The effect of quizzes on the students’ scores in final exam

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Abstract

Introduction:
Today, every teacher applies some methods for better learning of students, so different educational methods have been invented. One of the traditional methods is quiz. In this method, the teacher asks some questions about the previous lesson in the beginning of the lecture. Therefore, the students are obliged to read the lectures during the course of their study. The present study is conducted to evaluate the effect of this method on the score of the final exam in students in physiopathology course, in Jahrom University of Medical Sciences.

Materials and Methods:
In this self-control trial study, 32 students were enrolled. The lectures were divided into two groups: in the first group quizzes were done in the beginning of every lecture and in second group no quiz was done. At last, the mean scores of the final exam were compared between these two groups using t-test.

Results:
The mean score of the final exam in the first group (with quiz) was 78.12 ± 8.35 and in second group (without quiz) it was 81.10 ± 13.05 (p=0.11).

Conclusion:
The results of this research showed that quizzes during the course of study have no effect on the final score of the students. For evaluation of this effect, more research is warranted.

Keywords: Student, Evaluation, Education

Introduction
Attention to influential factors in learning and progress of students is an attribute of a successful university education system (1). Although educational success of students is particularly important, it must be understood that psychological and educational factors have a great impact on the students’ academic achievement. Therefore, utilizing methods to promote more effective studying and learning can be conducive to betterment of students’ learning (2). Out of such a huge variety of factors, psychological problems, physical fatigue, extensive volume of study materials and inadequate examination time to prepare could be mentioned. A problem students are faced with at final exams is the necessity to study a large volume of materials in preparation for a
passing score at these exams. Although students do have ample time to study these materials during the course, they do not fully take advantage of the time they have often due to other preoccupations. Obviously, if measures are taken to encourage students to study the materials taught during the course, then in days before the final exams, they will be less anxious and stressed about the exam, and also better able to use this time for effective revision of subjects. The contents studied in this way will also be more stable and lasting. Evaluation is part of the learning process, by which valuable information can be derived about students’ learning. There are several uses in evaluation, of which monitoring learning and teaching processes is one (3). Continuous assessment is a usual method of evaluation that is most appropriate for obtaining information about learning and teaching processes. Through this type of evaluation, students’ intellectual and practical efforts can be increased, in line with academic progress and achievement (4).

One way of requiring students to study subjects taught in each class is to hold quizzes on the materials taught during the previous session. In a study conducted in Jahrom School of Medicine, it was revealed that some science professors believed in holding frequent quizzes to assess students’ learning progress (5). They also believed that with continuous evaluation, students’ learning capacity increases.

Unfortunately, there are no other similar studies in this area, and further studies are needed to verify this hypothesis. Obviously, the efficacy of an educational method cannot be determined with only one study in the form of opinion poll. Thus, the present study was conducted with the aim to investigate the effect of quizzes on the final exam scores of medical students studying physiopathology.

Materials and Methods

This study compared the results of two examination methods in a group of students. The study population consisted of 32 medical students studying infectious diseases as part of physiopathology course at Jahrom University of Medical Sciences in 1998, selected by census. The study inclusion criteria were being a student of physiopathology course, and studying infectious diseases. Those that left the course unfinished or were absent from classes were excluded.

In this study, 10 topics were taught over 15 sessions by a professor of infectious diseases (a Faculty member) in a way that 5 topics were taught in two sessions each, and 5 topics were taught in one session each. For the purposes of this study, 3 two-session topics and 3 one-session topics were taught with a quiz, and 2 two-session topics and 2 one session topics without a quiz. The topics with quizzes included fever, rabies, meningitis, staphylococcal infections, shigellosis, and cholera. Other topics taught without quizzes were tuberculosis, round worms, anthrax, and immunodeficiency virus infection. Materials were taught by one professor in lecture format by using slide presentation, and students were aware of the topics. Quizzes were held on every other topic taught, with a quiz of each previous topic taught at the beginning of the following session. Students were notified of the quiz beforehand. Also, students were aware that the score of these quizzes would count toward the finals as much as 10% of the score of the relevant professor that meant 5% of the overall score. In quizzes, two multiple-choice questions on each subject were asked, with 5 minutes allocated for the test. The questions in the final exam were different from those of the quiz. In the final examinations, 3 multiple choice questions were asked for each topic taught per session. For the quiz group, 28 questions and for the non-quiz group, 22 questions were designed. Scoring for both groups was based on the 0-100 scale.
Then, the scores of students in the two groups were compared. After the end of final exams, scores of subjects with quizzes were placed in one group and scores of subjects without in another. The mean scores obtained in both groups were compared using paired-t test.

**Results**

In this study, out of the 32 participating students, 7 were male and the rest female. Scores were based on 0-100 scale. With the lowest score of 57.14 and the highest 100, mean score was calculated at 79.61±10.97. Mean score of the subjects with quizzes was 78.12±8.35, and mean score of the subjects without was 81.1±13.05. The paired t-test did not reveal any significant difference in students’ scores (P=0.11).

<table>
<thead>
<tr>
<th>Subject score</th>
<th>mean±SD (all)</th>
<th>mean±SD (boys)</th>
<th>mean±SD (girls)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects with quiz</td>
<td>78.12±8.35</td>
<td>79.59±7.63</td>
<td>77.71±8.64</td>
</tr>
<tr>
<td>Subjects without</td>
<td>81.10±13.05</td>
<td>78.91±11.61</td>
<td>81.71±13.58</td>
</tr>
<tr>
<td>P- value</td>
<td>0.11</td>
<td>0.89</td>
<td>0.22</td>
</tr>
</tbody>
</table>

In this study, scores of boy and girl students were also separately analyzed and no significant difference between these groups in scores of the subjects with quiz and those without was observed.

**Discussion**

Studies showed that with more frequent tests, students’ studying becomes more regular and more coherent (6, 7). In this study, it was identified that holding quizzes cannot much affect students’ final scores. The results revealed that students scored lower marks in subjects with quizzes. Gillard’s research showed that students learn the subject better with more exams (8). One strategy proposed is to increase the number of tests taken from students, and the simplest and most accessible of these are quizzes. Quizzes can make studying continuous, make learning easier and extended over time. Camouch showed that quizzes are more effective when taken without prior knowledge of students. In fact in this way, students tend to be more prepared when they expect the test to (9). Other studies have shown that quizzes help increase learning as well as reducing anxiety and stress at the time of final exams (10). In a study conducted on dentistry students in Rafsanjan, three methods were compared: learning with quizzes, learning with quiz and film combined, and learning without either. The results showed that learning was better in quiz and quiz with film compared to learning alone. Also, there was no significant difference between quiz learning and quiz learning with film (11). Furthermore, this study showed that if students know that they may be regularly tested, then they studied and reviewed regularly and were always prepared and did not have to study large volumes of materials the night before the exam with little efficicency. Knowing that they may be tested is one of the most important factors in students’ being prepared for exams (12). It has been shown in a study by Lee et al. that holding quizzes a few days before final exams, though not effective in students’ overall scores, it encourages them to study harder (13). However, tests are not always useful, and some studies have shown that they may even have negative effects (14) and cause a decline in academic gains. Various studies have suggested several influential
The effect of quizzes on the

factors in the final exam scores including scientific status of the teaching staff, a person’s entrance exam privileges, duration of the course, marital status, age, gender, and facilities of the university like dormitories. The results of a study in Zahedan showed that demographic factors such as age, gender, entrance exam privileges, and marital status have had the most impact on the score of the comprehensive apprenticeship exam (15). Given that the present study was conducted on one group of students, and that the control and case groups were one of the same, therefore, the different factors mentioned above were the same in this group with no changes, and in fact this study was concerned with the impact of quizzes on the final exam results. One of the reasons for the low score in the quiz subjects could be that with studying for quizzes, students presumed that they had learned them well and no longer needed to review these subjects, and thus allocated less time for these subjects. Therefore, it may be better to conduct another study on two consecutive years, with quizzes on all subjects taught in the first year and no quizzes in the second year. Obviously, not only this will take longer time, but judgment will be much more difficult as two different sets of students are being considered.

Another point is that, it is possible that students did not take quizzes seriously and thus, did not spend much time reviewing for them. In this study, quizzes were held at the beginning of each session, with not enough time for them. In other words, if there were sufficient time to review previous quiz’s related topics, then we could expect improved learning by students. A point that must be noted with these quizzes is the question how effective these tests are in keeping the learned materials for longer? It has been shown in a study by Geest et al. that although quizzes were effective in improvement of mid-term and final scores, they had no effect on long-term remembering and reproducing learned materials (16). Unfortunately, since there are no similar studies, comparing the results of this study with other studies was not possible. This was the second study of its kind that has been published. Therefore, it is recommended that further studies be conducted to assess the effect of quizzes, and with all the results obtained, it can then be decided whether to give quizzes or not. It is also recommended that these studies be conducted on other subjects and students of other courses.

References:

8. Gilleard C, Groom F. A study of two dementia
The effect of quizzes on the