of "research first, teaching second" or "to be a good teacher, one must be active in research" allows poor teaching to be defended, smaller and smaller teaching loads to be justified, and domination of the university by narrow research interest to be maintained.

To overcome such a problem, recognition (rewarding or compensation) of faculty effort on education by school leaders is strongly demanded. Under an assumption that "every professor cannot be a superman", the overloaded responsibilities of medical school faculty members should be redetermined by effective teaching or by maintenance of academic excellence. Differential roles for faculty members of varying interests is another possibility to explore; some to teach more

and publish less and others to teach less and publish more — thus enabling the university, not each and every faculty member, to maintain a balance of excellence in research and excellence in teaching. This has become an increasing system in the western hemisphere. Different titles of professorship such as professor, professor of clinical medicine, clinical professor and research professor are the examples. In the postgraduate studies, active interdisciplinary collaboration, faculty exchange, offering of joint courses as well as adoption of the programme accreditation system are crucially demanded and such will certainly be the attractive alternatives among others for the future renovative approaches.

National Policy and Priority

To get the effort visible, most planners used to enjoy with “hit and run” policy and to give their best efforts in early success of short-term development plan instead of providing a steady and balanced promotion of long term objectives. Everyone of the responsible education/science promoters are fully aware of that a long term planning with balanced investment is crucially important especially in biomedical science education. Nevertheless, it has long been a customary pit-falls among many governmental and university authorities who have given a higher priority to the high technology-oriented research. This kind of short-eye-viewed attitude has subsequently brought a undesirable residual phenomenon, namely sacrifice or suppression of the invisible, long term, promotional effort on the basic research manpower development. The public may demand the national prosperity with rapid modernization by concentrating all possible resources of the society into the industrial technology-directed investment. However, the priority of science promotion has to be managed with great care by those intellectuals who lead the national long term planning, based on our experience of learning through mistakes that the balanced investment policy on both industry-centered science promotion and academic excellence as well as national manpower plan, can promise our survival in future. Appropriate health and research manpower development may be more time-consuming and expensive at this moment and may not promise us any immediate visible feedback to scientific progress or community health promotion, but this is the only way of being much profitable to our future community health care by providing adequately trained teachers and investigators to solve their own local health problems.

SUMMARY

Prospects of Medical Education in the Twenty First Century

“Medical peoples are interested in *medicine*, but peoples in the community are more interested in *health*. This contradiction has come into reality already in today's medical practice and is going to be more serious issue in the twenty-first century. People's sophisticated living and health need will force our graduates to prepare themselves updated in knowledge and skills with awareness of the changing disease patterns in future. Furthermore, incredibly vast explosion of knowledge

and technology in the allied sciences is another force to look for future commitment from the university on educational revision; development of high technology including informatics and automation will heavily influence the environment of the medical education, and medical schools and faculty members are no more allowed to keep maintain the lecture-oriented educational instruction but to facilitate undergraduate or postgraduate student learning with interdisciplinary approach. Self-instructional technology will be much highlighted and tremendously expanded in the coming educational era. Moreover, public pressure eventually will request the medical community to adopt a public surveillance system such as medical school accreditation system in terms of programme evaluation of educational as well as academic excellence. Accordingly, we assert that changes are needed now to anticipate the circumstances that are beginning to alter the practice of medicine and that today's medical students will confront in the future. We judge that the present system of education will become increasingly inadequate unless it is revised.

We cannot predict precisely the educational needs of students whose careers will be practiced mainly in the twenty-first century, but this is the time, though late, to prepare ourselves firstly as a high quality of educator and to search for a better educational programme to best serve the needs of physicians and researchers in the years immediately ahead. We, all educators in the world, have to learn a Chinese wisdom "No Flower without Seeding and Fertilizing."

〈국문요약〉

교육과 훈련: 의료 및 연구인력 개발의 교육학적 문제점과 개선의 자세

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오늘날 우리나라를 포함한 서태평양지역 국가에서 의학계 학사과정 및 졸업후 교육이 당면하고 있는 심각성의 원인은 “교육과 훈련”이 분명히 정의되지 않는데 있으며 “과학적의사상”에 대한 교육목적과 교육계획간의 관리가 이를 부치기로 있다고 할 수 있다. 그리고 아마도 이것이 전문직 교육분야에서의 고급 연구자나 교수인력 양성을 궁극목적으로 하는 대학원교육의 비효율성에 영향을 주는 주요요인이 된다는데 큰 견해 차이는 없는상 싶다. 본 소고에서는 창의성과 숙달성의 균형, 비판적 사고와 문제해결 능력 함양에 소요되는 자질을 분명히 구분하고 이를 의과대학 학사과정 및 졸업후 교육과정에 적절히 연계 포함시키되, “과학적인 의사” 양성과 관련된 교육목적의 양면성을 적절히 규제 또는 보다 구체화하여야 할 필요성을 제시하였다.

일차의료인력 또는 연구인력 개발의 시발점이 되는 학사과정 부서의 교육목표의 수립, 이에 부합되는 효율적인 교육 프로그램의 개발과 선택의 중요성을 제시하고, 특히 졸업후 교육계획의 개선을 위하여 인접 학문영역과의 연계교육 내지 문제지향중심 교육과정으로의 조속한 전환은 학사과정의 필수와 선택과정의 구분과 밀접한 관련이 있음을 지적하고 학제

간 협동, 대학간 협동과정의 상호 인정 및 교환, 졸업후 교육과정에 대한 신입제도의 도입가능성을 제의하였다. 물론 이에 직접적인 영향을 미치고 있는 교수들의 능동적인 교육참여를 활성화 시키기 위해서는 이들에 대한 보상체계의 확립이 절실하며, 정부 내지 대학내 교육-연구정책 입안자들에게는 장기적 안목에서 본 균형된 의-과학 분야 투자와 교육-연구인력 수급계획에 대한 인식 전환이 요청된다. 단시성이고 전시성 정책이 초래하는 위험부담을 환기시키고 적절히 훈련된 교수나 연구자를 양성하고 학문적 수월성을 유지시키기 위해서는 꾸준한 인력투자만이 한나라의 과학 발전과 지역사회에서의 건강 증진을 꾀할 수 있음을 강조하였다.

다가오는 21세기의 정보화 내지 자동화 시대에 의학연구와 국민 건강을 담당하는 피교육자들이 자신의 자질을 충분히 발휘하도록 준비시키기 위해 대학은 자율적 학습의 습관화과정과 학제간 협동이 교육 프로그램에 가미되도록 모든 가능한 방법을 동원하여야 한다. 내일을 위한 교육의 개선이 없는 한, 의사와 연구자 양성을 위한 현교육 프로그램의 효율성은 점차 부적절하게 될 것임을 우리 모두가 각성할 필요가 있다.