Original Article:
The Attitude of Second Year Pharmacy Students Toward Lectures, Exams and E-Learning

Author:
Ahmed T Alahmar,
College of Pharmacy, University of Babylon, Iraq

Address for Correspondence
Dr. Ahmed T Alahmar,
College of Pharmacy,
University of Babylon,
Iraq.
E-mail: ahmed.t.alahmar@gmail.com.

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Abstract: Objective: There is an increasing trend toward student-centered interactive e-learning methods and students’ feedback is a valuable tool for improving learning methods. The aim of this study was to explore the attitude of second year pharmacy students at University of Babylon, Iraq toward lectures, exams and e-learning. Materials and methods: Ninety pharmacy students were surveyed by paper questionnaire about their preference for lecture format, use of e-files, theoretical lectures versus practical experiments, lecture and lab time. Students were also asked about their predilection for Moodle-based online exams, different types of exam questions, exam time and other extra academic activities. Results: Students prefer to read lectures on paper (73.3%), use of PowerPoint file (76.7%), short lectures of less than 10 pages (94.5%), practical experiments (66.7%), lectures and lab time of less than two hours (89.9% and 96.6 respectively) and intra-lecture discussions (68.9%). Students also like to have paper-based exam (73.3%), short essay (40%) or MCQ (34.4%) questions and also prefer to do extra activities like reports (22.2%), seminars (18.6%) and posters (10.8%). Conclusion: Second year pharmacy students have different attitudes toward traditional and electronic learning and assessment methods. Using multimedia, e-learning and Moodle are increasingly preferred methods among some students.

Key Words: Pharmacy, Students, Lecture, E-learning, Moodle

Introduction:
Traditional lectures as a pedagogical tool were introduced when access and sharing of knowledge among distantly located subjects were limited. Therefore, teacher with the relevant qualification, training and experience was the centre of educational process. This concept has been challenged in the last two decades with the introduction of internet, new generations of portable computers, laptops and tablets as well as multimedia and online learning management systems (LMS). Therefore, there is an increasing trend toward transcending from traditional didactic, teacher-focused teaching to more student-centered methodologies that actively engage students in the learning process[1]. Several factors influence students learning including attitude, motivation, genuine interest and classroom interaction. Classroom interaction is considered a potential area for focus in attempting to improve the learning environment [2]. Different forms of interactive teaching techniques have been introduced to complement the traditional long lectures and enhance students learning outcomes. These forms include but not limited to problem solving, short lectures, small groups learning, demonstration, case study, blended learning and online learning [3].

One of the methods to enhance classroom interaction and students and learning outcome is e-learning. The term e-learning covers a broad spectrum of pedagogical tools and approaches that continue to evolve to meet the needs of students and educators [4]. E-learning is a method of teaching and learning using electronic media. E-learning is also called web-based learning, online learning, distributed learning, computer-assisted instruction and internet-based learning [5]. The popularity of e-learning is mainly due to the concept of “anywhere” and “anytime”. Universities are becoming more involved in e-learning activities as lecturers are uploading teaching materials onto e-learning systems [6]. Advantages such as accessibility, ease of use, time and place flexibility, diversity of content, collaboration, freedom of navigation, high quality medical images and the possibility of repeat practice are among the reasons mentioned for their preference [2]. E-learning has also become a necessary tool and the platform most commonly used is learning management system (LMS). Despite its advantages, the primary drawbacks to online learning are technical issues like availability of computers and access to internet, training and student isolation [2].

Some students miss the interaction in a regular classroom, whereas self-directed learners are more successful in online education. Another new system that is being used widely these days is blended learning where teacher teaching multimedia classes are combined with E-learning technology [5]. Blended learning is an alternative to fully online learning in which integrated combination of traditional learning with web based online approaches, the combination of media and tools deployed in e-learning environment and the combination of number of pedagogical approaches. Implementation of blended learning brings strengths and overcome weakness of either traditional method or e-learning [7]. Students’ feedback
is an integral part of educational process, assessment and improvement of learning outcomes and currently there are limited published papers that explores students’ attitude toward lecturing, exams, e-learning and blended learning techniques in Iraqi universities. Therefore, the aim of this study was to investigate attitude and practice of second year pharmacy students at University of Babylon toward lectures, exams and e-learning.

Methods
In this cross-sectional study, second year pharmacy students at the University of Babylon were surveyed for their attitude and practice toward lecturing, exams and e-learning in May 2017. A 26-question paper questionnaire was designed for the study to collect data from students and the questionnaire was divided into three sections. The first section explored students’ attitude and practice toward contents, format and time of lectures as well as laboratory experiments. The second section of questionnaire assessed students’ preference for the types of exam questions and exams time. The third section addressed students’ attitude and practice toward e-learning, use of digital files and multimedia for learning as well as their attitude toward Moodle-based online exams. The questionnaire was distributed randomly among students and the questionnaire did not require student to provide his/her name to minimize recall bias. SPSS 24.0 (SPSS, Chicago, IL) and Microsoft Excel 2016 (Microsoft Corporation, Seattle, WA) software for Windows were used for data entry and for statistical analysis. Results were expressed as numbers and proportions. Chi-square test was used to assess difference between proportions and P<0.05 was considered statistically significant.

Results
A total of 120 questionnaires were distributed randomly among second year pharmacy students. Thirty students did not participate in the survey so the final sample consisted of 90 students (participation rate of 75%). In this survey, females constituted 77.8% whereas males formed 22.2% (P<0.001). The majority of participants were living in Hilla (67.8%) or Babylon Districts (16.7%) (P<0.001).

Regarding students’ preference for lectures, the majority of students (73.3%) prefer to read lectures on paper as compared to 24.4% who prefer combined paper and electronic form and 2.2% only who prefer completely electronic files and these differences were statistically significant (P<0.001) (Fig. 1A). Most students prefer to have MS PowerPoint alone (38.9%) or in combination with MS word file (37.8%) but these differences were not statistically significant (P>0.05) (Fig. 1B). Students prefer short lectures of less than five pages (58.9%) or five to ten pages (35.6%) (P<0.001) (Fig. 1C). The vast majority of students (95.6%) like to have images in lectures. Students prefer practical laboratory experiments (66.7%) more than theoretical lectures (10%) and these differences were statistically significant (P<0.001) (Fig. 1D). As for the time of lectures and labs, students prefer short lectures of less than one hour (32.2%) or one hour and half (58.9%) or 2 hours (7.8%) (P<0.001) (Fig. 2). The same preference also applies to lab time as students stated that they prefer lab time of one hour (40%) or one hour and half (33.3%) or two hours (23.3%) (P<0.01) (Fig. 2). A large proportion of students (68.9%) indicated a beneficial effect for intra-lecture discussions as compared to 23.3% who think that these discussions have negative effects and these differences were statistically significant (P<0.001).

Figure 1. Students attitude toward lecture format (A), e-files (B), number of lecture notes pages (C) and theoretical versus practical lectures (D)
In the current study, students demonstrated a predilection for short lectures over long lectures in terms of number of pages. Long lectures that are based mostly on text rather than bullet points, summary tables, images or graphs are less likely to attract students’ attention and interest and as a result students tend to find them boring. This is also consistent with our finding that 95.6% of students like to have images in the lectures as these images help to clarify text contents. Around two-third of students expressed their preference for practical lab experiments over theoretical lectures. These results could be attributed to the fact that students number in lab is lesser than that in theoretical lectures so it can be considered as a form of small groups teaching. Another explanation is that students in the lab have higher chance for intra-lecture discussions, which could improve their learning outcomes. Students also perceive that they are doing experiments in the lab with their peers rather than being passive listeners in large lecture halls which could be boring to many of students. These results are also in parallel with our finding that 68.9% of students surveyed wish to have intra-lecture discussions and perceived them as beneficial for their learning. Our results are consistent with the finding that around 64% of students are spending 5-10 hours per day using information and communications technology (ICT) [8]. Audio-Visual multimedia are more effective than audio or text files alone for enhancing students motivation and learning [10,14].

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with the reports that indicated that students' attention span is limited to 50 minutes [15] suggesting the adoption for multiple short lectures rather than single long lecture for optimal learning outcomes.

As for exams, the survey revealed students’ predilection for paper-based exams over online exams like Moodle. Students explained in their responses that they like the idea of doing online exam and have their grades immediately after exam but they also like to have extra time for reviewing their answers before submission. Online exams are still a new method of examinations among Iraqi universities students and further training for both staff and students and all difficulties and issues need to be addressed before shifting from paper-based to computer-based or online exams. Preliminary studies in Iraq reported that students prefer Moodle platform for interactive e-learning and exams over traditional learning and assessment methods [13,17] with higher reaction e-learning environment and higher learning scores reported in one study [18]. Khan has constructed a model of e-learning of eight dimensions for effective e-learning. These dimensions comprise institutional, management, technological, pedagogical, ethical, interface design, resources and evaluation dimensions [19]. A study compared Moodle-based learning and quizzes with traditional learning and assessment demonstrated that using Moodle improves students learning and formative assessment [20].

Our results are in contrast with a study conducted in University of Minnesota, USA which demonstrated that 84.3% of students are using online platforms for submission of assignments, quizzes and exams [14]. The main advantages of these platforms reported by students were ability to do homework at home and flexibility in time. A recent study on 100 undergraduate students at University of Information Technology and Communication in Baghdad, Iraq explored the use of virtual reality to improve learning outcomes and reported higher Likert scale for these students [21]. Philips compared lecture presented in traditional method with online method for pharmacy students in Midwestern University, Chicago College of Pharmacy. US and reported higher students’ scores in final exams and students stated that online contents complement traditional lecture [22]. Pharmacy students like MCQ questions solely or in combination with short essay question in opposition to long essay questions. This finding could be explained by the fact that MCQ questions test students understanding and comprehension rather than their long-term memory of the study subject. Moreover, MCQ questions are objective in term of marking of answers and exclude bias related to the opinion of the teacher marking the answer. Our results are consistent with another study which showed preference of students for MCQ questions over long essay and higher scores for MCQ questions [23]. MCQ questions have the advantages of being objective, cover wide range of topics and can be undertaken and scored quickly. Disadvantages, however, include guessing and careful design required. Essay questions, on the other hand, allow individual expression and test depth of learning but they are time consuming, cover few topics and are less objective [24]

Conclusions
Second year pharmacy students at University of Babylon prefer to read lectures on paper, PowerPoint file, practical experiments and short lectures with discussions. Using multimedia, e-learning and Moodle are emerging methods among students. Further large-scale studies are recommended to assess students’ attitude toward lecturing and e-learning in Iraqi universities.

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Conflict of Interest
The author declares that he has no conflict of interest.

References


