



## The Effect of Using Game Software on Voice Learning in Students Speech Therapy Field

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**Background:** This study aimed to assess the influence of video games on voice learning in students of speech therapy.

**Methods & Materials:** This study was a clinical trial study in which 102 fifth semester students of speech therapy group of Ahvaz Jundishapur University of Medical Sciences took part and were divided into two groups. The first group included 27 students who were admitted in the university from 2008 and 2009 trained in traditional training and the second group (N = 75) who were admitted in 2010, 2011, 2012, and 2013 spent their traditional training plus using the software of Avaz-e-Ma. at the end of each semester. Students' satisfaction of the learning of each group was obtained through using the qualitative scale and the final exam of each group. The relationship between the learning type and the student scores was analyzed using Pearson correlation coefficient and the difference between of both groups were analyzed by independent T-test.

**Results:** The mean age of the first and the second group were  $20.11 \pm 3.02$  and  $20.25 \pm 2.12$  years old respectively. The mean score of the students who learned by software were  $18 \pm 0.2$  and the students by traditional way was  $12 \pm 0.2$  that was significant difference ( $P < 0.001$ ). The majority of the students (90%) believed that the use of software has been useful.

**Conclusion:** The use of educational games in the classroom leads to an increase in the students' grades and the satisfaction of the students with the quality of instruction. Accordingly, using technology in educational system is recommended.

**Keywords:** Game training, Rehabilitation, Voice learning

### Introduction

Computer games form an important part of the lives of general people. Today, computer games are one of the manifestations of technological advancement in the most sophisticated and interactive technology (Moradi & Maleki, 2015). The game, as well as the entertainment device has educational and constructive aspects. Individuals gain access to

new mental concepts during games especially through constructive games and also gain more and better skills without stress (Khazaei & Jalilian, 2015). In the last five years, researchers have come to the idea that educational computer games have positive impacts on cognition, emotions, social relationships and motivation (Granic, Lobel & Engels, 2014). Today, games and pseudo-game elements have been introduced in various fields such as education, health, marketing, politics and sports (Lee & Hammer, 2011). Since the introduction of the game into the educational arena, a fundamental revolution has been created and contributes to the provision of teaching and learning materials and leads to the achievement of learning goals (Cheung & Slavin, 2006)). In the 1960s and 1980s, educational games were

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considered by researchers. The evidences showed these games have a positive impact on the transfer of concepts in educational environments (Becker, 2012). The use of educational games as a learning tool is an attractive and strong way which leads to an increase in the attention and concentration of people and all the senses involved in education process. In this regard, the knowledge transfer to students happens consequently. In addition skills such as problem-solving ability, collaboration and communication ability will be increased (Dicheva et al., 2015).

Since the advancement of each society that depends on the scientific ability of educated and specialized people, and in a situation where educated people are scientifically and educationally more capable and of higher quality, the decision for more precise and reliable ways in different situations, lead the community to a safe and sustainable environment with a suitable foresight in various fields (Arnold, 2014). Therefore, achieving this goal is aimed at reforming educational approaches and using more recent and more appropriate approaches. Medical science is rapidly developing. It is more than 15 years that technology has entered into the medical science education. Scientists in medical universities are familiar with a high level of technology, which is expected to be at the universities, curricula are taught using new and varied technologies to enhance the quality of teaching and learning for the college students (McCoy, Lewis & Dalton, 2016).

Many studies on the importance and impact of game software in education have been conducted in different countries with different language. (Nah et al., 2014). Furthermore, in recent decades in the United States, there has been a change in the medical education system (Nevin, 2014), but so far, a study on the effect of using game software in teaching rehabilitation courses in Iran through Persian language is not conducted. Therefore, considering the importance of teaching and its impact on society and the lack of studies on the use of educational technology such as game software) in the field of rehabilitation (Khazaei & Jalilian, 2015; Hamari et al., 2014). This study aimed to assess the impact of software (computer game) on the learning of students of speech therapy field.

### Methods and Materials

This study is a clinical trial in which 102 students of the fifth semester of the speech therapy group of Ahvaz Jundishapur University of Medical Sciences (AJUMS) started their studies at the university in

2008, 2009, 2010, 2011, 2012, and 2013, were assessed. These students of speech therapy were divided into two groups. The first group consisted of the 27 students started their studies in 2008 and 2009 years and underwent traditional education with disorder of hearing impairment, and the second group consisted of 75 students who had started their studies in 2010, 2011, 2012, and 2013 and went the traditional training plus audio game software usage. It should be noted that in all periods, the disorder course was taught by a teacher and in the same way for both groups.

For this purpose, the software of Avaz-e-Ma was designed. This software is the first educational software application in the rehabilitation training system of Iranian medical universities, which is designed with the Android operating system. In this software, the questions are sorted from the questions bank of the teachers who taught this lesson in the past years and were presented randomly to each student in each season. After answering each question, the student, received the coin if the answer was correct, and if it was wrong, student's coins were deducted. Moreover, by providing each correct answer, a piece of passion - which was related to an educational image and completed the puzzle image of the educational picture for each chapter-was received. It should be noted that if the student missed the answers in such a way that the coins ended, he was known as the loser, and the game returned to the beginning. There was also a timer in the game, and the duration of the response and the progress of each stage were recorded and archived.

At the end of each semester, students from both groups were trained with traditional software. In each group of students, students' satisfaction with the type of learning the lesson was obtained through using a 4-degree quality scale, and also the scores of the test. Then the obtained data were entered into the SPSS software version 22. The relationship between software images scores and student scores was measured with Pearson correlation coefficient. The difference between students' grades in both groups was analyzed by independent T-test.

### Results

The present study was conducted on 102 students started their studies in AUMS in 2008 and 2009 in the range of 20-29 years old with mean age  $20.11 \pm 3.02$  years and 75 students started their studies in 2010, 2011, 2012, and

2013 in the age range of 20-22 years old with mean age of  $20.25 \pm 2.12$ .

The results of the study showed that there was a significant correlation between the number of software images and student scores by Pearson correlation test ( $p < 0.001$ ).

The results also showed that the average score of the students who received the vocal course through the software were  $18 \pm 0.2$  and the mean score of the students who received the vocal course in the traditional way was  $12 \pm 0.2$ . The independent T-test showed significant difference between the two groups ( $p < 0.001$ ).

The results regarding the students' satisfaction of teaching type and the rate of learning showed that the majority of the students (90%) stated the game software usage was useful.

### Discussion

The main purpose of the present study was to investigate the effect of using game software on the learning of vocal course among students studying in AJUMS. Results showed that the grades of students who were learning the vocal score with the help of software were higher than those who traditionally learned this lesson and the difference was significant. The results of this study are consistent with the previous studies (Barata et al., 2013; Franklin, Peat & Lewis, 2003; Brewer et al., 2013 & O'Donovan, Gain & Marais, 2013). Based on these results, computer games have increased the attention and concentration of the students and increased their motivation for learning. Considering the capabilities of computer-based educational games that could incorporate challenging opportunities in the students, they can be used as a new opportunity. Furthermore. The structure of educational games has a high degree of flexibility and allows students to play different roles and to choose new situations. These turning points are considered as a new type of learning and initiative. In fact, educational games with a competitive edge, complexity, testing, flexibility, self-esteem and rich content have a significant impact on creativity, enhance learning, reinforce attention and concentration skills, facilitate complex teaching and motivate students for learning.

The results of student satisfaction assessment on how to learn and the amount of learning showed that the majority of the students considered using the software were useful. The group that used the software believed that using software made it easy to be understand hard materials and also learn more about their memory. However, this study

confirmed the need to use software to increase student satisfaction in education.

Other results of this study showed that there was a significant relationship between the number of software images and student scores, meaning that the higher the number of named images was approved by the student, and they were satisfied in this regard.

### Conclusion

According to this study, the use of educational games in the classroom leads to an increase in students' learning and their satisfaction with the quality of education. Therefore, given the importance of teaching and its impact on society, it is necessary to use technology in educational system to lead to increasing the quality of teaching and learning more effectively in students.

### Conflict of Interest

The authors declare that they have no conflicts of interest.

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### Author contribution

NM and MS designed and supervised the data analysis of the study, MJSY conducted the study and collected the data and wrote the manuscript. PR and HN cooperated the implementation of the study. All authors confirmed the final version of the manuscript.

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