

THE ATTITUDE OF SECOND YEAR PHARMACY STUDENTS TOWARD LECTURES, EXAMS AND E-LEARNING

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Article received 14.12.2017, Revised 2.2.2018, Accepted 10.2.2018

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, diverse 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 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

Keywords: Pharmacy, students, lecture, exam, 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 (Abdel Meguid and Collins 2017; Karthick et al., 2017; Kumar and LydiaJeba 2016). 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 (Moazami et al., 2014). 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, demonstra-

tion, case study, blended learning and online learning (Yakovleva and Yakovlev 2014)

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 (Kar et al., 2014). 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 (Visalam et al. 2015; Padmaja and Seshadri 2016).

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 (Alabdullaziz et al., 2011). 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 (Moazami et al., 2014; Saravanan 2016). E-learning has also become a necessary tool and the platform most commonly used is learning management system (LMS). Des-

pite its advantages, the primary drawbacks to online learning are technical issues like availability of computers and access to internet, training and student isolation (Moazami et al. 2014). 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 (Visalam et al. 2015). 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 (Sabah 2013). 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

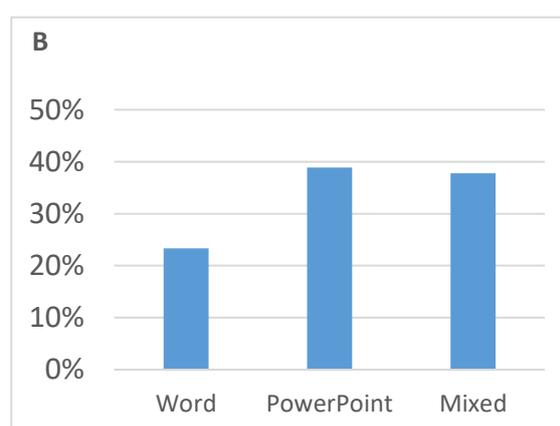
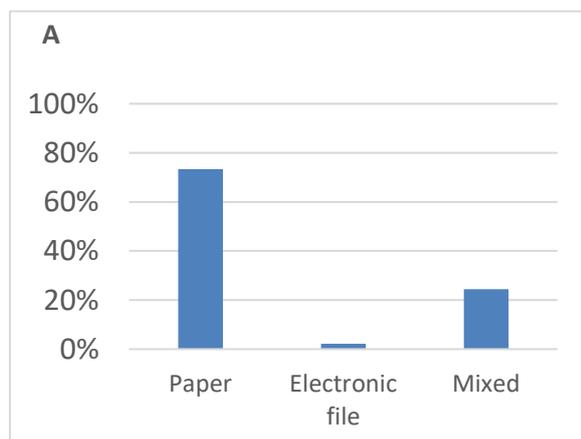
second section of questionnaire assessed students' preference for the types of exam questions and exams time. The third section addressed students' attitude and practice toward e-learning, use of digital files and multimedia for learning as well as their attitude toward Moodle-based online exams. The 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% ($P < 0.001$). Most participants were living in Hilla (67.8%) or Babyl Districts (16.7%) ($P < 0.001$).

Regarding students' preference for lectures, many 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 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).



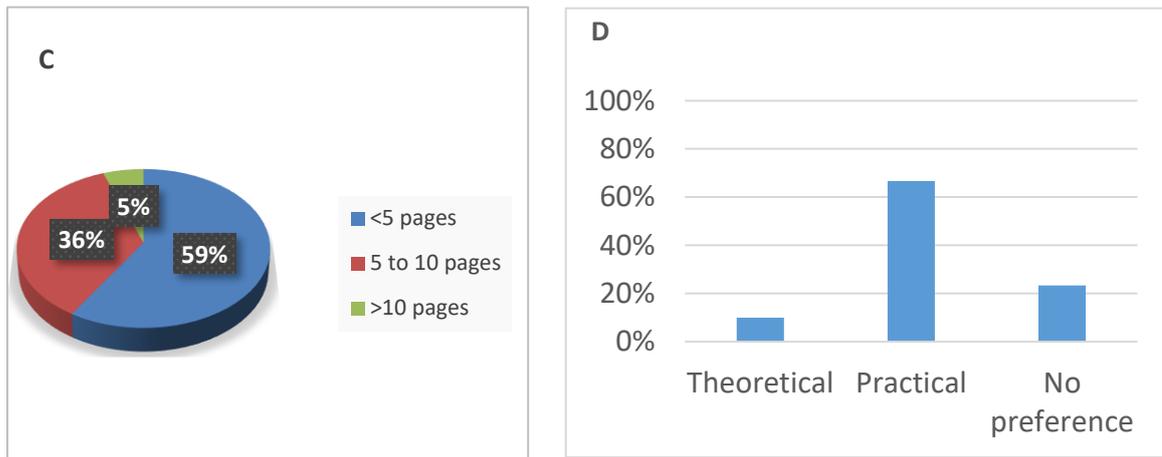


Figure 1: Students attitude toward lecture format (A), e-files (B), number of lecture notes pages (C) and theoretical versus practical lectures (D)

Most 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 sizeable 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-difference were statistically significant ($P<0.001$).

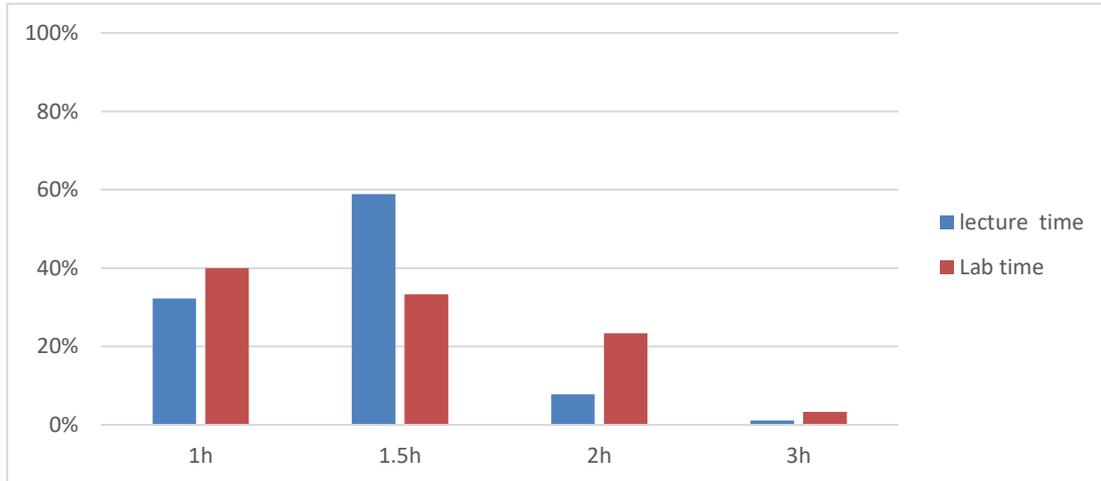


Figure 2: Students attitude toward lecture and lab time

The majority of students (73.3%) prefer to have paper-based exams as compared to 20% who prefer mixed paper and Moodle-based exams

and 4.4% who prefer Moodle-based exams ($P<0.001$) (Fig. 3).

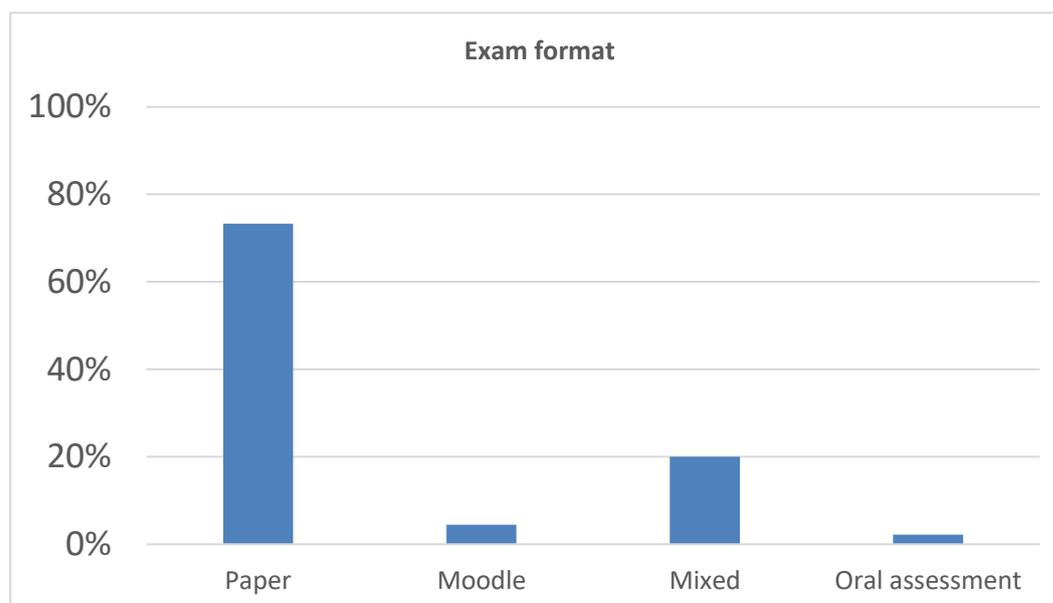


Figure 3: Students preference for exam type.

With respect to types of exam questions, most students chose short essay (40%), MCQ (34.4%) or combination of both (34.4%) and these differences were statistically significant ($P < 0.001$). Students also wish to have sufficient time allowed for exams as they like to have two

hours (47.8%) or three hours (30%) exam time ($P < 0.001$). As for the extra activities, students like to have additional marks for their attendance (33.5%), reports (22.2%), seminars (18.6%), quizzes (11.4%) and poster (10.8%) ($P < 0.001$) (Fig. 4).

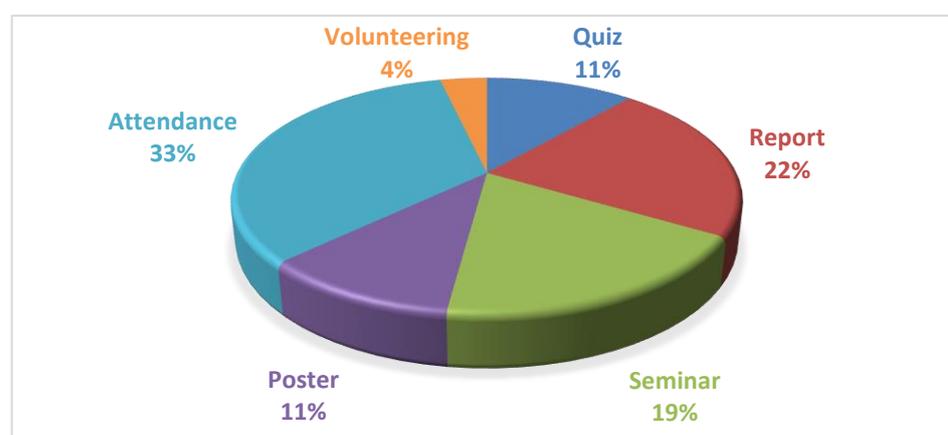


Figure 4: Students attitude toward extra-activities

DISCUSSION

In the current study, the majority of participants were females. This could be attributed to the predominance of females in the college of pharmacy student. Females have been achieving the higher grades in secondary schools in Iraq than males. Most of the participants have been living in Babylon as students prefer to study in universities bas-

ed in their cities so the sample is representative of Babylon Province.

As for lecture format, pharmacy students prefer to read lectures on paper and to a lesser extent in combination with electronic files. This finding indicates that pharmacy students still have inclination for traditional method of reading and reviewing lectures and are still not familiar with read-

ing lectures on screen. A proportion of students, however, have been reading PowerPoint file or other study materials that help them to understand lectures contents on computers, tablets and mobile phones. This implies that using technology by students for learning is emerging phenomenon among Iraqi universities students. Our results are congruent with those of another survey among university students in Malaysia which showed that 80% of students perceive lecture notes are essentials for their courses and 70% are interested in using online resources for their study and assignments (Alkhanak and Azmi 2011). One issue with using online resources is multi-tasking with non-educational purposes. A study that surveyed secondary schools students in Greece revealed that 84.6% are using PC for educational purposes and 92.3% are also using PC for non-educational activities (Vrana et al., 2013). Around two-third of students stated that they like to have the PowerPoint file of the lecture alone or in combination with MS word file. A possible explanation is that students consider PowerPoint file as summary of the lecture. Moreover, PowerPoint file allows including interactive materials like images, graphs, audios, videos and other multimedia contents which make lectures contents more attractive and improve students learning. Our results are consistent with the finding of another study conducted among undergraduate medical students which showed that more than half of students are using MS office software and online websites for their study with the limitations of computers and internet as the main drawback (Visalam et al. 2015). Several studies have reported that e-learning (Moazami et al., 2014) and blended learning (Sabah 2013; Neo and Neo 2008; Sajid et al., 2016) including in Iraq (Bala 2016) improve students learning outcomes in comparison with traditional teaching methods. A recent study conducted by Faraj and Hassan (2017) among school students in Erbil and Sulaimania governorates, Iraq reported many advantages for e-learning including enhancement of education, decrease the need for special tutors, support for disabled students as well as reduction in inequity and rural-urban educational gap. A study surveyed university students in Malaysia demonstrated that around 64% of students are spending 5-10 hours per day using information and communications technology (ICT) (Alkhanak and Azmi 2011). Audio-Visual multimedia are more effective than audio or text files alone for

enhancing students motivation and learning (Doorn et al., 2010; Neo and Neo 2008).

In the current study, students demonstrated a predilection for short lectures over long lectures in term 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 student 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 findings are in agreement with a study showed that fusing lectures and labs temporally and spatially enhance students learning, interaction and experience (Round and Lom 2015). Indeed, expansion of lab time augments lectures, reduces passive learning and increases students activities (Titterton and Clancy 2007). Regarding lecture and lab time, pharmacy students prefer short lecture and lab (less than 2 hours). This finding is congruent with the reports that indicated that students attention span is limited to 50 minutes (Round and Lom 2015) 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 (Faraj and Hassan 2017; Thabit and Harjan 2015) with higher reaction to e-learning environment and higher learning scores reported in one study (Fahad et al. 2015). 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 (Khan 2005). A study compared Moodle-based learning and quizzes with traditional learning and assessment demonstrated that using Moodle improves students learning and formative assessment (Cohen and Sasson 2013).

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 (Doorn et al. 2010). 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 (Stephan and Omran, A.Ahmed 2017). 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 (Philips 2015).

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 (Pepple et al. 2010). MCQ questions have the advantages of being object-

tive, 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 (Chin and Osborne 2008).

Conclusions

Second year pharmacy students at University of Babylon prefer to read lectures on paper, Power Point 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.

Conflict of interest

The author declares that he has no conflict of interest.

Acknowledgment

I would like to thank second year pharmacy students at the College of Pharmacy, University of Babylon for their participation and cooperation to accomplish this work.

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