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Yernar Ospankulov
Kazakh National Pedagogical University named after Abay, Republic of Kazakhstan

Aziya Zhumabayeva
Abay Kazakh National Pedagogical University, Republic of Kazakhstan

Sabira Nishanbayeva
Kazakh National Pedagogical University named after Abay, Republic of Kazakhstan

Bagzhan Ussen
Almaty Humanitarian - Economic University, Republic of Kazakhstan

Ali Zhalel
L.N. Gumilyov Eurasian National University, Republic of Kazakhstan

To cite this article:

Ospankulov, Y., Zhumabayeva, A., Nishanbayeva, S., Ussen, B., & Zhalel, A. (2023). The effect of the use of digital technologies in physical education lessons on students' physical education cultures and attitudes towards the lesson. *International Journal of Education in Mathematics, Science, and Technology (IJEMST), 11*(6), 1424-1442. https://doi.org/10.46328/ijemst.3700

International Journal of Education in Mathematics, Science and Technology

2023, Vol. 11, No. 6, 1424-1442 https://doi.org/10.46328/ijemst.3700

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Yernar Ospankulov, Aziya Zhumabayeva, Sabira Nishanbayeva, Bagzhan Ussen, Ali Zhalel

Article Info

Article History

Received:
15 January 2023
Accepted:
21 September 2023

Keywords

Digital technologies
Physical education
Primary school
Psychomotor skill
Cultural awareness and value

Abstract

Among the main objectives of the 'Primary School Physical Education Curriculum' is to raise individuals with knowledge, skills and behaviors integrated with values and competencies. In addition, one of the important goals of the Kazakh education system is to provide students with 21st century and related digital skills in all lessons. For this purpose, the current study examined the effect of digital technology and face-to-face teaching practices on students' lesson achievement, skills, attitudes, cultural awareness and value perceptions in primary school physical education lessons compared to traditional teaching. The study was conducted with a control group pre-test post-test design. A total of 60 students attending the 4th grade of primary school took part in the study. In the experimental group of the study, digital technologies supported face-to-face education and in the control group, traditional teaching practices were carried out. The research data were collected with 'Physical Education Lesson Acquisition Test', 'Physical Education Psychomotor Skills Test', 'Attitude Towards Physical Education Scale' and 'Cultural Awareness and Value Perception Scale in Physical Education' measurement tools. The experimental applications of the research lasted 8 weeks simultaneously in the control and experimental groups. According to the findings of the study, significant differences were found in favor of the experimental group in physical education lesson outcomes and attitudes. However, no significant difference was found between the groups in psychomotor skills and value perception.

Introduction

Physical education classes contribute to character and personality development because strong bonds, team spirit, group interaction are characteristics seen in games and sports. Adaptation to teammates and opponents is effective in ensuring social cohesion. Physical education ensures the development of physical fitness, health and protection habits. It provides opportunities for skill development and mental development and contributes to democratic processes. Play is an instinctive impulse with educational potential, and the dynamic nature of games applied in

physical education can be used to help individuals acquire more appropriate behaviors (Bucher, 1987; Frömel et al., 2016).

The difference between physical education and sports is that physical education is a set of movements for the development of the individual's physical and mental health, while sports, in addition to the development of the individual's physical and mental health, also includes the aim of struggling, competing and prevailing in competition according to certain rules. Physical education and sports are concepts that complement each other and should not be considered separately from each other. Improving the physical and mental health of human beings and strengthening their willpower is one of the main objectives of physical education and sports, as well as an important factor that activates the individual's unexplored characteristics and creative side (Camacho, Murcia & Tejada, 2008; Hardman, 2008). There are many studies that show the positive effects of physical education and sports activities on socialization and even their curative effects on children and young people with adjustment problems.

Sport is a necessary tool and action to train not only the body but also the whole person. In other words, it can be said that sport is practiced for the purpose of developing action ability, self-confidence, responsibility, creativity, performance, play, adventure, health and fitness and social characteristics (Grössing, 1991; Hardman, 2008). On the other hand, sport education is an acculturation activity and brings about a desired change in an individual's behavior at the end of a certain process. Through sport education, the individual also learns to think about sport. This creates sports culture. Individuals who have accumulated sports culture do sports regularly, become qualified spectators and talk about sports (Demirhan, 2004; Leonetti, Zhu & Chen, 2017).

Sports culture is, in essence, a culture that attaches importance to the individual and gives him/her the opportunity to purify, enlighten, interact, develop, feel joy, be happy and integrate with other people in his/her sporting life. Today, the negativities seen in all types and levels of sporting events show that sport and its culture are increasingly being mixed with daily concerns. No matter how much sport takes place above daily compulsory life, it is a part of social life and interacts with it (Azimovna, 2020; Kirk, 1999).

The development of sports culture and values requires more and different practices than one or two hours of physical education lessons. Moreover, efforts should be made to see and use games and sports activities as an educational tool. The child's adoption of sportsmanship and sportsmanship as a culture of "virtuousness, being adorned with the qualities of excellence" can be possible with the intensive support of his/her family and close environment, especially the school. As long as everyone in an "important" position in the child's life accepts sportsmanship as a virtue, a symbol of value, the child will begin to adopt it as a value. To the extent that the learning environment bears the traces of such a culture, sport can be an indispensable tool of education (Buecher, 1987; Larsson & Karlefors, 2015).

One of the most fundamental principles of education is to raise people as a whole with their mind and body. Undoubtedly, individuals being physically and mentally healthy and happy is one of the leading conditions for social development (Papaioannou, 1998). Therefore, the physical education lesson encompasses the objectives of

providing students with healthy activity habits and maintaining optimum physical fitness throughout life (Mozolev et al., 2020; Petray, 1989). Physical education as a school subject focuses on teaching school-age children the science and methods of physically active, healthy living (NASPE, 2012). It is a way of engaging children in developmentally appropriate physical activities designed to improve their fitness, gross motor skills and health (Sallis et al., 2003; Robinson & Goodway, 2009; Robinson, 2011). Sallis and McKenzie (1991) published a landmark article stating that physical education is an educational content that uses "a comprehensive but physically active approach that includes teaching social, cognitive and physical skills and achieving other goals through movement".

Examining the impact of a variety of physical activity opportunities during the school day on daily physical activity among students, Bassett and colleagues (2013, p. 110) concluded that "policies that mandate daily physical education may have the greatest impact on the physical activity of US youth." Furthermore, a study based on a nationally representative sample of elementary schools found that schools located in states with a policy requiring 150 minutes of physical education per week were 180 percent more likely to report providing more minutes of physical education per week than schools located in states without a policy on physical education time (Slater et al., 2012). This study also documented a significant association between school district-level policies on physical education time and a higher likelihood of schools providing 150 minutes of physical education per week.

A longitudinal study in Trois-Rivières, Québec, Canada, tracked how academic performance of children in grades 1 through 6 was related to student health, motor skills, and time spent in physical education. The researchers concluded that additional time devoted to physical education did not interfere with academic performance (Shephard et al., 1984; Shephard, 1986; Trudeau & Shephard, 2008). In a study examining the effects of daily physical education during primary school on physical activity in adulthood, 720 men and women completed the Québec Health Survey (Trudeau et al., 1999). Findings suggest that physical education is associated with physical activity at later ages in women.

Using a large sample of students in grades 4-8, Chomitz et al. (2009) found that the likelihood of passing both math and English achievement tests increased as the number of fitness tests spent in physical education class increased, as did the likelihood of passing math. In a meta-analysis, Sibley and Etnier (2003) found a positive association between physical activity and cognition in school-aged youth (4-18 years), suggesting that physical activity as well as physical fitness may be related to cognitive outcomes. Physical education and sport, which has an indispensable position in school curricula, is a lesson that is based on the human need for movement and focuses on the holistic development of the individual (cognitive, cognitive, affective) through movement (Atencio, Clara & Miriam, 2014; Kirk, 1993). Although technological developments and mechanization aim to 'produce more work by spending less energy', this situation actually causes people to 'move less'.

Nowadays, many developed countries foresee that an active life that includes regular physical activity can prevent many health problems and encourage physical activity through both in-school and out-of-school programs. Today's technology not only changes many of our individual and social behaviors, but also adds new ones to them.

Perhaps the best way to transform the sedentary life, which has become widespread with new behaviors acquired with the support of technology, into a life of regular physical activity is to use technology. The use of technology in physical education and sports should be carefully emphasized to ensure that school-age children, who tend to spend most of their time indoors and with technological tools, do physical activity in open spaces. At this point, efforts to create rich learning environments for learners should be prioritized during teaching-learning practices. In addition, it should not be forgotten that it is not the technology that is important, but how technology is used to enrich learning (Vernadakis et al., 2012; Wyant & Baek, 2019).

Technological advances and the new technological products they bring with them have found their reflections in education and are included in the education and training process as effective communication and individual teaching tools (Finkenberg et al., 2005; Squire & Jenkins, 2003). According to Winn (2002), with the rapid development of digital technologies, the use of simulations and games for teaching and learning is not only an alternative method but also a necessity for educators to motivate today's generation of students. This is necessitated by the existence of rapid feedback structures, the high-level binary coding of audio-visual products, and the rapidly increasing amount of play that children engage in during out-of-school time.

Simulations and games in the classroom are seen as important for the autonomy to learn at a personal pace, the simplicity of taking the necessary safety precautions to practice skills in a digital environment, and the ability to provide increased student interaction. In particular, from students' perspectives, students enjoy physical education and sport lessons more if the programs are relevant to their experiences, are varied and offer choice, support social interaction through team sports, and provide entertainment (Smith & Parr, 2007). The use of digital technologies in physical education lesson content can make the lessons interesting and promote health.

Multimedia use in sport and exercise and virtual reality can be defined as a situation in which an athlete engages in a sport or exercise in a virtual world, evoking a sense of mental and physical presence and providing feedback and interaction from the virtual world. This definition is based on the perspective of the user (the athlete) and it is recognized, however, that developing virtual reality applications can be significantly more difficult in some sports than in others (Neumann, 2016). In the digital information age, societal profiles have changed, resulting in changes in the roles of teachers and learners. In this context, the increasing digitalization of today's world and school life has significantly changed the conditions of physical education lessons, and it can be said that it has become very important to structure and train all stakeholders of education, especially students and teachers, with digital consciousness (Mansurovich, 2022; Thomas & Stratton, 2006).

In the perspective of the Primary School Physical Education Curriculum, which is the subject of this study, it is stated that the main purpose of our education system is to raise individuals with knowledge, skills and behaviors integrated with our values and competencies (Ospankulov et al., 2023a; Salybekova, 2019; Toybazarova & Nazarova, 2018). In addition, one of the important goals of the Kazakh education system is that all elements of the education system undoubtedly have a special place and importance in providing students with 21st century and related digital skills (Ospankulov et al., 2023b; Nagima et al., 2023; Tajibayeva et al., 2023; Zhussupbayev et al., 2023). However, curricula have an important place in systematically teaching these skills to students in a

holistic manner. At this point, the main goal of curricula should be to raise individuals with high cultural awareness and values, who have the knowledge and skills to solve problems encountered in daily life with school knowledge in particular, and to develop skills that will form the infrastructure of 21st century skills in general (Mynbayeva, Sadvakassova & Akshalova, 2018; Tazhigulova, Artykbayeva & Arystanova, 2014). Digital technologies also have the potential to significantly improve the quality of physical education classes by making positive contributions to students' learning (Lieberman et al., 2014; Tang, 2021).

In this context, the realization of teaching objectives in physical education classes can be achieved with the help of digital technologies (An, 2018). For this purpose, the current study examined the effects of digital technology and face-to-face teaching practices on students' lesson outcomes, skills, attitudes, cultural awareness and value perceptions in primary school physical education classes compared to traditional teaching. In relation to this purpose, answers to the following questions were sought in the study:

- To what extent does the combination of digital technology and face-to-face teaching practices in primary school physical education lessons affect students' lesson outcomes compared to traditional teaching?
- To what extent does the combination of digital technology and face-to-face teaching practices in primary school physical education lessons affect students' psychomotor skills in the lesson compared to traditional teaching?
- To what extent does the combination of digital technology and face-to-face teaching practices in primary school physical education lessons affect students' attitudes towards the lesson compared to traditional teaching?
- To what extent does the combination of digital technology and face-to-face teaching practices in primary school physical education lessons affect students' cultural awareness and value perception compared to traditional teaching?

Method

In this study, "pretest-posttest control group model" was used as one of the experimental models. The model was implemented in two fourth grades structured in sections in a public primary school in Almaty, Kazakhstan in the 2022-2023 academic year. In order to ensure that the natural classroom conditions were not disturbed, all students participated in the study without selection among the students in the classes.

Experimental Design

In the second semester of the school year 2022-2023, 60 students from two fourth grade classes in a public primary school in Almaty participated in this study. The classes were randomly selected from the two existing fourth grade classes. The experimental and control groups were then assigned by lottery. According to this lot, 4-A was the control group and 4-B was the experimental group. There were 15 female and 15 male students in the experimental group. Likewise, there were 15 female and 15 male students in the control group. The experimental design applied in the study is summarized in Table 1

Table 1. The Experimental Design applied in the Study

Group	Pre-Test Measurements	Experiment Process	Post-Test Measurements
Experimental Group	Physical Education Lesson Achievement test Physical Education Lesson Psychomotor Skills Test Attitude Scale towards Physical Education Lesson Cultural Awareness and Value Perception Scale in Physical Education	Digitally supported Face-to-Face Education	Physical Education Lesson Achievement test Physical Education Lesson Psychomotor Skills Test Attitude Scale towards Physical Education Lesson Cultural Awareness and Value Perception Scale in Physical Education
Control Group	Physical Education Lesson Achievement test Physical Education Lesson Psychomotor Skills Test Attitude Scale towards Physical Education Lesson Cultural Awareness and Value Perception Scale in Physical Education	Traditional Teaching	Physical Education Lesson Achievement test Physical Education Lesson Psychomotor Skills Test Attitude Scale towards Physical Education Lesson Cultural Awareness and Value Perception Scale in Physical Education

Procedural Steps

1. The following steps were followed during the experiment.
2. Experimental procedures in the control and experimental groups were conducted by the researchers.
3. Data collection tools were prepared.
4. Two classes were randomly selected from a public primary school in Almaty. In the first physical education lesson in the second half of the 2022-2023 academic year, the 'Physical Education Lesson Acquisition Test', 'Physical Education Lesson Psychomotor Skills Test', 'Attitude Towards Physical Education Lesson Scale' and 'Cultural Awareness and Value Perception Scale in Physical Education' were applied to the selected classes as preliminary measurements.
5. Two randomly selected classes were selected as experimental and control groups by lottery.
6. Before starting the experiment, the objectives and target behaviors of the units and the process-time schedule were prepared
7. Daily lesson plans of the control and experimental groups were prepared.
8. Worksheets were prepared for the experimental group.
9. The lessons started at the beginning of the second semester and the physical education lesson hours (2 hours per week) and the curriculum determined in the school's weekly curriculum were followed.
10. In the experimental group, the lessons were taught with the digitally supported face-to-face teaching method,

while in the control group, the lessons were taught with the traditional teaching method. The program lasted 8 weeks. Together with the application of the scales, it took a total of 9 weeks. Final measurements were made in the last week of the physical education lesson.

Experimental Procedures

The experimental procedures carried out in the lessons with the experimental group are given below.

1. The lessons started with greetings and roll call.
2. While talking to the students about the aims of the lesson, the importance of using digital technologies in physical education lessons was emphasized.
3. A warm-up was done before the main lesson. The warm-up started with multi-media videos shown to the students, sometimes with jogging and sometimes with digital educational games.
4. The topic to be covered was explained visually and verbally by the researcher. Target behavior criteria were emphasized.
5. Students' questions, if any, were answered. In addition, some questions were asked to the students about whether they understood what they needed to do in terms of both psychomotor skills and digital skills.
6. In this study, face-to-face teaching method supported by digital technologies was applied in the experimental group. In this context, first, presentations were made to the students with digital materials related to the topics of "Taking responsibility in holidays, celebrations and ceremonies", "Performing folk dances of our culture and other cultures", "Playing children's games of our culture and other cultures" and "Researching Kazakh athletes who have been successful in international competitions". At this stage, multi-media tools, Youtube videos, Web 2.0 tools were used. The students in the experimental group conducted research on the Internet in groups on the topics determined each week, and they acted out the content in groups in the school garden, made representative presentations and performances.
7. The role of the researcher in the experimental group was to observe the groups and to step in and help when needed. After the students started working, the researcher circulated among the groups and provided guidance and corrections if there were problems.

In this process, the students in the control group practiced the same subjects in the 8-week period as specified in the curriculum and with traditional teaching methods. Both groups carried out the applications simultaneously and during the available class hours.

Data Collection Tools

In the study, personal information form, "Attitude Scale towards Physical Education Lesson", "Physical Education Lesson Gain Scale" and "Cultural Awareness and Value Perception Scale in Physical Education Lesson" were used as data collection tools.

Attitude Scale towards Physical Education Lesson

The "Attitude Scale towards Physical Education Lesson" developed by Martens (1979) consists of 29 items. This

scale is unidimensional and is graded on a 5-point Likert scale as "Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), Strongly Disagree (1)". The scale includes positive and negative attitude statements. The adaptation of the Attitude Towards Physical Education Lesson Scale into Kazakh was carried out by the researchers. Exploratory factor analysis performed on the Kazakh form revealed a unidimensional structure. The Cronbach Alpha reliability of the Kazakh form was calculated as .79. The high mean scores obtained from the scale indicate that attitudes towards physical education lesson are positive.

Physical Education Lesson Achievement Test

In order to measure the subjects' cognitive achievement in the physical education lesson, a cognitive test including the basic information in the unit was prepared under expert supervision and applied to the subjects. This test was developed by taking into account the learning outcomes in the 4th grade physical education lesson curriculum. The test included 20 questions consistent with the learning outcomes of the lesson. The test prepared to measure the cognitive access of the subjects participating in the study was a multiple-choice test and was prepared according to the principles of multiple-choice testing. Developed as a 4-choice multiple-choice test, the content validity of the test was ensured by the table of criteria and expert opinions. In the test, students receive 1 point for each correct answer and 0 points for each wrong answer. Thus, the scores of the physical education lesson outcome test vary between 0 and 20. As a result of the trial application of the test in a group of 120 students, it was seen that the discrimination indices of all items were above 0.30. In addition, as a result of the KR-20 analysis, the reliability coefficient was calculated as .85.

Psychomotor Skill Observation Form

An observation form was used to assess students' skills in psychomotor areas. While preparing the observation form, critical elements of each skill were determined in relation to the curriculum. While determining the critical elements, the opinions of three physical education lesson experts were taken. Then, a measurement tool was prepared to facilitate the observation and scoring of the critical elements of each skill. The prepared observation form is in the form of a rating scale. Each critical element in the observation form was evaluated over five categories. The scores to be given by the observers were graded as one 'unsuccessful', two 'bad', three 'average', four 'good', five 'very good'. A score of 'five' during the observation of critical elements indicates that the element was observed in accordance with psychomotor acquisition, while a score of 'one' indicates that the critical element was not acquired or observed.

In order to determine the psychomotor skill level of the subjects participating in the study, an observation form for each skill (psychomotor) expressed in the curriculum was developed under the supervision of two experts. A dependent samples t-test was conducted to test whether the measurements made by the two observers in the pre-test and post-test were consistent. According to these results, no statistically significant difference was found between the observers in any skill in the pre-test measurements (pre-test: $t= 1.21$, $p>0.05$; post-test: $t= -0.83$, $p>0.05$). A total of 10 critical elements were identified in the observation form. A student can get between 10 and 50 points from the observation form. In the 120-person test group, the reliability coefficient of the observation

form was calculated as .90 as a result of Cronbach's alpha analysis.

Physical Education Lesson Cultural Awareness and Value Perception Scale

The scale developed by the author of the study was used. "Physical Education and Sports Lesson Value Scale" consists of 5 sub-dimensions. The sub-dimensions of the scale are Sports Culture, Healthy Life and Nutrition, Solidarity, Respect, National Culture and Unity and Awareness. The scale items prepared in 5-point Likert type were used as "Always (5), Often (4), Sometimes (3), Rarely (2) and Never (1)". The maximum score to be obtained from the sub-dimensions of the scale is 5 and the minimum score is 1. The evaluation of the scale is as follows: 1 - 1.8 points is never, 1.9 - 2.6 points is rarely, 2.7 - 3.4 points is sometimes, 3.5 - 4.2 points is often, 4.3 - 5 points is always. While the Cronbach Alpha values of the sub-dimensions of the original scale were between 0.69 and 0.81, it was calculated as 0.82 for the whole scale. In the present study, the Cronbach Alpha values of the sub-dimensions; Sports Culture (0.72), Solidarity (0.74), Respect (0.73), National Culture and Unity (0.81), and Awareness (0.77), while the value of the whole scale was (0.71). The total Cronbach Alpha reliability coefficient of the Kazakh form of the scale was calculated as .86.

Data Collection and Analysis

The scales to be used in the study were applied to the participants as pre-test and post-test. The sample group was divided into two groups. The first group (control group) participated only in the physical education classes included in the current education curriculum during the study. The second group (experimental group), on the other hand, participated in a face-to-face training application supported by digital technology and implemented by the researchers in addition to the physical education lessons. These trainings were carried out by the researchers for 8 weeks by applying a practice and drill style. Independent Samples t test, one of the parametric statistical techniques, was applied during the statistical analysis and evaluation of the data. The significance level was accepted as 0.05.

Findings

First of all, the results of the analysis of the 'Physical Education Lesson Outcomes Test', 'Physical Education Lesson Psychomotor Skills Test', 'Attitude Towards Physical Education Lesson Scale' and 'Cultural Awareness and Value Perception in Physical Education Scale', which were administered to the experimental and control groups as pretests, were presented (see Table 2-5).

Table 2. Analysis of Pre-test Scores of Experimental and Control Groups in Terms of Physical Education Lesson Outcomes

Pre-Test	Group	N	Mean	Std. Deviation	t	p
Physical Education	Experimental	30	8.93	3.11	0.43	0.66
Lesson Achievement Test	Control	30	9.57	3.77		

Table 2 shows the distribution of the scores obtained by the experimental and control groups from the physical education lesson acquisition test administered as a pretest. The mean of the experimental group was 8.93 with a standard deviation of 3.11; the mean of the control group was 9.57 with a standard deviation of 3.77. The t-value calculated between the mean scores of the groups was 0.43. There was no significant difference in the pre-tests, which were the measurements at the beginning of the research, in terms of physical education lesson outcomes. The fact that the mean and standard deviations of the groups were very close to each other in the pre-test proves the equivalence of the groups in terms of the gains of the lesson.

Table 3. Analysis of Physical Education Psychomotor Skill Scale Pre-test Scores of Experimental and Control Groups

Pre-Test	Group	N	Mean	Std. Deviation	t	p
Psychomotor Skill	Experimental	30	17.30	4.84	0.77	0.44
	Control	30	16.47	3.40		

Table 3 shows the distribution of the scores obtained by the experimental and control groups from the physical education psychomotor skills test administered as a pretest. The mean of the experimental group was 17.30 with a standard deviation of 4.84; the mean of the control group was 16.47 with a standard deviation of 3.40. The t value calculated between the mean scores of the groups on the physical education psychomotor skills test was 0.77. There was no significant difference in the pre-tests, which were the measurements at the beginning of the research, in terms of psychomotor skills related to the lesson. The fact that the mean and standard deviations of the groups were very close to each other in the pre-test skill scores proves the equivalence of the groups in terms of the psychomotor gains of the lesson.

Table 4. Analysis of Attitude Scale Towards Physical Education Lesson Pre-test Scores of Experimental and Control Groups

Pre-Test	Group	N	Mean	Std. Deviation	t	p
Attitude towards Physical Education Lesson	Experimental	30	2.70	0.30	0.82	0.57
	Control	30	2.62	0.46		

Table 4 shows the distribution of the scores obtained by the experimental and control groups from the attitude towards physical education lesson scale applied as a pre-test. The mean of the attitude scores of the experimental group was 2.70 with a standard deviation of 0.30; the mean of the control group was 2.62 with a standard deviation of 0.46. The t value calculated between the mean scores of the groups' attitudes towards physical education lesson was 0.82. There was no significant difference between the groups in the pre-tests, which were the measurements at the beginning of the research, in terms of attitudes towards physical education lesson.

Table 5 shows the distribution of the scores of the experimental and control groups from the cultural awareness and value perception scale in physical education applied as a pre-test. A t value of 0.96 was calculated between the groups' pre-test mean scores on the sports culture subscale, a t value of 0.99 between the mean scores on the solidarity subscale, a t value of 0.68 between the mean scores on the respect subscale, a t value of 0.20 on the

national culture and togetherness subscale, a t value of 1.41 on the awareness of values subscale, and finally a t value of 0.98 between the mean pre-test scores on the whole scale. In terms of cultural awareness and value perception in physical education class, there was no significant difference between the groups in the pre-tests, which were the measurements at the beginning of the research.

Table 5. Analysis of Cultural Awareness and Value Perception Scale Pre-test Scores of Experimental and Control Groups

Pre-Test	Group	N	Mean	Std. Deviation	t	p
Sport Culture	Experimental	30	2.95	0.37	0.96	0.41
	Control	30	3.00	0.59		
Solidarity	Experimental	30	2.87	0.35	0.99	0.33
	Control	30	2.77	0.43		
Respect	Experimental	30	3.00	0.37	0.68	0.50
	Control	30	2.90	0.71		
National Culture and Unity	Experimental	30	2.73	0.58	0.20	0.84
	Control	30	2.70	0.70		
Awareness	Experimental	30	2.73	0.58	1.41	0.17
	Control	30	2.47	0.86		
Cultural Awareness and Value Perception in Physical Education	Experimental	30	2.84	0.33	0.98	0.32
	Control	30	2.77	0.49		

Below, the analysis results of the 'Physical Education Lesson Outcomes Test', 'Physical Education Lesson Psychomotor Skills Test', 'Attitude Towards Physical Education Lesson Scale' and 'Cultural Awareness and Value Perception in Physical Education Scale' applied to the experimental and control groups as post-tests are given (see Tables 6-9).

Table 6. Analysis of Post-Test Scores of Experimental and Control Groups in Terms of Physical Education Lesson Outcomes

Post-Test	Group	N	Mean	Std. Deviation	t	p
Physical Education Lesson	Experimental	30	14.07	5.10	3.09	0.00
Achievement Test	Control	30	10.13	4.77		

Table 6 shows the distribution of the scores obtained by the experimental and control groups from the physical education lesson acquisition test administered as a post-test.

Table 7. Analysis of Post-test Scores of Experimental and Control Groups in Psychomotor Skills Scale

Post-Test	Group	N	Mean	Std. Deviation	t	p
Psychomotor Skills Test	Experimental	30	31.63	6.04	1.95	0.06
Post-Test	Control	30	28.17	7.62		

The mean post-test score of the experimental group was 14.07 with a standard deviation of 5.10; the mean of the control group was 10.13 with a standard deviation of 4.77. The t-value calculated between the groups' physical education lesson post-test gain score averages was calculated as 3.09. After the experimental procedures of the research, a significant difference was found between the mean scores of the groups in the post-tests in terms of physical education lesson outcomes ($p<0.05$). The experimental group students who received computer-assisted face-to-face education in physical education lessons achieved higher lesson outcomes in the post-test compared to their peers in the control group.

Table 7 shows the distribution of the scores obtained by the experimental and control groups from the physical education psychomotor skills test administered as a post-test. The mean of the experimental group was 31.63 with a standard deviation of 6.04; the mean of the control group was 28.17 with a standard deviation of 7.62. The t value calculated between the post-test mean scores of the groups on the physical education psychomotor skills scale was 1.95. After the experimental procedures, no significant difference was found in the post-tests in terms of psychomotor skills related to the lesson. However, it is noteworthy that the experimental group students obtained high averages in the post-test skill scores.

Table 8. Analysis of Post-test Attitude Scores of Experimental and Control Groups towards Physical Education Lesson

Post-Test	Group	N	Mean	Std. Deviation	t	p
Attitude towards Physical	Experimental	30	3.44	0.76	3.41	0.00
Education Lesson	Control	30	2.91	0.41		

Table 8 shows the distribution of the scores obtained by the experimental and control groups from the attitude towards physical education lesson scale applied as a post-test. The mean of the post-test attitude scores of the experimental group was 3.44 with a standard deviation of 0.76; the mean of the control group was 2.91 with a standard deviation of 0.41. The t value calculated between the groups' post-test attitude towards physical education lesson mean scores was 3.41. In terms of attitudes towards the physical education lesson, it was understood that the experimental group students developed high level and positive lesson attitudes in terms of the measurements after the experimental procedures.

Table 9 shows the distribution of the scores obtained by the experimental and control groups from the cultural awareness and value perception scale in physical education applied as a post-test. A t value of 0.7 was calculated between the post-test mean scores of the groups on the sports culture subscale, a t value of 0.21 between the post-test mean scores on the solidarity subscale, a t value of 1.41 between the post-test mean scores on the respect subscale, a t value of 1.66 on the national culture and togetherness subscale, a t value of 2.12 on the awareness of values subscale, and finally a t value of 1.50 between the post-test mean scores on the whole scale. Considering a subscale in terms of cultural awareness and value perception in physical education class, no significant difference was found between the groups in the post-tests after the experimental procedures of the research ($p>0.05$). However, a significant difference was found in the post-test scores of the awareness of culture and values subscale. The students in the experimental group developed a higher level of cultural and values awareness compared to

their peers in the control group as a result of the computer-assisted face-to-face training.

Table 9. Analysis of Cultural Awareness and Value Perception Post-test Scores of Experimental and Control Groups in Physical Education Class

Post-Test	Group	N	Mean	Std. Deviation	t	p
Sport Culture	Experimental	30	3.4	0.6	0.7	0.5
	Control	30	3.27	0.52		
Solidarity	Experimental	30	3.23	0.63	0.21	0.84
	Control	30	3.20	0.61		
Respect	Experimental	30	3.33	0.61	1.49	0.14
	Control	30	3.10	0.61		
National Culture and Unity	Experimental	30	3.23	0.57	1.66	0.10
	Control	30	2.97	0.67		
Awareness	Experimental	30	3.30	0.75	2.12	0.04
	Control	30	2.90	0.71		
Cultural Awareness and Value	Experimental	30	3.29	0.56	1.50	0.14
Perception in Physical Education	Control	30	3.09	0.51		

Discussion and Conclusion

In this study, the effect of digital technology-supported face-to-face instruction on students' lesson attainment, skills, attitudes, cultural awareness and values levels in physical education lessons in primary school compared to traditional instruction was examined. According to the findings of the study, students in the experimental group, where 8-week digital and face-to-face teaching activities were applied, achieved higher levels of achievement compared to their peers in the control group, where traditional teaching was applied. However, no significant difference was found between the psychomotor skills of the experimental and control groups regarding the physical education lesson. These findings are similar to the findings of the studies conducted by Goad (2019); Papastergiou et al. (2021); Sun and Zheng (2021); Talaghir et al. (2021); Wang (2022); Yu (2021). There are studies on the positive effects of integrating technology into physical education classes on students and effective learning. For example, it is known that video-based applications and different mobile applications have a positive effect on students' skill development in various sports branches (Qu, 2018; Lin et al., 2022). It is seen that digital technology applications in physical education classes in primary schools have positive effects on student learning by using them in subjects such as achieving the achievements of the lessons, students' participation in the lesson, increasing the quality of interaction between teachers and students, providing online support, objective measurement and evaluation, taking physical fitness measurements, individualizing learning by responding to different needs of students, and providing student-centered education. However, although the psychomotor skills of the students increased in both groups in the posttest, no significant difference was found in favor of the experimental group.

In another sub-problem of the study, the effect of digital technology-supported face-to-face education on students'

attitudes towards physical education lessons compared to traditional education was examined. According to the findings of the study, the experimental group students who received digital technology-supported face-to-face education developed high levels of physical education attitudes compared to their peers in the control group who received traditional education. These findings are similar to the findings of the studies conducted by DaWei et al. (2018), Qu (2018), Tarantino et al. (2022), Yu (2021), Zang (2021). The use of technology in physical education classes can positively affect students' motivation and attitudes towards physical activity and class participation (DaWei et al., 2018; Yu, 2021). DaWei et al. (2018) and Tarantino et al. (2022) examined the effect of the use of multimedia and digital technologies in physical education classes on students' attitudes. Students who were exposed to digital and multimedia technologies showed more interest and positive attitudes towards physical education classes compared to the control group. Zhang (2021) found that with the help of technology, students enjoy physical education lessons more and are more motivated to learn because platforms are created where students can access lesson resources in line with their needs and interests (Qu, 2018).

The last sub-problem of the research is about the effects of digital technology supported face-to-face education on students' cultural awareness and value perceptions in physical education lessons compared to traditional education. According to the research findings, there was no difference between the post-test scores of the students in the experimental group and the control group in the total and four sub-dimensions of the cultural awareness and value perception scale in physical education lessons. However, there was a significant difference in favor of the experimental group only in terms of cultural awareness in physical education lessons. However, it was observed that the cultural awareness and value perceptions of the students in both groups increased significantly during the eight-week intervention. Primary school physical education classes aim to provide children with skills and habits such as taking responsibility, working in cooperation, self-management, using time well, self-confidence, working in a planned manner, being patient, enjoying what they do, respecting their friends and competitors, and being aware of sportive and cultural values, in addition to the sportive content of the lesson. Value consciousness gains content only through concrete relationships. Within the relativity and diversity of relationships, values that are generally valid, i.e. values that are rules, are basic human values. Sportive values are among them (Şahin, 2005). However, the development of sports culture and values requires more and different practices than one or two hours of physical education lessons. Moreover, efforts should be made to see and use games and sports activities as an educational tool. The child's adoption of sportsmanship and sportsmanship as a culture of "being adorned with the qualities of virtue and excellence" will only be possible with the intensive support of his/her family and close environment, the school, and by making physical education classes functional through multifaceted methods. To the extent that the learning environment of physical education classes bears the traces of such a culture, sports can be an indispensable tool of education. After all, sports education is not only the training of the body or teaching the mechanical steps of sports branches and all kinds of exercises, but also the necessary tool and action for the holistic education of children (cognitive, affective, psychomotor, cultural, etc.). On the other hand, it is clear that a strong paradigm shift is needed in the field of physical education today. Because the "filling the gap, passing the time" view of sport education physical education lessons, which exists in our country but is also effective in many parts of the world, must change. In the light of new teaching technologies, it is an important necessity to reflect the multifaceted goals and cultural values of sport science to physical education curricula and practice in a holistic way.

As a result, the findings of this study, which was conducted using quantitative research methods, concluded that the use of technology in physical education classes has positive effects, as seen in studies on the use of technology in physical education classes, especially after the pandemic. Although studies on the integration of technology into physical education are not yet at a sufficient level, it seems promising for the future. Based on the results of the research, it is recommended that teachers should integrate technology into physical education lessons according to pedagogical foundations, cultural awareness and values should also be given importance in this lesson, researchers should conduct more studies in this field, and curriculum development experts should prioritize adaptations to integrate technology into physical education lessons. Finally, it is also important to add lessons/practices on digital literacy and digital lesson content production to the departments that train physical education and sports teachers.

Acknowledgements

This research is funded by the Abai University (Contract No. 09-02-55/257 dated 27.03.2023).

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Author Information

Yernar Ospankulov
https://orcid.org/0000-0002-0849-8531
Postdoctoral student
Kazakh National Pedagogical University named after Abay
Dostyk ave., 13
Almaty, Republic of Kazakhstan
Email: *ospankulovernar2@gmail.com*

Aziya Zhumabayeva
https://orcid.org/0000-0002-3406-7145
Abay Kazakh National Pedagogical University
Dostyk ave., 13
Republic of Kazakhstan, Almaty

Sabira Nishanbayeva
https://orcid.org/0000-0002-4290-7511
Postdoctoral student
Kazakh National Pedagogical University named after Abay
Dostyk ave., 13
Almaty, Republic of Kazakhstan

Bagzhan Ussen
https://orcid.org/0000-0001-6892-3416
Almaty Humanitarian - Economic University
Almaty, Republic of Kazakhstan

Ali Zhalel
https://orcid.org/0000-0002-0127-990X
L.N. Gumilyov Eurasian National University
Baikonur district, A.Yanushkevich str. 6
Almaty, Republic of Kazakhstan