

Evaluating the effect of study guide in a field education

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ABSTRACT

Introduction: It is very important to use new teaching and learning methods and strategies. A study guide is one of these methods. This study aimed to evaluate the effect of study guide in practical community dentistry. **Methods and Materials:** Fifty dental students of Tehran School of Dentistry who were passing their second course of practical community dentistry were included in this semi-experimental study. They were included in the study by census method and were divided into two groups of case and control according to the alphabetical order of their names. In the control group, the second course of practical community dentistry was offered as training in a school as usual, whereas in the case group, the previous method was combined with a study guide. Data was gathered using a questionnaire and analysis was done using the Pearson chi-square and Fisher's exact test. The level of significance was 0.05. **Results:** Improvement of knowledge and performance in the case group was significant compared to the control group. They paid attention more to professional ethics ($p=0.003$), their appearance ($p=0.020$), role-playing in instructing oral health ($p=0.001$), evaluating the knowledge of children ($p=0.033$), making a better connection with children ($p=0.010$), and their teaching assessment ($p=0.008$). **Conclusion:** This supplemental teaching method will gain its important aims like improvement of student's knowledge and practice while making them interested in the study guide.

Keywords: study guide, school field education, community dentistry, dental students

Introduction

An appropriate educational program should continuously be improved, revised and modified considering the environmental attitudes ^[1]. Programmed teaching is one of the accepted principles of education methods whose goal is to make a difference in the behavior and practice of learners. It is important to provide good situations for practice when we want to make differences in the performance of the students. University instructors should provide good environments for

students to think and practice, so the students can face problems to be able to gain intellectual and practical skills so that they will be able to analyze and solve their problems. ^[2, 3]

Although the teachers' efforts are to transfer knowledge to the students, a unique method of education does not meet the needs of all students because each student has a specific feature. Students have different learning methods but most teachers use the same method of teaching. ^[4] Many scientific subjects are educated by lectures, while students would lack enough time to think about the most important parts of the lecture. It has been shown that 80% of the data presented in class by lectures was forgotten in 8 weeks, and its effect is less than other teaching methods. ^[5, 6] When teachers become familiar with various teaching methods, students are less disappointed and dissatisfied. ^[7] In regards to increasing the effectiveness of teaching methods, one of the best tools which can be very effective is a study guide. An appropriate study guide can help us distinguish student's different needs and provide beneficial data for teachers to achieve desired educational goals. A study guide can help students understand what to learn, how to learn

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and what their level is. A study guide can be like a teacher that is available at all times and can provide students with important tips and guidance. It is a self-centered training tool and enables students to use learning opportunities in the best way. They can also design learning opportunities for themselves to achieve their learning needs^[8]

In other words, with a study guide, we can find out what should we learn (the content), how we can learn (learning management), and understand if training leads to learning (learning activities). The study guide regularly illustrates the curriculum content. Harden, who introduces the study guide, believes that integration of study guide in the curriculum of general practitioners was one of the most important factors in its success. In some universities and scientific associations, a study guide is provided for the students.^[9-12] This study aimed to give a study guide in practical community dentistry and evaluation of its educational effect on students' knowledge and performance.

Materials and Methods:

This was an equivalent quasi-experimental study. Fifty senior dental students in the Tehran University of Medical Sciences who had taken the practical community dentistry course carried out participated in the study. In the School of Dentistry, students were divided into four groups according to the alphabetical order of their names. It was better to do total sampling accidentally but due to educational department rules, we could not do that. So the two first groups were control groups and the third and fourth groups were cases. It was an easy and also available sampling method. 50 dental students participated in the study. In the control group, the curriculum was carried out as a regular program of the field, but in the case group, a prepared study guide was added to the program. Teaching the community dentistry is based on problem-solving in the Department of Community Oral Health in the Dental

School of Tehran University of Medical Sciences.^[13] We prepared a study guide for the participants in the field of the second practical community dentistry course. This study guide contains two parts, generalities, and the educational contents. Generalities include the introduction of the program, goals and objectives, organization of the program, contact with the course operators, educational guidelines and evaluation of students. Educational contents in the study guide contain some parts like prerequisites, introduction, and important practical points to take parts in the field and the final report.

The evaluation tool was prepared by the research team. The questionnaire contained some questions about the school field education. Afterward, the content validity of the questionnaire was evaluated and approved by 10 professors and instructors in the Department Community Oral Health of the Dental School of Tehran University of Medical Sciences by the Delphi method. The final questionnaire contained thirty questions about the knowledge of behavioral skills in eight subjects of the field education. It was used as a pretest at the start of the study and for the second time in the field and assessment of them. The expected answers and performances were given by the staff. Table 1 shows the title of subjects and related titles. Each group received a questionnaire before the study. After that study guide was given to the case group. The performance of students was assessed in the field in the school. Each correct answer or performance had one score. The total score of each subject was divided into the number of questions in that subject as a percent report. It could be from zero to one.

It was not obligatory to take part in the study and the students who expressed their consent to take part in this research were assured that their data would remain confidential. Personal data such as name and surname, phone number or address were not taken from the students. The statistical analysis was done by descriptive, paired T-test, and independent samples test analysis in the SPSS package. The level of significance was 0.05.

Table 1: Items were evaluated in the pretest as writing in the questionnaire and the post-assessment in the field

Questions (Subjects)		The expected answers and performances
1.	What preparations are needed for dental students to take part in the school field education?	Filling the forms, considering professional ethics, students appearance in the field, preparation for oral hygiene education, educational packages, preparations to examine the patients,
2.	What instruments are needed commonly in the school field education?	Mirror, probe, examination gloves, examination forms
3.	Which methods can be used in oral health education students?	Booklets, role-playing, lecture, computer-based education, group discussion,
4.	Which topics are suitable to educate the students in the field?	Evaluating the knowledge of children, get familiar with children, oral hygiene education, learning assessment,
5.	What are the purposes of the mothers' meeting session in the school?	Evaluation of knowledge and attitude, meeting the parents, educational need assessment, teaching hygiene, evaluating the program,
6.	Which points are necessary to teach parents when you are in the field of school?	The age of permanent tooth eruption, oral hygiene, dental trauma, fluoride therapy, nutrition, and nutritional habits, a dental visit

Results:

To assess the results of the efficacy of the study guide, the students' scores were calculated and compared by pre-evaluation and post evaluation. According to pretest scores in both groups, there were no significant differences between case and control groups ($p=0.867$). This statistical analysis was also

done for the posttest. It revealed that the case group had better scores in the post-test. There was a significant difference between the two groups ($p<0.001$). Comparing the result between pretest and field assessment showed significance or near significance difference in the case group in most subjects. Table two shows more details.

Table 2: Compare the mean of scores in pretest and field assessment of items in both case and control groups.

	Subjects	Case group			control group		
		Pretest	field assessment	Sig. (2-tailed)	Pretest	field assessment	Sig. (2-tailed)
1	Preparations needed in the school field education	0.58	0.84	.000	0.76	0.72	.459
2	Needed instruments	0.97	1	.083	0.92	0.93	.770
3	Methods in oral health education to students	0.47	0.6	.029	0.49	0.45	.340
4	Suitable topics of oral health education	0.63	0.75	.063	0.5	0.5	1.000
5	Purposes of mothers' meeting session	0.6	0.71	.105	0.48	0.53	.306
6	Necessary points to teach parents	0.7	0.79	.178	0.69	0.64	.337

The first subject covered the prerequisites for taking part in school field education. The outcome of the analysis showed that in the pretest, most students had selected some items like; 1) preparation for oral hygiene education; 2) preparations for examining the patients; 3) the method of filling the forms, whereas they had the least interest in educational packages and students' appearance in the field. An analysis of the practical education revealed that there was a significant difference between the case and control groups. The case group would more frequently consider professional ethics ($p=0.003$) and students appear in the field ($p=0.020$) and Educational packages ($p=0.014$).

Regarding the instruments required in the school field education, in pretest students mentioned to 1) mirror, 2) probe and 3) examination gloves, while the last chosen instrument was examination form. However, there was a significant difference between the two groups in-field evaluation in a way that students having the examination forms more often ($p=0.021$).

Next, the methods that can be used in oral health education in the school field were questioned. Results revealed that in the pretest the most opted answers of both groups were 1) group discussion; 2) team working; 3) computer-based programs, and least opted one were role-playing and booklets. On the contrary, the intervention group significantly chose role-playing in oral health instruction and utilized this method more frequently in instructing oral health to children ($p=0.001$).

The next assessed subject was the practical consideration that should be taken into account when instructing oral hygiene to children. We found out that in the pretest, the most chosen answers in both groups were 1) hygiene education; 2) making a connection with children; 3) evaluating the knowledge of children and the least mentioned choice was learning assessment. In the field practice, the case group chose different responses from the control group. In practice, the intervention group had a better performance in three categories: 1)

evaluating the knowledge of children; 2) making a connection with children; 3) learning assessment ($p=0.033$, $p=0.009$, $p=0.007$ respectively).

Then, the items that should be taken into account for instruction oral hygiene to parents were questioned. The outcome of the analysis revealed that in pretest the most selected answers of both groups were 1) hygiene education, 2) knowledge evaluation. Also, we found that there was less interest in 1) learning assessment; 2) making a connection with parents. A significant difference was found in the post-test. The intervention group mostly used the following choices: 1) knowledge evaluation and 2) learning assessment. (In $p=0.004$, $p=0.002$ respectively)

Finally, the subjects that need to be taught to parents in the field were evaluated. Results of the pretest showed that in both groups the most chosen answers were 1) hygiene education, 2) preventive methods. The statistical analysis of field performance revealed that there was a significant difference between the choices made 1) the age of tooth eruption and 2) nutrition. ($p=0.012$, $p=0.005$ respectively)

Discussion:

Active education methods such as group discussion, e-learning, study guide and so on, need to be used to facilitate the learning process of students.^[14, 15] This study evaluated the effect of a study guide on teaching practical community dentistry courses to dentistry students of Tehran University of Medical Sciences. A study guide was prepared and presented to the case group. This study guide contained necessary parts like an introduction to the program, goals and objectives, organization of the program, people responsible for the program, educational guidelines, prerequisites, introduction, important practical points to take parts in the field, writing the final report, and evaluation of students. We analyzed the correct answers in the pretest and students' performance in the field. The strength of

our study was having a control group. The distribution of students in the two groups was balanced and there was no difference between the groups in the pre-test ($p=0.867$). While students in the intervention group showed better practice in the field significantly ($p=0.001$).

Responses about necessary perquisites that should be considered to take part in the school field education showed better social behavior include ethics and appearance ($p=0.003$, $p=0.020$, respectively) alongside the scientific practice in the intervention group. These two items could classify as meta-competencies in dental education and the study guide has played an important role in its training.^[16] This study showed that students would pay extra attention to meta-competencies after the intervention.

As expected, the study guide has improved the practice of students. Taking whole tools required in the school field education and using different methods that can be used in oral health education in the intervention group was significant in comparison with the control group ($p=0.020$, $p=0.001$, respectively). The study guide has also enhanced the knowledge of students. The dental students in the case group had educated parents better and more comprehensively such as the age of tooth eruption and nutrition significantly ($p=0.011$, $p=0.024$ respectively).

The overall evaluation of both case and control groups show us that the case group showed better result in the teaching-learning process in the school field education. The strength of this study was its method which was an interventional case-control study. Also, it was important to choose both groups similarly so all of them were dental students in the last year of dentistry at the Tehran University of Dentistry. This similarity of both case and control groups makes the results more valuable. The tool of collecting data in this study was the questionnaire which was prepared according to the course aims and the study guide and the questionnaire was revised. In the questionnaire, it was not necessary to mention students' names. The results were also compared with other studies. The study about the effect of study guide in clinical education for nursing students which was done by Abdolmaleki *et al.* (2009) showed that using study guide had a significant role in achievement clinical competence in the CCU and there was a significant difference on achievement of educational aims and clinical competencies among the intervention group ($p=0.002$).^[17] In a study which was done by Lotfi *et al.* (2010) the effect of a study guide on nursing students were evaluated. Results showed that the students' scores had raised after using the study guide in physical and psychological domains in CCU and ICU.^[18] Dickson and *et al.* (2005) stated that students who had studied more than 75% of their study guide had significantly better practice than those who had studied less than 25% of the study guide. Also, 74% of the students believed that their score had improved. The results reveal that the study guide improves students learning level.^[19] Haqqani *et al.* (2009) evaluated the impact of learning and study skills educational workshops on learning and study strategies in talented students. The results showed that the study guide can help improve students' learning

ability.^[20] Using a computerized video learning guide (VCD) in a prosthodontics clinic in the School of Dentistry, Tehran University had revealed positive effects on some of the performances of students.^[21]

Conclusion

From the results of this study, we concluded that using the study guide improves behavioral knowledge and leads to the students' participation in education. Since the utilization of the study guide proved to be beneficial in enhancing students' knowledge and practice in school field education, it is highly recommended that a study guide is designed for other areas of dentistry. According to the large volume of the study guide, it is suggested that an electronic version is also designed.

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