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Medical Education ; Application of Adult Learning Theory on The Curriculum Design for a Medical School in Saudi Arabia

Medical Science

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MEDICAL EDUCATION

With technological advancement and the phenomenal changes in the world of science and medicine it is expected that medical education will change in keeping with the changing times. The advent of the computer, ultrasound, MRI and laser has changed the face of medicine irrevocably. Diagnostic procedures have also seen much progress. The pharmaceutical industry has kept pace with these technological advances and has produced medications to meet the needs in medicine. In view of the above, medical education needs to keep pace. Use should be made of new technologies in medical education and the methods of teaching used in schools of medicine should reflect the changing times and the changing needs.

Medical education involves three main components; undergraduate and postgraduate training of health care workers, continuing medical education for those in practice, and the continuous professional development of the teachers in the training institutions. With regard to undergraduate education, the medical schools and institutions of Health Sciences develop curricular based on guidelines provided by governing bodies (such as the Ministry of Higher Education which also has to bear in mind national requirements). For instance, inferior medical training can have catastrophic consequences for patient health. It is particularly crucial, therefore, that health care professionals are educated by means of the most effective methods available.

Organizations, such as, the Saudi Board of Health Specialties and the Arab Board, provide the postgraduate training institutions with guidelines detailing the standards expected to be achieved by prospective candidates in these institutions who, in turn, develop suitable curricular. This is done in order to achieve national aspirations and defined goals. In the training of doctors and specialists, the example of the teacher is the most powerful influence on the standards, conduct and practice of every trainee, whether a medical student or resident.

Educational obligations of all doctors

1. All doctors have a professorial obligation to contribute to the education and training of other doctors, medical students, and non-medical health care professionals on the team.
2. Every doctor should be prepared to oversee the work of less experienced colleagues and must ensure that students and residents are property supervised.
3. Teaching skills are not necessarily innate, but can be learned. Those who accept special responsibilities for teaching should take steps to ensure that they develop and maintain the skills of a competent *teacher.*
4. Doctors are expected to be honest and objective when assessing those they have supervised or trained. Patients may otherwise be put at risk.

Professional attributes of the doctor with responsibilities for clinical/educational supervision

Every doctor who is appointed to provide clinical or educational supervision of medical students or residents should demonstrate commitment to:

- Maintain a high standard of professional and personal values and relation to patients and their care
- Be available and accessible to students, residents and patients
- Maintain a high standard of clinical competenc Effective communication
- Personal and professional development as a doctor Professional audit and peer review
- Team work in a multi-professional environment

The personal attributes of the doctor with responsibilities for clinical training/educational supervision - the attributes of the doctor with teaching responsibilities include:

- An enthusiasm for his/her specialty
- a personal commitment to teaching and learning
- sensitivity and responsiveness to the educational needs of students
- The capacity to promote development of the required professional attitudes and values
- an understanding of the principles of education as applied to medicine
- an understanding of research methods
- practical teaching skills
- willingness to develop both as a doctor and a teacher
- a commitment to audit and peer review of his/her teaching
- The ability to use formative assessment for the benefit of the student/resident
- The ability to carry out formal appraisal of medical student progress or the performance of a resident

Few medical teachers have any formal training in educational skills or theory to fulfill all the functions, attributes and educational obligations stated above. Since so few doctors possess such skills it is essential for the teaching institutions (namely, medical colleges) to provide the facilities for the training of the teachers within their institutions. In view of the above, Medical

Colleges and Colleges of Health Sciences need a Medical Education Unit/ Directorate/ Department to handle these requirements.

Role and responsibility of the Medical College

1 The Medical College needs to ensure that formal training in teaching skills, and in the facilitation of student learning, is provided for all teaching staff. Satisfactory completion of such training and evidence of competence in teaching should be required for all staff.
2 Changes in undergraduate education have emphasized learner-centered education and problem solving. For this reason more doctors are likely to be involved in teaching and facilitation of learning.
3 Training should therefore be offered to those with honorary university appointments who have a commitment to the clinical training of medical students.
4 Large group teaching within the formal environment of a lecture theatre is a particular skill which needs to be taught and practiced. Different demands are made of those with responsibilities for tutoring or facilitating the learning of small groups of students or residents, whether in a clinical or a problem-solving environment. Staff development programs should be designed to meet the on-going needs of doctors with a range of different teaching responsibilities. Within the Medical College particular expertise can usually be provided by Medical Education Units/Directorate/Department.
5 Small group teaching is well established in the Medical College. However, the time and resources to provide training for the trainers are critical to the successful outcome of programs of teaching and learning.

Organization of a Medical Education Unit

The organization of a Medical Education Unit should take into its remit some of those functions detailed above. The requirements of teachers of medicine are different from those of other subjects, such as the arts, namely English, geography etc. These special needs of teachers of medicine need to be taken into consideration in the set up of a Medical Education Unit. It should have a suitable head and staffed by professional educators.

Head of Medical Education Unit

The head of the Medical Education Unit should have a medical background and also be a professional educator. They should be an effective administrator able to deal with a wide range of professionals and other personnel. They need to be able to communicate effectively with teachers, both in the basic science and clinical departments and understand and appreciate their needs. As an educator he should be able to direct functions of the unit in order to achieve the goals for which it is set up, namely, to train teachers in the skills required in their function in the medical college. In short the head should have the expertise to plan an effective educational program including continuous professional medical education.

Staff

The staff of the Medical Education Unit should comprise of professional educators who have expertise in different areas of education and should bring this to bear in the training of teachers of medicine. Their expertise should encompass the following areas:

Lesson planning
Presentation skills
Basic theory of Education
Educational Psychology
Curriculum design
Writers of examinations and test analysts
Planning of continuous professional medical education

In addition to these members of staff, there should also be the necessary administrative staff, including secretaries.

Curriculum

In the undergraduate medical training, traditionally the curriculum in medical schools has been a two-year pre-clinical course followed by a three-year clinical apprenticeship. The curriculum tended to be over-burdened with undue emphasis on passive acquisition of facts that were soon forgotten. It is now recognized that there should be more promotion of self learning skills and the cultivation of attitudes needed to keep up-to-date with a rapidly changing subject like medicine.

In view of the above, the structure of courses are being fully integrated. The recent trend is a course where all learning is set in a clinical context and is related directly to clinical experience. Self learning is also actively promoted. In some medical schools there are additional distinctive features, namely:

The course is six years

All students graduate with an MBBS and a BSc degree

The course combines the best of the former traditional courses with more emphasis on communication skills, medical ethics and law and information technology.

The three main elements which run throughout the five of the six years are: Systems and Topics, Doctor and Patient and Clinical . In pursuance of the promotion of self learning, internet lectures were used extensively. There is a local internet page set up in the library which students access for different lectures.

Adult learning theory (Andragogy):

Defined as that "the art art (delete the second 'art') and science of helping adults learn" (Malcolm Knowles, 1970). Malcom Knowles is the father of andragogy as he proposed the factors involved in adult learning (Knowles, M. S)

Adult learning theory is experiencing a major debate on how to classify it. Some groups classify it as organismic or mechanistic, while other groups classify it as a cognitive and stimulus response. However, the theory of adult learning is basically divided into two elements; the process that causes change in a person, and the process that causes changes in an organization (Merriam, S. B et al. & Hilgard, E. R. et al.)

Maclom Knowles expounded the principles of the adult learning theory as (Knowles, M. S)

1- Adults should be involved in their instruction either in the planning, or in the evaluation.
2- Personal experience is the basis of the activity of most of the learners.
3- Adults are mainly interested to learn anything related to their job, and also their interest in their social life, because they feel that they will benefit from what they will learn.
4- Adult learning is usually "problem-centered and not content-centered". (Merriam SB 99)

Malcolm Knowles suggests the five assumptions of andragogy (which describe the adult learner) to be:

First assumption is the ability of the learner independently to self-direct the needs of learning according to the main aim and the specific objective (Knowles, M. S). If we have adult learners who are dependent on their learning they have to be shifted gradually so as to be self directed learners, and to involve them in the planning, and their evaluation for them to become more independent rather than dependent. This will take time but will improve their learning in the future. (Fidshun, D)

The second assumption is that an adult already has their own life experience and knowledge so it is therefore better to build on their experience rather than ignore it. By extracting their own knowledge from the learners they build on it as continuous learning. (Merriam, S. B., & Caffarella, R. S)

The third assumption is that adults have the tendency to learn according to their needs and social environment so, if you want to teach adults, try to make clear objectives which relate to them (Merriam, S. B. 99, 2001)

Adults usually want to learn anything helpful for their work or for their social life and they therefore have to have the motivation and the underpinning logic for them to have the impetus to

learn effectively. (Cercone, K)

The fourth assumption is that adult learners are more practical in their learning which means they critically like to learn what they will benefit from more. So, if you want to teach, or want to develop the curriculum, try to match it with topics that they want to learn. (Fidshun, D , Merriam, S. B. 99)

The fifth assumption is that adult learners need a motivation (such as to improve their income or upgrade their job position) and they need respect for this by offering them an environment that is suitable for learning. (Fidshun, D , Merriam, S. B. 99)

How to motivate the adult to learn:
You cannot order adults to learn like you might order them to attend the class, but if they develop an interest to learn anything new then they will show a strong power to engage in the learning process, and thus to learn effectively. If adults learn any new procedure or skills but do not practice them then they will gradually lose these skills. So, practice is important in adult learning because the more practice they do the less chance they will lose these skills (Bill Brandon et. al.)

Adult learning theories related to andragogy:
-experential learning.
-self directed learning.
-Transformative theory learning.

Curriculum design
Definition:
"A planned educational experience" (Kern)

Planned :
which including objectives, experiences, outcomes, duration, and assessment.

Educational :
which includes teaching learning methods.

Experience :
which is generic specialty and professional, environment, colleague, faculty, type of patients and healthcare administration (David E. Kern)

The content of the curriculum must contain attitude, knowledge, skills that the learners will achieve objectives and goals. Swanwick T.

Each curriculum design should follow these six steps: (David E. Kern)

1 Problem Identification and General Needs Assessment.
To identify the main problem in general; the problem could be something purely clinical (like treatment of sickle cell disease) or it could be educational (like patient education or an administrative problem), but in all cases you have to compare the ideal situation you want to reach with your current situation for each problem and the difference between the ideal and the current situation will be the general needs assessment. (David E. Kern)

2 Targeted Needs Assessment.
To identify the proficiencies and deficits of students and the students environment to of the experience.

In the targeted needs assessment we have to find the specific need for any specific group of learners to address a specific problem, so it is helpful to compare the previous curriculum to the ideal curriculum and thus see the differences between the two. We have many ways to specify the targeted needs assessment, such as conducting surveys and, according to the results, decide the needs. Discussion with learners either formal or informal and according the discussion can extract these needs; focus groups, pre-test and post-test, observation and curriculum software may be helpful. (David E. Kern)

3 Goals and Objectives.
"Goals and objective defined as an end toward which an effort is directed

The goal will be used when a broad educational objective is being discussed. The term 'objective' - used when a specific and measurable objective is being discussed" (Kern). The objective is important because it will affect the curricular steps from the educational strategies to the evaluation and feedback. (David E. Kern)

Types of objectives:
Learner:
learning in the cognitive, affective, and psychomotor domain.

Process:
implementation of the curriculum and the expectation of response of learner and faculty members.

Outcome:
the end outcome of the curriculum on the learners.

4- Educational strategies.
Educational strategies should match learning goals and objectives, to maintain the unity between objectives and the other steps and to choose educational methods either single or multiple. (David E. Kern)

General Guidelines:
Cognitive like problem based learning, discussion, seminar or lectures. Affective like role model and psychomotor like clinical experience and role play.

5- Implementation:
Establishing the need for change by developing leadership for the program, to plan for change such as curricular and clinical site issues, immediately respond to the current problems and establish the continuous financial support and the procedures for evaluation. (Lemon's model).

How to identify the resources:
David E. Kern,

Personnel:
including faculty members, audio visual materials, computers, patients and administration.

Time:
this is time to prepare and to implement and the time to audit.

Facilities:
any other helpful facilities like the space, equipment, clinic, servers and computers software.

Costs:
either direct or indirect financial costs.

6- Evaluation and Feedback:
"Evaluation - Comparison of an object of interest to an explicit or implicit standard of acceptability, Feedback - provision of information about a curriculum's performance to learners, faculty and other stakeholders" (David E. Kern)

The six steps are integrated with each other so it is not possible to separate each step from the other. It therefore needs broad thinking to design an effective curriculum. Personal communication with Helen Gordon,

Our plan of the Application of the learning theory on the curriculum design:
Adult learners should be involved in the curriculum design (according to the principles of adult learning theory) so WE will form a committee from the students mix from the A students, C students and the D students to discuss with them the planning and evaluation of the curriculum to ascertain their general needs assessment, targeted needs assessments and their objec-

tives.

The adult learning theory is for mature learners so these learners have their own life and social experience and they have some experience in curriculum as medical students and we have to build on their experiences for them to accept the program fully.

Adult learners usually want to learn something related to their interest and something beneficial for them in the workplace, in the future, and in their social life, so WE will discuss that with them to determine what they feel is the most acceptable way for them to learn.

SWAT Analysis:
Strengths:
We will deal with the adult learners so they will understand how they will best benefit from the construction of the curriculum, and will thus gain their long term cooperation. My faculty members and I, will work with them in planning, application and evaluation the curriculum.

Weaknesses:
The weak points are that we may face some who will choose to object to changing from the old style of teaching with its old curriculum (which has been taught for decades).

Opportunities:
Our chance to design and to apply the curriculum depending on adult learning theory is that we will be in a good position (such as vice dean, or at least head of my department), and accordingly this will bring the financial and administrative control to be able to deal with employees with clarity. The secretary and the faculty members will work together to design, apply and evaluate the curriculum in the medical school.

Limitations:
The main limitation is that we do not have our own teaching hospital yet. We are using the ministry of health hospitals for teaching our students and this creates a lot of administrative problems when using clinics and in bed side teaching, since sometimes the patients refuse to give their history or to be examined by students or even by staff if they understand that is it is only for teaching and not for the specific healthcare management of the patient. This problem is increasingly an issue for female patients and male students, and vice versa.

REFERENCE

Bill Brandon et. al. Training magazine. (1995). Chapter 13. The computer trainer's personal training guide. | | Cercone, K. (2008). Characteristics of adult learners with implications for online learning design, AACE journal, 16(2), 137-159 | | David E. Kern, Thomas PA, Hughes MT. Text book Curriculum Development for Medical Education, 2nd Edition by | | Fidshun, D. (200o, april). Andragogy and technology. | | General Medical Council for the UK and the Postgraduate Medical Education and Training Board http://www.gmc-uk.org/Standards_for_Curricula_Assessment_Systems.pdf_31300458.pdf | | Hilgard, E. R., & Bower, G. H. (1966). Theories of learning. New York: Appleton-Centrury-Crosfts. | | Kolb, D.A. (1984). Experiential learning , experience as the source of learning and development. | | Knowles, M. S. (1989) The Making of an Adult Educator. An autobiographical journey, San Francisco: Jossey-Bass. 211 + xxii pages. | | Merriam, S. B., & Caffarella, R. S. (1999). Learning in adulthood: A comprehensive guide. (2nd ed.). San Francisco, CA: Jossey-Bass. | | Merriam, S. B. (2001). Andragogy and self-directed learning: Pillars of adult learning theory. New Directions for Adult & Continuing Education, v. 89, p. 3-14. | | Swanwick T. Understanding medical education. Wiley Online Library 2010. | | | Personal communication with Dr. Helen Gordon, Canada, 2013 | | Workshop on (curriculum design made easy, may-31-2012) in the teaching and learning course B. |