



Original Article

Design, Implementation, and Evaluation of Pantomime to Improve Learning of Nutritional Diseases Symptoms

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ABSTRACT

Backgrounds: The use of pantomime in teaching may be one of the best ways to increase the attractiveness of teaching and improve the concentration of learners. The purpose the present study was to assess the effect of pantomime on the performance of the students on the exam of malnutrition diseases course.

Methods: The pantomime game was conducted for 5 different terms. The students were randomly divided into two equal groups in the class on malnutrition-related diseases. The average scores of the students on questions that covered topics taught using pantomime alongside lectures were compared with questions that were taught solely through lectures.

Results: About 84% of the students answered correctly to the questions that were used in the pantomime training. However, only 66% of the students were able to answer the questions that pantomime was not used in their teaching.

Conclusion: The use of pantomime in teaching the symptoms of malnutrition-related diseases may lead to a significant improvement in students' performance in the midterm and final exams.

Keywords: Pantomime, disease symptoms, medical education, teaching, academic performance

Introduction

Learning how to diagnose diseases and remember their clinical symptoms is one of the most important challenges for instructors and students of pathology-related courses [1]. Teaching in the form of lectures and the mere use of tools such as PowerPoint, in addition to causing fatigue and reduced concentration of learners, also cannot store information about diseases in the learners' long-term memory [2]. Various studies have shown that the use of films and performing arts by activating the visual memory of learners is one of the effective methods in improving students' learning [3]. The use of performing arts in teaching, for example, playing the role of a patient and therapist in the classroom, is known as one of the best ways to increase the attractiveness of teaching and

improve the concentration of learners [4]. In addition, it can significantly increase the durability of the relevant trainings by creating appropriate imagery in the mind of the audience [5].

On the other hand, the active participation of learners in the educational process can significantly improve the level of concentration and learning in the learners and help in achieving the goals of education [6]. Also, using popular games among learners can increase their enthusiasm to actively participate in the learning process [7]. As an example of a successful experience in the use of games in the educational process in Iran, the escape room game as a clinical evaluation method [8], to prepare nursing students in times of exposure to bioterrorism [9] and also in order to improve the knowledge and skills of paramedical students [9] has been used successfully. Of course, to our

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knowledge, the use of games and plays in order to better educate the symptoms of malnutrition-related diseases and the nutritional factors affecting them has not been done so far. Therefore, the purpose of designing the present study was to improve the quality of education on malnutrition diseases using pantomime in the form of teamwork using the participation of students.

Methods

The present process began with the formation of a 3-member committee consisting of two university faculty members and a student in 2022, and the work procedures were designed in 3 phases. In the first phase, through the review of texts and documents and brainstorming, the initial design of the pantomime was done in order to improve the teaching/learning process of malnutrition-related diseases. In the second phase, a list of diseases, common symptoms of each disease, and nutrients associated with each disease were collected. In the third phase, the practical design of the game was carried out, including the method of grouping the learners, the duration of the play, the number of times the group play, and the scoring of each disease (according to the degree of difficulty in learning the symptoms caused by deficiency or poisoning). The performance of the game was defined in such a way that the students are told in advance to study the lessons presented in the previous sessions in order to perform properly in the pantomime. In the session, students are initially divided into two groups. Then, in each round of the game, one person from each group is randomly selected and performs the symptoms of the disease according to the chosen disease (Figure 1). Other students in the same group must recognize the name of the disease. They should also announce which nutrient deficiency is related to the disease. For example, for marasmus, the performer should point out symptoms related to the disease (such as severe thinness). After diagnosing the disease, the performer's peers should also say that it is due to a lack of protein and energy intake. In case of correct response (diagnosis of the disease in question and the nutrient associated with that disease) within the specified time, the corresponding score will be awarded to all members of that group.

Statistical Analyses

The scores obtained in the midterm and final exams of the course on nutrition-related diseases were compared between the questions taught through pantomime in addition to the lecture and the questions taught only through lecture. This was done using independent t-tests and the Mann-Whitney U test for normally and non-normally distributed data. SPSS software was used, with a significance level of 0.05, to statistically analyze the differences in the results obtained between the two groups of questions.

Results

In the mid-term and end-of-semester exams of the students, half of the questions were designed from topics that were taught through pantomime in addition to the lecture. The other half of the questions were from topics that only lectures and PowerPoint were used for training. In order to adjust the effect of the difficulty level of the questions on the results, the topics taught by the pantomime were replaced with other topics in different semesters. The results of the evaluation of the activity in the field of teaching through pantomime in four different semesters showed that the students had significantly better performance in answering the questions that the pantomime was used to teach them. Overall, approximately 84% of the students answered correctly to the questions that were used in the pantomime training. However, only 66% of the students were able to answer the questions that pantomime was not used in their teaching (Table 1).

Discussion

Overall, the results of the present study indicated that the use of pantomime in teaching the symptoms of malnutrition-related diseases led to a significant improvement in students' performance in the midterm and final exams. The findings regarding the effectiveness of using play and performance in teaching courses align with the results of similar previous studies.

A recent study in 2021 has been done to investigate the role of pantomime in the evolution of teaching and communication methods and their impact on Learn and analyzes the transmission of information. The authors analyzed the history and applications of pantomime in education, and examined how these methods affected the Learn and human interactions. The results of this study have shown that pantomime are known as effective tools in conveying complex concepts and increasing students' understanding. These Methods can help improve



Figure 1. Visual representation of performing the symptoms of the disease according to the chosen disease

Table 1.

The average rate of correct answers to the questions that were taught by pantomime compared to the other questions.

Semester	Questions educated without a pantomime (Mean±Standard Deviation) (n=10)	Questions educated with pantomime (Mean±Standard Deviation) (n=10)	P
Second Semester of 2022	66.01±12.41	80.81±7.45	0.06
First Semester 2023	65.81±11.46	81.4±7.32	0.02
Second Semester of 2023	66.11±7.87	84.91±8.05	<0.01
First Semester 2024	66.31±10.91	89.41±4.03	<0.01
Total Semesters	66.05±9.49	84.12±4.34	<0.01

non-verbal communication and create Learn more attractive. Therefore, they have concluded that The use of pantomime in training can be used as an innovative and effective method in improving the process Learn and communication to be introduced [10].

An article titled “Drama and Pantomime in the Evolution of Education” Published in 2017, to examine how early forms of education have evolved through non-verbal communication methods, Especially Pantomime. This article emphasizes the importance of this method in the development of Learn Social Human and cultural transfer. The author, Peter Gardenfors, states that such practices have contributed to the formation of modern pedagogical techniques [11].

Another study in 2014 examined the use of pantomime in teaching undergraduate students and served this as a creative way to Improve learn and the interaction of students. Authors used pantomime techniques in educational environments and evaluated its impact on students’ understanding and retention of information. The results of this study showed that pantomime as an Educational tools can help increase students’ attention and engagement. This method helps students to understand the concepts better and make them Learn Leave it to them. Therefore, they concluded that the use of pantomime in teaching can be used as an effective and creative method should be introduced in university education and help to improve the Learn Help Students [12]. A new paper published in 2024 by colleagues at Shahid Beheshti University of Medical Sciences in Tehran to explore the integration of pantomime games in medical education. The article emphasizes the potential benefits of these interactive methods in developing non-verbal communication, which is vital for interacting with patients. Also, the study suggests that more research is needed to confirm the effectiveness of pantomime games in improving medical education outcomes [13].

An article published by colleagues of Shahid Bahonar University of Kerman in 2021 examined the experiences of faculty members in interacting with students in academic environments. The main purpose of this research was to identify and analyze the methods, challenges, and achievements of these interactions. The results of this study showed that faculty members emphasize the importance of effective interaction with students and believe that these interactions and the use of interactive methods in education can improve Learn and help increase students’ motivation. Interactive methods and positive

interactions can lead to a sense of belonging, improve the academic atmosphere, and ultimately contribute to students’ academic success [14].

In conclusion, it can be concluded that the use of pantomime in teching symptoms related to malnutrition diseases and the causes of these diseases has a positive effect on students’ learning and performance in answering questions in midterm and end-of-semester exams.

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