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WILL INFORMATION TECHNOLOGY FACILITATE OR DETER LEARNING IN PHYSIOLOGY?

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The answer to the question posed depends entirely on how we select and utilise the new technologies and how well we prepare students to use the tools. Information technology is widely used now in school and university programs; physiologists and health professional groups make extensive use of the new technologies in professional practice and research. Access is now very wide-spread, offering a bewildering array of resources, programs, communications and information. New learning management systems are widely used. Particular challenges include how to access, review and evaluate materials against educational and scientific criteria. Practical classes are enhanced computer-based strategies. What can information technology offer for learning? Clearly, students and staff can access enormous databases of information, resources, learning packages and references from the Web. What matters is for teachers to encourage and support deep learning. That involves reviewing what is available, being selective, and being prepared to develop new materials 'in-house' if necessary to meet the needs of particular student groups. In designing a new program or unit of study, the objectives must be clear and support provided for students' learning. Who are the students? What is their background knowledge and skills? What content is needed, and in how much depth? Are there essential key issues or skills, while some might be optional? Are there skills to be mastered (practical or intellectual)? How will we assess that the students have achieved their goals? Only then can we consider what learning modes will best be used. The final step is to review the reactions of staff and students to the experiences in order to enhance the program in its next iteration. The skills that students must learn include appraisal - is this information valid, reliable and accurate? They need to become self-critical to ensure that they understand rather than memorise and become self-sufficient for their professional lives. The educational process can be enhanced if the information technology is well-designed, applied consistently and made user-friendly. Learning management systems have been widely adopted by universities (eg WebCT or Blackboard) or designed in-house. Those that are effective usually include summaries of classes including lectures, useful images and diagrams, guides to learning, means to communicate between staff and students, sometimes chat rooms and - most importantly - diagnostic self-tests that help students to understand where they are in error. A consistent approach across different subjects is essential to ensure a good learning experience. The critical issue for teachers is to ensure that the material they include is of high quality, up to date and designed effectively for learning. Students learn well in groups, and well-designed information technology can enhance group learning; an example applied to problem-based learning will be demonstrated. On-line study groups and chat-rooms can provide means of communication, but research suggests that they often only work well when monitored at least to some extent by staff. Students can also be encouraged to use the technologies to develop individual or collaborative group reports or posters on issues of importance. Good examples can then be provided as models for later classes. In conclusion, the use of information technology can be positively harmful, neutral (ie just not useful) or can provide access to a rich array of new resources and opportunities for students. It is in the hands of the teachers to ensure high quality learning by being clear on the goals or objectives of the program or course, by selecting or designing the best possible learning assistance including self-assessment, and by evaluating the students' experiences for quality improvement.

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IS ASIAN CULTURE A DETRIMENTAL BARRIER TO INNOVATION IN MEDICAL PHYSIOLOGY EDUCATION?

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Because of the rapid progress of globalization, we understand that great efforts have to be made to vitalize education, including medical education. In the past two decades, a series of educational innovations have been carried out in many Asian countries. New concepts, such as "student-centered education", "self-directed life-long learning", "cultivating creative power", etc., are widely accepted. However, for years it is said that the Oriental (including Chinese) students are usually quiet in classroom, not active in group discussion, particularly when they are among students of Western countries. Be it true or not, the phenomenon attracts the educators' attention. At first glance, this might be because of a language barrier. But evidently language is not the most important factor, and possibly, the cultural tradition plays a role. In China, for example, beginning the Confucius time people, particularly intellectuals, are taught to be mild-natured, respectful, modest, and submissive. Expression of very active manner in public is usually viewed as "showing off". These traditional ideas evidently play a negative role for the students in group activities. The second reason seems to come from the old educational concept. Examination-oriented education system and didactic lecture-based teaching adopted by many Asian countries make the students to be passive knowledge recipients. Pursuing high examination scores becomes the immediate goal of learning, while high scores usually come from memorization of learned knowledge. On the other hand, critical reasoning and problem-solving ability, which are utterly important for cultivating one's creative power, are not emphasized and well-trained. To overcome these shortcomings, new educational concepts and teaching methods are being introduced and adopted in many Asian countries. In China, for example, measures are taken to replace the concept of "examination-oriented education" with "quality-oriented education", and the concept of "teacher-centered education" with "student-centered education". The importance of cultivation of creative spirit and ability of the students is greatly emphasized. The students understand that, along with the acquisition and accumulation of knowledge, attention should be focused on problem-solving and skill-training to make themselves to be active learners and creators. The students are required to possess such abilities such as the ability to learn, to think, to solve problems independently, to discover and create, and the ability to get along with others. Students are encouraged to work together to foster the spirit of teamwork. In the teaching of physiology, laboratory training and experimental skill development are emphasized. Students are required to work independently or in a group to design experiments, collect data, analyze experimental results, and give oral and written presentations. Problem-based learning, small group tutorial, group discussion, and other methods are introduced into the teaching of physiology. The advances already made are encouraging, more students show greater interest and positive attitudes in learning and become active learners.