

Full Length Research Paper

The role of educational technology and smart classroom in learning and quality of teaching physical education in high school female students

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Abstract

The purpose of this study is to investigate the role of educational technology in the quality and learning of physical education in high school female students in Lahroud. The statistical population was all high school students in Lahroud. Students. This study examined 5 physical education targets. Experimental group, learned emotional, moral, cognitive goals by educational CDs and booklet. For motor purposes volleyball skills were trained and for physical purposes, fitness factors were used. At the end of the semester, both groups were compared and evaluated in the same condition. To assess the physical and motor objectives practical test was used and for measuring emotional, moral and cognitive and quality purposes, a researcher-made questionnaire including 30 questions was used. Its reliability was calculated by a preliminary test of 30 subjects using Cronbach's alpha 0.87. For data analysis, descriptive and inferential statistical methods of Kolmogorov Smirnov test and t-test Student using SPSS software was used. The results showed that there was statistically significant difference between experimental groups mean scores and control group mean scores and the experimental group had learned skills better. Also, the use of educational technology will improve the quality of teaching physical education and its place among others courses.

Key words: educational technology, learning, physical education course purposes, smart class, Students

INTRODUCTION

One of the biggest challenges human societies face today is diseases which human society has suffered as a result of the machinations of jobs and incurred countries with high costs. According to the researches done in recent years, diseases such as obesity, hypertension, osteoporosis, and cardiovascular diseases which their origin is the motor deficiency, immobility and poor nutrition. According to research conducted in recent

years it is found that people can prevent the occurrence of such diseases with three or two-hour sessions of exercise in a week (MAC Grand, 2004). Hence Physical Education and Sport have special status among advanced societies and most of people refuge Sport to get rid of the psychological stress of living. But unfortunately in our country are foreign with Sport word and only a small percentage of the population exercise

regularly. One of the solutions to overcome this problem is to force people to exercise or put three sessions of exercise per week as mandated in their lives. This is possible only during school period and according to the existing necessities physical education has been placed in the curriculum in order to compensate the vacuum caused by poverty of motion. Physical education is one of the main courses in school period which specialist teachers are responsible to teach it (Zokaey, 2001). Physical education is a practical course which covers most of physical and motor aspects. But given that moral abnormalities influence adolescents and young people, necessity for achieving moral and emotional goals is also felt and spiritual and esoteric aspect of people can be affected through sport and physical activities. So this has led to teaching physical education course follow five goals including physical, cognitive, moral, emotional, and motor.

Today's importance of education that is tailored to the needs of the community and individuals is felt more than ever because a world in which everything is linked with communication networks needs a work force that understand how to use technology as a tool to enhance the productivity and creativity. Such skill is "reasoning skill based on information"; a process in which valid sources are recognized, access to it is provided effectively and information are fully understand and fully transferred to others (Attaran, 2003).

One of the arguments that proponents of information technology development in education pose is that in this way one can provide equal educational opportunity for different social classes and in particular for low classes. Experience has shown that these do not happen often and if the government does not investment in accessing low classes to information technology resources, a gap will be created which is called digital gap. This gap will grow day after day. For example, Internet access in America's schools was improved from 4% in 1994 to 99% in 2003 but America Education reports suggests that the digital gap is still widening so that 41% of blacks and people who speak in Espanola languages , use a computer at home and this percentage in whites is about 77%. Another report suggests that 31% of students whose families have an annual income of less than twenty thousand dollars, use computer at home while 80% of students whose families income exceeds five thousand dollars a year benefit from computer (Attaran, 2003). There is no exact statistics in Iran in this context, but common observation shows that there is a large gap between our schools in terms of using educational technology and this is an issue which asks the Government to take a serious and persistent attention in order to lessen this gap. Sport society need to professionals and educational structural changes at higher levels, has risen the need to take advantage of the technology in education more than before. Due to

population increase and creation of a positive attitude towards exercise, taking advantage of new technologies and educational media in training sport to meet the society needs in sport is manifest. Cutting interaction between education elements, loss of human and emotional environment of learning, is one of the challenge which conventional teaching-learning process change is faced, in other words, it is taking advantage of technology in instruction format (Farahani, 2003). In the past ten years, by development of education technology and smart making in our country and with attention given to preparation of ground for its development, this phenomenon has taken a good place in education. This issue that how much it was effective cannot be measurable; but we can dare to say it is one of the few phenomena which in his short life could have wide impact and has attracted much attention (Ebadi, 2009).

Education system through Technology began its activities in the form of correspondence courses by mail and by changes in technology and the invention of media such as slides, films, radio, TV, Video and telephone has been developed and by using satellite, computers, Internet and email, has changed the usage of different media in education and has increased its education. This education system has been able to by benefit of various media present an education with the same quality and in some cases better quality than the conventional method in different fields of study which are offered in theoretical and practical course of study. In this regard, the finding of McFarland (1996) has referred to higher score in students who had been trained through technology in comparison to students who had attended classes. Also findings of Farahani et al (2003) suggest that there is a significant and positive relationship between students' awareness level of ICT and in other words, technology-based learning and academic performance. Keshavarz findings (2004) show that distance teaching physical education students who have learned some practical courses through visual - aural media, had a better learning than other students. also Keshavarz (2003) by training Taekwondo with two types of distance learning through educational film and conventional training, observed no significant statistical difference in learning of subjects in the two training methods. The results of Farahani et al research (2003) also showed that students who were trained Tennis through distance learning had higher scores than students who had been trained through the conventional method. Ronaldo et al (2004) in training basketball through distance education and conventional training found that people who were trained through distance learning had a better knowledge and understanding from basketball than others but there were no statistically significant differences in the implementation of skills between the two groups. In another study Keshavarz (2005) found that taekwondo who learned hand skills b educational films had a better

performance Compared to whom have been trained by booklets. But what is more important is that in training courses such as physical education which a part of it might be practical and various purposes should be provided, thus, using educational technology (smart class) can be beneficial in better learning? In the last few years in most major cities the use of educational technology (Smart Class) to teach theoretical courses has been common but because the physical education is a practical course the role of educational technology in teaching of this course was less. In the previous similar studies by Farahani and Keshvarz about the role of educational technology in sports training has been done but a study which examines the impact of educational technology and media in achieving the objectives of physical education course have not been done. So the present study is looking for new findings in this field with a new perspective in the study of the role of educational technology and media in learning and quality of physical education using human, visual - auditory, print and electronic media.

RESEARCH METHODOLOGY

The present study is applicable in terms of objective and it semi-experimental. To carry out research in Lahroud schools, physical education objectives (physical, motor, cognitive, emotional, moral) were trained to the experimental group through educational technology. So that students will be provided with a training CD and an educational booklet to learn emotional, cognitive and ethical purposes. And for training physical purposes an educational video approved by the public sport Federation and education were used. The video included training for physical skills and physical fitness such as 9*4 meter run, sit-ups, and 560 meters run, long jump, high jump and swimming on the palm of hand. Also for training motor purposes educational Videos and CD for volleyball were used which was approved by Volleyball Federation. Educational CD and video contained familiarity with ball and volleyball playground, facing claws, paws overhead, arm overhead, face arm, triple jump, defending the net or block, simple service, Tennis service. it is worth noting that students watch the video for 45-minute per session, in the school computer room and at the presence of PE teacher. If they faced with ambiguity ask it from sports teachers. According to coordination carried on, sports teachers can only respond to questions raised and refrained from providing additional explanations. When training class of educational technology finished, the students practiced physical skills for 15 minutes and then practiced volleyball skills for 30 minutes in the school yard. During the training session, teachers only monitor students exercise and answered to the questions. Also during that

period, practitioners in control group attended in conventional classes and sport teacher trained volleyball skills in addition to physical, emotional, moral and cognitive purposes. It is worth noting that the subjects in both groups were advised to focus on class programs and refrain from participating in other sports classes.

Statistical population consisted of all female secondary schools in urban and rural areas of Lahrud. So that from all schools, 2 schools were selected randomly. And from first to third grade, third grade students were randomly selected as survey sample. Students of two schools that were in third grade were consisted of 57 and 46 students respectively. Then they were matched based on age, weight, height, and the sports scores of first semester of 92-91 school year. It was considered as input behavior for entering the training period. 30 students from each school was selected as the final sample randomly and one school was chosen as the experimental group and the other as control group. To achieve the physical and motor objectives, practical test was used in the present study and to achieve the emotional, moral, cognitive goals and quality, in addition to the written test, a 30 questions researcher made questionnaire that was used which studied these skills. For data analysis, descriptive statistical methods, frequency distribution tables, mean, standard deviation and inferential statistical techniques such as t-test and Kolmogorov Smirnov test were used by SPSS software.

The findings

Results in Table 1 shows that the mean score for learning the cognitive goals in the experimental group (4.04) is higher than learning the cognitive objectives in the control group (3.24). So the difference was statistically significant considering the significance level (0.001), which is less than 0.05. So we can conclude that learning the cognitive objectives in the experimental group who have learned these objectives through the media, is better than control group who have learned them through traditional training.

Table 2 shows that the mean score for learning the emotional goals in the experimental group (3.697) is higher than learning the emotional objectives in the control group (3.157). So the difference was statistically significant considering the significance level (0.001), which is less than 0.05. So we can conclude that learning the emotional objectives in the experimental group who have learned these objectives through the media, is better than control group who have learned them through traditional training.

Table 3 shows that the mean score for learning the moral goals in the experimental group (3.616) is higher than learning the social objectives in the control group (3.29). So the difference was statistically significant considering the significance level (0.047), which is less

Table 1. Results of independent t-test to compare mean scores on the cognitive objectives of the experimental group and control group of high school female students of Lahroud

	number	Mean(score)	T	df	Mean	significant level
experimental	30	4.04	3.786	58	0.803	0.001
Control	30	3.24				

Table 2. Results of independent T-test to compare mean scores on the emotional objectives of the experimental group and control group of high school female students of Lahroud

	number	Mean(score)	T	df	Mean	significant level
experimental	30	3.697	3.418	58	0.539	0.001
Control	30	3.157				

Table 3. Results of independent T-test to compare mean scores on the moral objectives of the experimental group and control group of high school female students of Lahroud

	number	Mean(score)	T	df	Mean	significant level
experimental	30	3.616	3.026	58	0.326	0.047
Control	30	3.29				

Table 4. Results of independent T-test to compare mean scores on the physical objectives of the experimental group and control group of high school female students of Lahroud

	number	Mean(score)	T	df	Mean	significant level
experimental	30	3.6	6.964	58	0.833	0.001
Control	30	2.7				

Table 5. Results of independent T-test to compare mean scores on the motor objectives of the experimental group and control group of high school female students of Lahroud

	number	Mean(score)	T	df	Mean	significant level
experimental	30	7.47	7.282	58	1.066	0.001
Control	30	6.4				

than 0.05. So we can conclude that learning the moral objectives in the experimental group who have learned these objectives through the media, is better than control group who have learned them through traditional training.

Table 4 shows that the mean score for learning the physical goals in the experimental group (3.6) is higher than learning the physical objectives in the control group (2.7). So the difference was statistically significant considering the significance level (0.001), which is less than 0.05. So we can conclude that learning the physical objectives in the experimental group who have learned these objectives through the media, is better than control group who have learned them through traditional training.

Table 5 shows that the mean score for learning the motor goals in the experimental group (3.6) is higher than learning the motor objectives in the control group (6.4). So the difference was statistically significant considering the significance level (0.001), which is less than 0.05. So

we can conclude that learning the physical objectives in the experimental group who have learned these objectives through the media, is better than control group who have learned them through traditional training.

DISCUSSION AND CONCLUSIONS

Research findings showed that the cognitive, emotional and ethical objectives of physical education course were presented theoretically to the experimental group. Students in this group that have learned cognitive, emotional and ethical objectives through the media and educational technology had higher score compared to whom had been trained through traditional training and the difference between the scores of the two groups was statistically significant. Overall, the average scores of students in the experimental group were higher than

students in the control group. Findings of this study are consistent with the results of Deborah and Janet (2013), Aman et al (2011), Kamsyn (2005), Clark (2009), Kang, vans and Lin (2009), Woody et al (2010), Bieber and Jumany (2012). Results of most researches are consistent with the findings of the present study. So it can be deduced that some parts of physical education lesson objectives such as cognitive, social and emotional targets which can be converted into electronic form will be welcomed by student. So this leads to better learning and accuracy of course content. In this regard it should be noted that education system was not successful despite abundant progress of making the physical education course more practical and learning physical education among students for various reasons. Many teachers also looked at physical education by traditional approach and have not applied necessary time and attention to teach this lesson.

But with the changing education status and providing cognitive, social and emotional objectives in the form of training booklets and CDs, in addition to providing this content as coherent, students spend more time to learn the concepts. In other words, changes in educational practices provided two benefits for students. First, the content of teaching physical education course objectives are clearly defined for students and these objectives are clear and visible to all, while traditionally, these objectives are not considered in teaching physical education in schools and sometimes the teacher point out them orally and in a short time. So this change of attitude encourages teachers and students to study more which eventually result in students' learning and retention.

The second benefit is that, as the three targets are clear, students study more and more to take the final exam and to get a better score. This leads to better learning, while may be the students in control group have not learned these cases coherent and continual. Thus, according to our results and other researches in this area it is suggested to the education authorities to use experts and scholars in preparing suitable pamphlets and books and make them available in the form of e-content. Also the officers and directors of education work hard to use appropriate information and communication technology to implement physical education course in smart form, especially the theory part of it. In this regard, the necessary training for physical education teachers are recommended in order that they can teach physical education lessons through educational technology. On the other hand, our results showed that there was a statistically significant difference between the mean score of the experimental group who had learned physical and motor objectives of physical education through media and control group who had received traditional training. In other words, experimental group mean scores are higher than control group. These results are consistent with Farahani (2003), Keshavarz (2004), Farahani et al

(2009), Ronaldo (2004), Farahani (2003) and Keshavarz(2005). Hence, based on our results and Related Research it can be stated that educational technology and media are influential at the physical and motor learning or in other words, the practical part of physical education course. Also educational technology that was replaced by teacher-centered teaching not only impaired the quality of learning of the practical course of physical education but it has enhanced the quality of education as well. So, as educational technology has a special place in teaching in the schools, considering the results of this study, educational technology as a useful tool can be used in teaching practical courses of physical education in schools and change the classrooms from present traditional mode of teaching to the teaching by educational technology and distance learning. Such a process brings quality to sports and physical education classes and improves the physical education course among other courses. It can be argued that using ICT in teaching physical and motor objectives of physical education which requires athletic and physical skills would result in removing physical education teaching from its traditional mode and changing the traditional view of physical education teachers, school administrators, and students to sports and physical education. In this way the objectives of physical education are presented by new method. It seems that the focus of education officials, teachers and students on physical education classes has increased and the training is done carefully. It seems that such accuracy was less in traditional teaching of physical education. On the other hand, students also due to the fact that they have learned physical and sport skills of volleyball through new method, had more focus on goals and if faced with ambiguity they could check v skills frequently and practice them more seriously. This features leads to a better skill learning resulting in a better outcome. Thus, generally due to capability of Educational Technology, ICT can be used in teaching of physical education in general and in teaching of practical courses in particular and it can be an appropriate complementary for teaching practical training course of physical education in schools. So education officials are recommended to provide various sports educational content electronically. In this regard it is recommended that sports federations, educational system, the media, and academic experts including PNU professors, cooperate with each other in order to provide electronic content and instructional videos and the latest e-learning and teaching methods through technology will be available to students. In general, it seems that smart school and using educational technology for learning is possible for learning physical education through educational technology and media. This method could be a useful supplement for face to face training or teacher-centered education. In other words, in the present study the role of teacher was

assigned to education technology as far as possible and not only the quality of education have not been declined but it became better. Since this method has been just common in universities and schools, if the educational content has been prepared in accordance with the subjects and teachers also are familiar with the training method, indeed success of this method in teaching all courses will not be unavailable. On the other hand, the use of technology in teaching physical education in schools would result in that education do not be one dimensional and make students to think and ponder and do research, because students are forced to attend in classes with more interest and practice more seriously in order to stay ahead of other students. As the teacher's role is less important and learning is student-centered, in this educational method the student's role in learning and teaching is more and they have to have more attention to the curriculum. Considering the rapid and significant growth of educational technology it is needed technology is used in schools.

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