Investigating the Effect of Using Mobile Educational Application of Study Habits on Improving Students' Awareness Concerning Proper Study Habits

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ABSTRACT

Introduction: Students' enjoyment from proper study habits plays an important role in their educational performance and academic achievement. For this purpose, a mobile educational application was designed by the researcher entitled "Appropriate Methods of Study and Learning for Students"; this research has been conducted to investigate the impact of using the application in enhancing students' awareness of proper study habits.

Materials and Methods: This quasi-experimental study was conducted during the academic year 2017-2018 among students of Ahvaz Jundishapur University of Medical Sciences in southwest of Iran. To measure and compare students' study habits (before and after using the application), the Palsani and Sharma's 45-question standard questionnaire of study habits was used (with maximum mean score of 90). The method was simple random sampling. Descriptive and inferential statistics were used to analyze the data and the SPSS software version 22 was used.

Results: Finally, 30 BSc (Nursing, Radiology, Physiotherapy, Occupational Health and Environmental Health) and professional doctorate students (Medicine, Dentistry and Pharmacy) participated in this study. The results showed that the application was effective in improving the students' awareness of the correct habits of study, so that after using, their habits were promoted from relatively favorable or moderate (52.5 ± 13.70) to favorable (76.87 ± 4.58) (P=0.012). According to the results, radiology students have had the highest impact and dental students the least impact on their study habits.

Discussion and Conclusion: This app can be considered as an effective tool that in the shortest time created the most effective learning and academic achievement among students; it can be benefited as a new educational opportunity, to educate the correct study skills.

Key words: App, Study habits, Students, Iran

INTRODUCTION

Medical education in Iran has undergone a different course over the past years and has changed from traditional education to modern university education. So, the medical education has been based on the professor-apprentice relation up to 200 years [1]. In the present age, the volume and speed of transformations is unprecedented in all ages; one of the serious needs of education is to orientate the educational developments and innovations, especially at the level of universities and higher education institutions [2]. Various factors can affect students' academic achievement. These factors include the use of good teachers, the appropriate educational environments, the use of quality books and, most importantly, the proper study habits [3]. Some students have found their academic failures to be some factors like lacking talent, lack of facilities and bad luck, while it is safe to say that the most important factor in academic achievement is the familiarity with learning and study skills, and the reason for the low productivity of some students is their bad habits of studying [4]. Obviously, in each educational system, the academic achievement is the most important criterion for success in academic and educational activities of students [5]. Therefore, studying the factors affecting academic achievement is very important. Academic achievement depends on the knowledge and correct use of study skills. Therefore, even students with good talent and ability may also suffer from academic failure, mainly due to their skills in the study [6]. Usually, students, and especially students in clinical fields, during and at the end of each semester, are evaluated with a variety of quizzes, but they are not given any advice on how to properly study and test. They spend a lot of time studying, but they think very little about improving their reading skills and continue studying in the same way as studying in high school. After being accepted in the university, it

takes months for students to adapt themselves to the differences between school and university, and usually at the end of their university year after gaining a lot of experience, some of them learn the best ways to study; but most students, even at the end of the course, have not properly learned the correct methods of study [7]. Learning textbooks and scientific information does not just mean reading these materials, but it means digestion of the contents. In other words, the content of the textbooks requires active reading to prepare these materials for brain digestion. Obviously, the lack of choosing the right study method not only causes the loss of energy and time and the tendency to study bad habits, but it can also be one of the important causes of backwardness and even academic failure [8], and can also confuse the majority of students and affect their performance in exams [9]. In each educational system, the degree of "academic achievement" of students is one of the indices of success in scientific activities. Measuring the degree of academic achievement and the factors affecting it are among the major questions that have attracted the attention of researchers [10]. Therefore, it is necessary to identify and institutionalize the effective learning and study methods in order to increase the academic achievement of the students and improve the learning situation, increase the accuracy, speed and quality of reading and comprehension; naturally, first of all, recognition of Students' skills of and approaches to study is essential. One of the important factors that can increase students' motivation and academic achievement is study and learning skills [11]. In a review research of late 2017, Gilavand has examined the status of study habits among Iranian medical students; after reviewing all the researches done in this regard, the status of students' habits and skills in Iran University of Medical Sciences has been reported to be moderate [12]. Each student has his/her unique study style that may even be different, despite the same age, cultural and religious conditions [13,14]. Sometimes students may spend a lot of time for studying; they are unaware of the reading skills and have problem with understanding what they are reading. Students' benefit from appropriate study habits plays an important role in their educational performance and academic achievement. The researcher, reviewing previous researches and knowledge of the status of study habits of students of Iranian medical universities, has designed a program entitled "Appropriate Methods of Students' Study and learning in respect of their study Habits" in Persian. Therefore, this research was conducted to investigate the effect of using this mobile educational application in promoting students' knowledge about the correct habits of the study.

MATERIALS AND METHODS

This quasi-experimental study (before and after using the mobile app) was conducted in 2018. The researcher, Dr. Abdolreza Gilavand, a Ph.D. a scholar of educational administration at Ahvaz Jundishapur University of Medical Sciences in southwest of Iran, embarked upon implementing a research project No. 960437, National Agency for Strategic Research in Medical Education, Tehran, Iran, (NASR), by reviewing previous researches and knowledge of the status of students' study habits of Iranian medical universities, designed an educational application entitled "Appropriate study and learning methods for students according to their study habits in Persian. This application includes 9 parts: The introduction, the standard method and criterion for measuring students' study habits, an investigation of the status of study habits among students of Iranian medical universities, the 8-step process of learning without forgetting of Harvard University (abstract), the process of 8-step learning without forgetting of Harvard University (Description), Time Management Skills and Golden Points of How to study at test night, study health, supplementary recommendations of effective ways to study and learn, and resources. This app is available in Iran free of charge through internet markets the CafeBazaar.ir, IranApps.ir and myket.ir. (A part of the internal images of this application has been displayed.) The statistical population of this research includes all students studying at Ahvaz Jundishapur University of Medical Sciences in southwest of Iran. Our method was simple random sampling. Of course, only students who have been passed at least one year since their study have been evaluated in this research; ultimately 30 BSc (Nursing, Radiology, Physiotherapy, Occupational Health and Environmental Health) and professional doctorate students (Medicine, Dentistry and Pharmacy) participated in this study. The Palsani and Sharma's 45-question standard questionnaire of study habits was used to measure and compare students' study habits (before and after using the application). This questionnaire assesses the students' study habits and has 8 components: time division (5 questions), physical status (6 questions), the ability to read (8 questions), noting (3 questions), learning motivation (6 questions), memory (4 questions), holding examinations (10 questions) and health (3 questions). According to the questionnaire's instruction, always or most of the time is of score 2, sometimes score 1, and rarely or never score zero; thus the total minimum score is zero and the maximum is 90. The higher scores indicate good study habits. The total score of study habits of the Individuals are classified into three parts, including unfavorable study habits (score less than 30), relatively favorable or moderate (score less than 31-60), and desirable (score greater than 61). Its validity and reliability has been confirmed in numerous previous studies in Iran, including in the study of Fereidouni et al. [11]. Accordingly, the reliability of the retest was 0.88, the internal consistency was 0.65 by the split-half method and the standard-dependent validity was reported to be 0.74. To do this research, at the beginning of the first semester of the academic year 2017-2018 and before using the app by students, the questionnaires were provided to them to complete. Then they were asked to get the app for free through the internet markets

CafeBazaar.ir, IranApps.ir and myket.ir and use it. In the next step and at the beginning of the second semester of the same academic year, the questionnaires were again given to them to complete. Then, to assess the impact of this application, in increasing the students' awareness of the correct habits of study, the score of the questionnaires before and after the use of the app was compared. For analyzing data, the descriptive statistics (mean, standard deviation) and inferential statistics (paired t-test and Wilcoxon test) and SPSS version 22 software were used.

RESULTS

A total of 30 BSc (of nursing, radiology, physiotherapy, occupational health and environmental health) and professional doctorate students (of medicine, dentistry and pharmacy) participated in this research. 15 students were men and the other 15 were women. From among the students of each field of study, 2 men and 2 women participated in the research. Of course, in the field of pharmacy, there were only one male and one female student. The results showed that this application has been able to play a very effective role in improving the students' knowledge about the correct study habits. According to Table 1, after using the app by the students, the status of their study habits (with a maximum score of 90) has been promoted from relatively favorable

or moderate (52.5 ± 13.70) to favorable (76.87+4.58) (P=0.012). The results also indicated that in 8 components of the questionnaire: time division (8.25 ± 0.71), physical condition (10.25 ± 0.71), reading ability (12.86 ± 1.81), noting (5.37 ± 0.52), learning motivation (10.50 ± 0.75), memory (6.87 ± 0.64), holding exams (17.5 ± 0.92) and health (5.25 ± 0.346), the study habits have also been significantly improved. Also, according to Table 1, the effect of using this app in these eight components has been significant.

A part of the internal images application has been displayed (Figure 1).

Also, in Table 2, the effect of using this application has been shown according to the students' academic disciplines. According to the results, radiology students have had the highest impact and dental students the least impact on their study habits.

DISCUSSION AND CONCLUSION

The research showed that the app was effective in raising students' awareness of the correct habits of study. After using, the status of their study habits was improved from relatively favorable (moderate) to favorable. Various studies have been done to study the study habits of Iranian medical science students, all of which have

Table 1: Investigating the impact of the application based on 8 components of questionnaire

Areas (score interval)	Mean ± Standard deviation (after using the application)	Mean ± Standard deviation (before using the application)	P-value
Time division (0-10)T	8. 25 ± 0.71	5. 87 ± 1.73	0.01
Physical status (0-12)	10. 25 ± 0.71	6. 50 ± 2.39	0.005
Reading capability (0-16)	12. 87 ± 1.81	9. 50 ± 2.78	0.009
Noting (0-6)	5. 37 ± 0.52	3. 87 ± 0.83	0.024
Learning motivation (0-12)	10. 50 ± 0.75	6. 87 ± 1.96	0.002
Memory (0-8)	6. 87 ± 0.64	4. 62 ± 0.74	0.002
Holding tests (0-20)	17. 50 ± 0.92	11. 75 ± 3.69	0.003
Health(0-6)	5. 25 ± 0.46	3. 50 ± 0.53	<0.001
Total (0-90)	76. 87 ± 4.58	52. 5 ± 13.70	0.012

Figure 1: Application internal images

Table 2: Investigating the impact of the application on the basis of academic disciplines

Academic Disciplines	Mean Difference (before and after using the app)	P-value
Nursing	4. 8	0.007
Radiology	10	0.008
Physiotherapy	4. 88	0.007
Occupational Health	8. 88	0.007
Environmental Health	7. 55	0.008
Medicine	1. 11	0.002
Dentistry	1. 34	0.011
Pharmacy	4. 67	0.007

reported the study habits of students as to be relatively favorable (moderate). Abazari et al. have evaluated the study habits of the students of Zahedan University of Medical Sciences in 2011 to be moderate [15]. Torabi et al. also conducted a research in 2012 during which they evaluated the study habits of the students of dentistry in Kerman University of Medical Sciences to be moderate [16]. According to the research of Fereidouni et al., the study habits of nursing students of the Faculty of Medical Sciences of Abadan in 2007 were moderate [11]. Alamdar et al. also evaluated the study habits of students of Rafsanjan University of Medical Sciences in 2015 [17]. Torshizi et al. also assessed the study habits of students in Birjand University of Medical Sciences in 2010 to be moderate [18]. Zarezadeh et al. have also evaluated the study habits of students of Kurdistan University of Medical Sciences in 2013 to be moderate [19]. Madmoli et al. also assessed the study habits of nursing students, operating room and medical emergencies of Dezful University of Medical Sciences in 2012 to be moderate [20]. Nourian et al. also evaluated so the study habits of nursing students of Zanjan University of Medical Sciences in 2004 [21]. According to the research of Alimohamadi et al. also the study habits of nursing students in Hamadan University of Medical Sciences in 2012 were moderate. Also, there was a positive and significant relationship between the mean score of study habits and the academic performance of the students of this university [22]. Amini et al. also showed that most medical students of Shiraz University of Medical Sciences in 2013 use a deep and strategic attitude to study [23]. Aminian et al. conducted a research aimed at comparing successful and unsuccessful students in terms of studying methods in Yazd University of Medical Sciences in 2018. The results showed that there was a significant difference among successful students (i.e. students with a high 10% of the total average score) and unsuccessful students (i.e. students who belonged to low 10% in terms of the total academic average score), in terms of diploma and university average degree. Successful students, in contrast to unsuccessful students, also use more effective ways to study and learning (using post-end technique, organizing contents, reading actively, questioning and reading to find answers); they also have academic habits (planning, active presence in the classroom, pre-classroom study, post-lecture study). Comparison of successful and unsuccessful medical

and non-medical students in terms of study methods and diploma average grade was another finding of this research [9].

Several studies have also been conducted on the role of smartphones and their educational applications for enhancing the knowledge of medical students in the field of textbooks. In a review research conducted by Ozdalga et al. among medical students, the positive impact of smartphones and apps has been emphasized on the improvement of students' learning [24]. In a research done by Albrecht et al. among the German medical students, the medical education with traditional textbooks was compared with the medical education using smartphones, and the students have welcomed the smartphones [25]. In a semi-experimental research conducted by Gilavand et al. among dental students in southwestern Iran, it was concluded that the apps of educational textbooks installed on smartphones are more effective than traditional tutorials [26]. In a research conducted by Babazade et al. among students of Babol University of Medical Sciences in northern Iran, they came to the conclusion that the applications of educational textbooks installed on smartphones are more effective than traditional ones [27].

Teaching effective studying methods at medical universities, especially through mobile apps, or holding workshops or lectures by medical education experts, can be helpful in improving the student's study habits. This app can be considered as an effective tool that in the shortest time created the most successful learning and academic achievement in students, and as a new educational opportunity, to educate the correct study skills.

One limitation of this study was the limited number of samples and the impossibility of conducting this research among all the degrees and fields of study at the university; it is suggested that in future studies, the samples be more diverse.

CONFLICTS OF INTEREST

Authors declare there is no conflict.

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