

Moodle and Online Learning in Pakistani Medical Universities: An opportunity worth exploring in higher education and research

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Abstract

Medical education and pedagogy have undergone a massive change in the 21st century. Still, there is a lack of computer-assisted learning in most of the Pakistani medical schools. Modular Object-Oriented Dynamic Learning Environment (Moodle), is a user-friendly, online learning management system that is being used globally in teaching online courses to undergraduates, residents and doctoral students. Many international universities and medical institutes have integrated Moodle in their medical education and literature supports the use and importance of such tools. Still very few Pakistani medical schools are utilizing Moodle and similar blended-learning approaches in medical education. We recommend that Pakistani medical schools should consider using Moodle as an online learning platform to promote blended-learning in order to enhance the training of students and faculty, and improving their standards in line with the international standards.

Keywords: Blended learning, Computer-assisted instruction, Developing country, Learning management system, Medical teaching, Pakistan.

Introduction

Medical education and teaching has undergone a paradigm shift in the 21st century. Computer and internet have become an important tool of learning and teaching. In this era of global transformation of medical education and pedagogy, majority of the Pakistani medical schools still have not integrated information technology (IT) in medical teaching. Higher educational organizations also appear to be somewhat reluctant in adopting the modern trends in medical education.^{1,2} There is lack of information technology (IT) professionals in many medical schools in the country. This can be gauged by the fact that only one journal is affiliated or managed by a medical college (Journal of Ayub Medical College) out of

the three Medline indexed Pakistani medical journals. Whereas currently 72 medical journals are recognized by the Pakistan Medical & Dental Council (PMDC) and 58 health sciences journals are registered in the Higher Education Commission of Pakistan, most of which are affiliated with a medical school.^{1,3} This is far below other Asian countries like Korea, India, Egypt, China and Japan.⁴ Similarly, healthcare professionals in Pakistan often commit research misconduct and end up with predatory publishing with the lack of IT skills being a major factor. Medical schools on the other hand, lack online research repositories.^{1,2}

Pakistan is a country with low budget allocation to health and education; therefore, utilization of funds in medical schools should aim for improvements.⁵⁻⁷ Fortunately, there are free or low-cost online resources and courses available to professionals based in developing countries. Virtual learning environments are a group of teaching and learning tools for enhancing the learning experience of students through the inclusion of internet and computers in the learning process.⁸ The current model of education has been undergoing changes, renovations, and increasing use of the benefiting technological resources such as the Learning Management System (LMS).⁸ One of the most used LMS is, the Modular Object-Oriented Dynamic Learning Environment (Moodle) (<https://learn.moodle.net/>).^{8,9} It is a well-known, user-friendly and verified open-source software-learning management system.⁹ It can provide a learning interface as well as a source of communication. Its learning interface allows uploading lecture videos, presentations, documents, pictures, and assessment of assignments and quizzes. Whereas its combination interface allows for forum discussions, and private messaging between users. A study concluded that several educational programmes and environments provided by Moodle, especially the quizzes, were very useful for learning in a Medical English Class.¹⁰ Moodle has been successfully used in teaching acute medicine,¹¹ urology,¹² physiology,¹³ dental radiology,⁹ thoracic surgery,¹⁴ and ethics.¹⁵ It has been used to teach undergraduate medical students,⁸ residents,¹⁴ doctoral,¹⁵ and pharmacy students.¹⁶ Moreover, "Teaching with Moodle 3.3" is a "free online"

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course, designed for anybody who wants to use the Moodle learning platform for teaching (<https://learn.moodle.net/login/index.php>). Several reputed international universities are offering various courses online using the Moodle platform. For example, the post-graduate online course in Family Medicine offered by the University of Edinburgh, United Kingdom (<http://www.ed.ac.uk/studying/postgraduate/degrees/index.php?r=site/view&id=870>) and other courses from Australia (<https://sphcm.med.unsw.edu.au/current-students/student-resources/online-learning>), South Africa (<http://telehealth.ukzn.ac.za/Moodle.aspx>), Greece (<http://mrm.med.auth.gr/moodle-platform/>), and India (<https://cdl.phfi.org/portal/node/113>). As of July 2017, only two medical schools in Pakistan actively use Moodle (<https://moodle.net/sites/index.php?country=PK>), however, a simple Google search may reveal a few more institutes using Moodle. Whereas the use of Moodle in the neighbouring countries such as Iran and India is high. We have specifically discussed Moodle in this paper due to its wider acceptability as compared to other open-source systems.¹⁷ A 2013 study summarizing the literature on e-learning in medical schools in low- and middle-income countries, did not report any study from Pakistan.¹⁸ Few studies from Pakistan have attempted to explore this topic in local context, but there are no concrete findings.^{19,20} Several self-paced online courses in public health are offered by a Nigerian university on a Moodle open source educational platform (<http://ooc.peoples-uni.org/>), with an aim to improve the public health capacity in low- to middle-income countries. Registered users can utilize Open Educational Resources free of copyright restrictions awarding credit towards a Master of Public Health.²¹ The ARCADE Open Course Repository (OCR) (<http://courses.arcade-project.org/>) is another example of collaboration and capacity development in global health in low- and middle-income countries (LMICs).²² There are only very few locally developed online courses available in Pakistan (<http://www.themedicalwriters.com/orc.html>; <http://digitalcme.uhs.edu.pk/>). Similarly, the concept of distance learning, blended-learning and Massive Open Online Courses (MOOCs) is not very popular in Pakistani medical schools.^{19,20,23,24} Although few medical schools in Pakistan offer blended learning, but a lot more needs to be done. Currently, Centre of Biomedical Ethics and Culture (CBEC), Karachi (<http://www.siut.org/bioethics/>), Riphah International University Islamabad (<https://www.riphah.edu.pk/faculties/medical-sciences/programs-offered/mhpe>), and Dow Institute of Medical Education Karachi (<http://www.duhs.edu.pk/DIME/>), are a few medical institutions offering blended

postgraduate courses using distance learning in Pakistan. Certainly, such tools are helpful in reducing the cost and efforts associated with traditional paper-based learning style, emerging as a cost-effective and time-saving approach with increasing acceptability worldwide. In this context, several reviews have highlighted the importance of integrating such tools in medical education.²⁵⁻²⁷ Pakistani medical schools should strive to develop similar online courses in order to improve learning and making it interesting for the students. We would like to discuss the example of AuthorAid (<http://www.authoraid.info>) established and maintained by International Network for the Availability of Scientific Publications (INASP). INASP serves as a global network for researchers based in low- and middle-income countries for providing support, mentoring, resources and training to them.²⁸ Although Higher Education Commission Pakistan is the official partner of INASP in Pakistan, it is not actively promoting the services of INASP in the country nor has conducted any online course for health care professionals. INASP also offers several online courses for free to international participants via Moodle (<http://moodle.inasp.info/>). One such course is on research writing which teaches basic of biomedical research and publishing ethics. It is very popular, and more than 3000 researchers around the globe, particularly from the developing countries, have enrolled and completed this course in the last three years (<http://www.authoraid.info/en/events/>). AuthorAid recently, in collaboration with a Nigerian university, successfully conducted an online course on Grant Proposal Writing (<http://www.authoraid.info/en/news/details/1215/>). It also provides a platform called "Journals Online (JOL)" (<http://www.inasp.info/en/work/journals-online/>) for hosting journals from several low- and middle-income regions including Africa, Bangladesh, Mongolia, Sri Lanka, Nepal and Central (Latin) America. JOL is "a cost-effective and secure platform for online journals, along with advice, resource guides and links to suitable technologies and hosting organizations".

Considering the above mentioned examples, we recommend that the medical schools in Pakistan should consider using Moodle as an online learning platform for educating students and faculty, as an initiative to promote blended-learning, and in order to improve their standards in line with the international market. They should also consider approaching organizations like INASP (<http://www.inasp.info/en/>) and HINARI (<http://www.who.int/hinari/en/>) to build research capacity and develop online learning in medical schools in Pakistan.

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