THE LEARNING SKILLS OF UNDERGRADUATES: A PROPOSAL FOR
SAUDI MEDICAL EDUCATION

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Background: The problems of medical education in Saudi Arabia emanate
from its high course content and a lack of proper integration, exacerbated by
the language barrier.

Objective/Proposal: To encourage good lasting learning habits, it is envisaged
the need to establish training courses for learning skills. This training would
include the development of positive attitude and reliable approaches to
learning, learning styles, and emotional skills. It would also develop specific
skills such as the setting and achievement of objectives, self assessment, group
work, accessing sources of knowledge, note-taking, reading skills, retention
skills, examination techniques and computer literacy. Teaching techniques, the
organization of the course, assessment procedure, and the use of resources also
affect learning. However, changes in these areas can be beneficial only if
students have the appropriate learning skills.

Recommendations: Research needs to look at the specific ways of teaching
learning skills, and the effect of the application of such skills.

Key Words: Education, Medical, Undergraduate, Learning skills, Saudi
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The Problem

In Saudi Arabia, all the four medical schools have problems similar to those of medical schools round the world. The conventional (traditional) curriculum in Saudi Arabia is a six-year course of four phases, i.e. basic science, pre-clinical, clinical and internship. The first two phases are taught by means of lectures, laboratory work, seminars and tutorials, the assessment of which is mainly by examination. The clinical phase teaching is more informal and the evaluation is both practical and theoretical. The final stage 'internship year' is taught through hospital experience and assessed before graduation. Difficulties arise because of dissociation among these different phases and a lack of cohesion in the overall content of the course. Furthermore on account of the competition between students (aggravated by competitive tutors), among whom preparation aims for short term exam success, rather than the acquisition of enduring knowledge obtained through sustained study, group discussion and skills needed by a medical doctor.

The Saudi schools undertake medical training in English and not in the mother tongue, which is an added problem of the new language, as the student studies in Arabic until medical school. Medical education throughout the world (Saudi Arabia no exception), is subjected to the changing population demands, technological development, knowledge explosion, and limited funding and resources. Thus, there is "a great demand for establishing new seats of learning medicine all over the world". Though teaching techniques and the organization of the course are of vital importance, research shows that there is the need to focus on the learning skills of students such as self-directed learning and an inoculation of a "...sense of responsibility in the students". The student must "know the principles and the inter-relationship of science and must learn to analyze, observe critically, work independently and develop good study habits as in other fields of study".

Care must be taken to keep in perspective the objectives of medical education. Most students will eventually work as specialists in particular disciplines, provide curative and preventative care in the country, or be future educators of medical training. With the added language barrier, importance of self directed learning cannot be over-emphasized.

This paper suggests, the incorporation of learning skills in the course curriculum as a means to improve medical training in Saudi Arabia. "Learning courses" have previously been absent in medical training in this country and the need to introduce them now is increasing in light of the problems already highlighted. Before considering this proposal, the objectives of 'learning skills' need to be mentioned. Research suggests basically students face overload of content, lack of integration of pre-clinical and clinical study, lack of appreciation of the relevance of knowledge, loss of motivation, inability to retain information after an examination, as well as problems with the teaching and organizational aspects of the course. The key question is whether the improvement of the student's learning skills could be an approach towards addressing these problems.

The recommendations of the 'World Summit on Medical Education' by the World Federation on Medical Education argue that "competence and motivation for life-long learning, particularly in view of the information explosion, are enhanced by effective learning methods". These methods include problem-based learning, training in the critical analysis of scientific papers, community-based learning, and the appropriate use of technological advances, namely computers. The report suggests that "education institutions and associations should encourage active methods of learning which are student-centered and promote organization of regional and national networks for the
production of appropriate and relevant learning materials". Therefore, there is a need to consider, skills which encourage self-directed lasting learning, and which need to be developed through an introductory course on learning skills.

There is extensive research into 'learning styles' (learning strategies), which points to different types of learning. In broad terms, research suggests that 'deep approaches', which enhance deeper, long term, and more meaningful understanding, is desirable. The 'surface approach' focusing on rote-learning and memorization is undesirable. The deep approach is therefore the style of learning that needs to be developed. However, it appears that students also need to amplify their knowledge, something that occurs when, "students discover how the things they are learning relate to other topics, and especially how theory relates to practice". So elaboration adds to the depth and breadth of knowledge. The ability to solve problems rests on people having an extensive knowledge.

In conventional curricula, students tend to start with a deep approach, but however, soon lapse into a surface one. Students tend to lose motivation, find it hard to see the relevance of material being taught, and thus have difficulty in retrieving and applying it in a clinical setting. What is required are changes which may include the reduction of the content of courses and the provision of early patient experiences. The following proposal suggests the need to inculcate deeper learning styles into students with the aim of developing self-directed permanent learning habits.

**PROPOSAL**

To establish successful study habits, initially students need to know what 'learning' means, and then different learning styles, before more specific learning skills become useful. Learning skills courses, which focus on techniques such as reading, note-taking and time management (i.e. skills which can be used to implement either a surface or deep approach) are largely ineffective. In this case, the goal may be "to focus on the purpose of learning a task, and on students' awareness of what they are doing, rather than on techniques". With this in mind, two areas of the learning skills courses are proposed, the 'Broader Learning' perspective, concerned with developing students awareness of learning, and the 'Specific Skills' perspective which provides students with the means to develop their learning habits.

**1. Broader Learning Perspective**

1.1. Attitude to learning: It is as important as knowledge or skills. Varying habits and views on attendance of lectures and, reactions to and the effect of previous assessment results affect the outlook on learning. A student’s awareness of attitude to learning could facilitate the development of different learning approaches, particularly because different perspectives and personalities may determine the techniques: whether deep level or surface level learning approaches are to be adopted. Students need to be aware of different attitudes and their potential outcome in relation to the objectives of the study; must be encouraged to identify their own attitude to learning; and must have the skills to change their attitude if necessary.

1.2. Learning Styles: Deep learning approaches need to be encouraged. Different techniques may lead to a deep understanding, e.g. some students may apply personal meaning to information, while others are simply motivated by a need to achieve. Students must learn to understand their own preferences to learning in different situations. This can be achieved, for example, by using a 'learning preference inventory' and by recalling past experiences which can emphasize learning principles. With this understanding, students must learn the skills to develop their own learning capability.
1.3. Emotional Skills: Emotional skills are an important part of studying and the learning process since they concern the emotional state and support needs of the student. He must learn methods to cope with certain emotional demands. However, a broad understanding of the sources of stress could prove useful. In order to learn about and cope with stress one should know where to study, methods of relaxation, and the need and use of group, as well as other sources of support.

2. Specific Skills

2.1. Setting and Achieving Objectives: Students "will only learn what they see themselves as having to learn. They should be closely involved in determining their learning objectives". Students will be more aware of the objectives after becoming familiar with learning styles and attitudes. Certain specific details need to be incorporated in learning in order to develop the practical aspects, particularly in terms of goal-setting and time management. Goal-setting which involves skills in identifying the objectives (from long term career plans to short-term exam answers) is crucial to motivation and Time Management is vital to the successful attainment of these goals. With an awareness of the objectives and the need for relaxation, students can learn to design appropriate timetables for study which besides contributing to stress reduction, will aid not only the completion of tasks but also the motivation for doing them.

2.2. Self Assessment: Successful learning is dependent on how well we are doing. A feedback which informs us of our present situation must be constructive and positive. Students can learn constructive self-assessment in all areas of study looking not only at their problems but also their successes. Such assessment could also be incorporated into peer assessment through group work. The introductory course on learning skills must provide skills for self-assessment and peer assessment, and to make positive use of that.

2.3. Group Work: This emphasizes team cooperation - clearly an essential part of learning and future medical practice. Research has shown group work to be positive in achieving objectives and promoting retention of knowledge. As regards the development of knowledge, group work can be very beneficial, for example, when friends compare lecture notes. Further, students working in a group need to learn material well in order to discuss it effectively or present it to the group. Group work has been shown to contribute deeper understanding of subjects and the introductory course already referred to, must develop the skills and confidence for students to work within a group.

2.4. Sources of Knowledge: Students in King Abdulaziz University, Jeddah, were motivated firstly in clinical sessions, then in lectures, and had very little use and appreciation of the library facilities. The difficulty resulted chiefly from the lack of time. The learning skills training should establish the knowledge and skills that help in the effective use of the library which, if planned well, could help the student save time in his search for knowledge. Students should also be familiar with other sources of knowledge including their peers and lecturers, as well as computer data bases. The learning skills training must therefore aim to point students towards different sources of knowledge and how to maximize their usefulness. Skills in identifying sources of knowledge are therefore of great significance.

2.5. Note-taking: This is an essential part of the learning process. Note-taking skills must be developed to enhance deep level processing. Hence, verbatim notes taken at lectures must be avoided since they do not encourage thinking or retention. However, for the student, there is a conflict between taking notes for reference and taking notes for learning (and to overcome this dilemma a change in the style of lecture may be required).

2.6. Reading Skills: There are different methods of reading, for example the SQ3R
where one Scans, Questions, Reads, Recalls and Revises what is read. Reading skills can be developed, for example, by forcing oneself to read faster and faster (this may even involve practicing by reading novels). As with Note-taking, students must be aware of different reading methods of vital importance here. There must be an ability to recognise the objective of the reading, whether one is reading for 'gist', for the thread, or for detail.

2.7. Retention Skills: Though we have dealt with the broader aspects of learning first, specific retention skills also have much value. This can be based essentially on the principle that, "what we learn is greatly influenced by what we already know". Embodied in this is the 'experiential' where "learning occurs best when it is based on the learner's own experience". This develops deeper styles of learning and should encourage the student to incorporate clinical experience into the theoretical studies. Retention skills may also include active learning where there is "processing of information by the learner to build up more and more complex networks of knowledge, that is, elaborate on what they know". Other methods include going through notes after lectures, trying to understand them, fitting the new knowledge in to a larger structure, and using examples from lectures. In other words, retention skills can be understood in terms of both elaboration and learning in context. By relating different techniques to learning styles, students can develop their own preference for retention skills.

2.8. Answering Questions: This forms an important part of assessment throughout the course. Students must be able to relate any questions they are asked to the knowledge they have and provide meaningful analytical answers. Students must develop the skills to recognize the links between the question and the knowledge, and having perceived those links be able to apply that knowledge directly to the question. Techniques for answering different questions need to be looked at; those for writing essay-type, scientific exam type questions, and clinical assessments. For Saudi students, attention also should be paid to the connection between paragraphs and writing styles in English.

2.9. Tackling Computers: Though there is some skepticism as to whether computer assisted learning is beneficial to the teaching and learning process, there is an increasing need to use computers for presentation, storing data, and the receipt of information of the latest research. The learning skills training needs to show students the advantages of the use of computers in their study, and present them with some first-hand experience and skills on how to approach computers in an open and constructive manner.

Research has shown the need for developing deep level learning styles and the potential of a learning skills course as a means to facilitate the acquisition of such learning habits. However, it is necessary to put the learning skills course into the context of medical studies in Saudi Arabia as a whole. In doing this, it becomes apparent that to make full use of the learning skills acquired, there are other important considerations.

Low lecturer/student ratios would be beneficial. However, with limited resources, it is important to look at the other possibilities. Teachers need to, replace 'didactic teaching with learning opportunities that stimulate students to acquire knowledge because of its inherent interest'. Lecturers may facilitate learning habits, for example, by giving clear explanations and allowing time for note-taking from overhead projectors, or with brief tests of points mentioned in the lecture. Such techniques encourage regard for clear incisive thinking, critical appraisal, coherent explanations, concentration on main points and other deeper learning techniques. Teaching can also encourage group work by using techniques such as 'pyramiding' where students first study a problem alone, then in pairs, and in a larger group later-on.
Problem Based Learning (PBL) offers a specific teaching technique by “developing active and independent learners, creative and divergent thinkers, and good communicators”. PBL facilitates deeper learning, relating knowledge to the objectives and has the potential of integrating different courses and phases of the education. PBL concerns both what is learnt, and how it is learnt, and encourages the learner to work on problems for himself/herself. For example, after discussing a problem in a tutorial, the student is encouraged to obtain specific information (thus the need for skills in knowing where to look for information) which encourages active learning, critical evaluation, relating information back to the group for further discussion and for personal retention, while also providing feedback through the tutorial. Further, PBL sessions often generate non-competitive learning.

Organization of the curriculum, with particular emphasis on self-directed learning, which ensures that the teaching is related to experience is crucial. As Tahir notes, “independent learning by the students can be encouraged by more frequent personal contacts between students and teachers, by allowing students enough free time for reading, individual work and by providing opportunities for those, willing and competent to do independent work”. There is an urgent need to integrate the different aspects of the course, in particular, the Pre-clinical and Clinical phases, as well as the different subjects within these phases. This would encourage deeper learning methods by relating the theoretical and abstract to practical experience.

The current assessment procedure promotes competition between students, and appears to lead to selfishness, particularly when facilities are inadequate for the whole group. These methods of assessment are therefore not conducive to group work, since they are orientated to the individual’s success, often with a focus on knowledge acquired by notes. Changes should be made in medical schools that would encourage the assessment of deeper learning by setting questions that are problem based or by evaluating groups rather than individuals. This ultimately leads back to the procedure for intake into medical school. It is of importance that attitude to both medicine and learning, integrity, character and intelligence, as well as a general rounded education should constitute some of the parameters for selection.

The question of resources for self-directed learning must be considered. Besides the provision of training in learning skills, support facilities must be catered for. These include library facilities and other information sources, and counseling services. In the present economic conditions where education costs are on the increase and budgets must be balanced, the provision of certain facilities needs careful scrutiny and management. In the long term, the development of learning skills may be less taxing on resources. Self-directed and group learning may contribute to the reduction of lecture hours, thereby reducing the cost of the course as a whole. This would free money for the development of, and resources for the learning skills training and self-directed study. At present, these are only possibilities that require further study and analysis.

It seems clear from the foregoing that the development of the Saudi Arabia medical education would benefit with the incorporation of learning skills into its courses. Without the appropriate learning skills, medical students would derive little benefit from changed teaching styles, course organization, assessment or different resources. For instance, if lectures are planned to maximize understanding, students should have the confidence and skills to use opportunities to draw from other sources of knowledge. An introductory course at the start of the college education would give students not only a firm foundation on which to build the course, but also a basis on which to develop learning.
skills that would promote an attitude orientated to self-directed enduring method of studying.

**RECOMMENDATION FOR THE FUTURE**

This proposal has outlined an approach for the development of learning skills training. Research now needs to look into specific techniques to develop those skills outlined, and to relate these directly to the medical education program. Based on these techniques, there should be pilot schemes whose feasibility should be subsequently analyzed. The development and design of learning skills training must, however, be created on sound current methods of teaching and curriculum. Clearly, more thorough research should be conducted into the organization of the training skills program, and the development of teaching methods but this is beyond the scope of this paper. From the above discussions, it is obvious that resources to support and develop learning skills need to be discussed and established alongside the learning skills training scheme. However, only after pilot schemes have been carried out will analysis of the required resources be possible.

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