

**REPUBLIC OF TURKEY**  
**FIRAT UNIVERSITY**  
**INSTITUTE OF HEALTH SCIENCES**  
**DEPARTMENT OF PHYSICAL EDUCATION AND SPORTS**



**AN IDENTIFICATION OF THE LEVELS OF  
USE OF EDUCATIONAL TECHNOLOGIES OF  
PHYSICAL EDUCATION TEACHERS IN THE  
ELAZIĞ PROVINCE**

**MASTER'S THESIS**

**Kaka Shaikh Baba Shaikh OMAR**

**2019**

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**2019 – Elazığ**

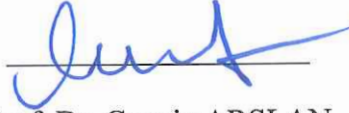
## APPROVAL



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This Thesis is suitable to the standards of Master's Degree Thesis..



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The Thesis is reviewed and accepted as a Master's Thesis in terms of scope and quality

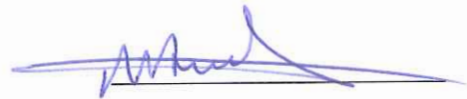


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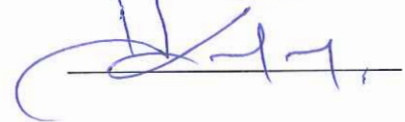
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## ETHICAL DECLARATION

I declare that I conducted this thesis study without any unethical behaviors in any step from planning my studies and obtaining findings to writing and I obtained all the information and data in this thesis according to academic and ethical rules. I further declare that I presented references for the information and interpretations, which are in this thesis but not included in the findings of the thesis.

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ELAZIG

## **DEDICATION**

Firstly, I dedicated this master's study to the spirit of my late father, and my dearest mother, her teaching of life, guidelines, and constant provision has always been extraordinary.

Secondly, I proudly dedicate this thesis to my brothers and sisters. You are the life pillar that I will unceasingly lean on: I realize that this thesis study would not have complete without your enormous encouragement, support and direct help. Further, I dedicate this thesis to my beloved wife and kids.

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## **ABBREVIATION AND SYMBOLS**

|              |   |
|--------------|---|
| <b>ICT</b>   | : Information and Communication Technologies    |
| <b>SIIA</b>  | : Software and Information Industry Association |
| <b>TPCK</b>  | : Technological Pedagogical Content Knowledge   |
| <b>TISE</b>  | : Technology Integration Self Efficacy          |
| <b>ITOE</b>  | : Instructional Technology Outcome Expectations |
| <b>PETE</b>  | : Physical Education Teacher Education          |
| <b>ET</b>    | : Educational Technologies                      |
| <b>ANOVA</b> | : Variance Analysis                             |

## 1. ÖZET

çalışmanın amacı, Elazığ ilindeki beden eğitimi ve spor öğretmenlerinin görüşleri doğrultusunda derslerde kullandıkları eğitimi teknolojilerini ve seviyelerini belirlemektir. Bu çalışma, tasarımı ve konusu olarak betimsel bir çalışmadır.

Çalışmanın örneklem grubu Elazığ il merkezinde ortaokul (76 beden eğitimi ve spor öğretmeni) ve ortaöğretimde (76 beden eğitimi ve spor öğretmeni) görev yapan toplam 149 beden eğitimi ve spor öğretmeni oluşturmaktadır.

Beden Eğitimi ve Spor Öğretmenlerinin görüşlerinden elde verilere öncelikli olarak SPSS paket programında normallik analizi yapılmıştır. Normallik analizi sonucunda, parametrik veriler için T-testi ve Varyans Analizi (ANOVA) kullanılmıştır. Non-parametrik verilerde ise Mann Whitney U testi ve Wilcoxon testi kullanılmıştır. Elde edilen verilerin anlamlılık düzeyi ise  $p < 0.05$  olarak kabul edilmiştir.

Yapılan araştırmanın sonucunda, Elazığ ilindeki ortaokul ve liselerde bulunan beden eğitimi öğretmenlerinin eğitim teknolojilerini kullandıklarını, internet Google Drive, Dropbox ve e-posta gibi amaçlarla kullandıkları belirlenmiştir. Ayrıca, beden eğitimi ve öğretmenlerinin bir kablosuz ağ kullanarak (kablosuz, Bluetooth veya kızılötesi) bir görüntüyü, metin belgesini veya bir sunumu gönderdikleri görülmüştür. Yine beden eğitimi ve spor öğretmenlerinin internetten eğitim materyalleri indirip düzenledikleri, bireysel öğrenmeyi teşvik eden materyaller için de teknolojiyi kullandıkları ve öğrencileri teknoloji kullanımı konusunda yönlendirdikleri tespit edilmiştir.

**Anahtar Kelimeler:** Education, Technology, Sport, Teacher.

## 2. ABSTRACT

The aim of this study is to identify the educational technologies and their levels used in lessons of physical education and sports teachers in Elazığ, according to their perceptions. The study is a descriptive study in terms of its design and topic.

The sample group of the study consists of a total of 149 physical education and sports teachers, who were working in middle schools (76 physical education and sports teachers) and high schools (76 physical education and sports teachers) in the city center of Elazığ.

The data collected from the perceptions of Physical Education and Sports Teachers were initially analyzed in SPSS package software for normality. As a result of the normality analysis, t-test and variance analysis (ANOVA) were conducted for the parametric data. For non-parametric data, Mann Whitney U test and Wilcoxon test were used. The level of significance for the obtained data was regarded as  $p < 0.05$ .

As a result of the study, it was determined that the physical education teachers in middle and high school in Elazığ used educational technologies for aims such as using the internet for Google Drive, Dropbox and e-mails. Additionally, it was observed that physical education teachers used wireless networks (wireless internet, Bluetooth or infrared) to send images, text documents or presentations. It was also observed that physical education and sports teachers downloaded and edited educational materials from the internet as well as using technology for materials that encourage individual learning and motivating their students in using technology.

**Keywords:** Education, Technology, Sports, Teacher.

### **3. INTRODUCTION**

#### **3.1. GENERAL INTRODUCTION**

This study aims to identify the educational technologies in physical education and their levels utilized by physical education teachers in the Elazığ Province. Modern societies attach great hopes to their education systems because one of their main objectives is to develop various aspects of life by providing qualified and trained human resources capable of doing whatever they need. Physical education, with its human and material dimensions, is the key to human development. Cultural development on education and current requirements aim to enable the individual to absorb the culture and its requirements so that it can communicate with what is happening (1).

The essential reforms in the educational system are sought by specialists and supervisors in the field of education to raise the levels of educational performance and pedagogy of the teachers in order to achieve the goals and objectives aimed at the curriculum, which is the approach to access to building a competent individual. The curriculum contains the necessary components to determine the method of building, levels and competencies in various cycles as well as the teaching methods used in education among these pillars on which the curriculum and modern teaching methods that have been applied in all educational materials are based. Moreover, among these materials, one of the emergent materials is the educational technologies, where the instructional and supervisory staff seeks to communicate how to employ these modern teaching methods according to the new curriculum, for instance, the competency approach (2).

Educational technologies are increasing in the classroom. Therefore, the new generation of children is preparing to work with these new technologies, which play an essential role in the learning of students and the acquisition of diverse knowledge so that educational technology can integrate into future programs, technological skills, and cognitive characteristics. With the help of new technology comes the explosion of learning and receiving further information, especially on portable devices. The teachers are the backbone in the bid of modern educational technologies, teaching methods, and observed after these years of reforms; we know the reality and degree of use of these methods currently taught by the teachers of physical education and sports. The educational process is the cornerstone in the development of countries. It is of great importance in all its aspects, especially the active and effective internal components of the triangle known as the teacher, the learner and the curriculum of the teacher whose place is known throughout the ages and times (3).

The teacher is one of the most critical human inputs to the educational process if not the most important. Teachers are the most effective and influential elements in all inputs in the educational system and achieve their objectives better and more efficiently. Moreover, since the teachers of physical education play a vital role in the educational process and the multiplicity of his close contacts with the majority of students, they have a direct impact on students' behaviors. It is rather necessary for teachers to be social, personally and professionally compatible, with a combination of positive educational and behavioral trends that enable them to play their roles successfully. The characteristic that separates physical education from colleges and schools is human movement and understanding of the subject as a means of physical

activity. Thus, the human body can be considered as a significant media in physical education classes, which may result in a missing link between technology and physical education from the perspective of common sense (4).

In order for the teachers of physical education to do their job well, teachers must prepare for the responsibilities. Thus, this requires the provision of programs and expertise and the opportunities that must be prepared through programs based on scientific principles with clear and specific educational objectives. It is a systematic process aimed at providing information that helps to make decisions or judgments about the endeavors and educational programs and the extent of attaining the goals established for them and to resort to the results of this process in the development and improvement of what shows the shortcomings to upgrade. The importance of study as a self-assessment of the behavior of teachers and lecturers of physical education is that it sheds light on the nature of some teaching practices. This study also contributes to the provision of an assessment tool to identify classroom teaching practices for teachers and teachers of physical education at that stage, which can support the scientific research process (5).

Based on the descriptive statistics of educational technologies in physical education and their levels, all levels are statistically significant and influential for the effective physical education, while to reach superiority physical education, all physical education teachers and professionals must have access to appropriate training tools, guidelines, and physical education analyses. Therefore, educational technologies in physical education include the practices that are formed with the real use of equipment, through counting all essentials found within the educational process and by using specific approaches using suitable processes, besides the

assessment of these practices. Nevertheless, from teachers' perspectives, capabilities of using technology, technology integration, professional development for education, education's technological literacy, technology guidance, social, ethical, and legal provisions, and communication constitute the critical feature motivating the effect of using ET by teachers. Accordingly, the study found that all levels of educational technologies in physical education were utilized by teachers in the Elazığ province in middle and high schools at a significant level. However, the social, ethical, and legal provisions and professional development, respectively, were most expressively utilized by teachers in both schools in the Elazığ province. Conclusions in this study may be used in several important ways. Accordingly, it can be used to develop the course, allowing teachers and teacher educators to handle what graduates do and do not see as important in their preparation. The study can also contribute to the literature on educational technologies in physical education by providing a theoretical framework. Furthermore, it contains the proposed effects of physical literature and sports by providing useful instructional devices that are likely to be useful for physical education systems. While the implementation of any material and educational arrangement on teaching aids is no longer unnecessary, it has become a necessity to ensure the success of these systems and an integral part of its system structure. Therefore, to spread educational technologies in physical education and influence physical education, there should be a commitment and contribution to all around physical education and sports departments. Although the beginning of reliance on teaching aids in teaching and learning processes has ancient roots, it has recently developed a significant expansion with the advent of modern educational plans. Consequently, we realize today about the theory of modern communication

and its dependence on the introduction of regulations. International studies have revealed that the level of learning among students doubles by using current teaching methods that help to taste science for positive performance. Thus, modern methods and techniques provide students with the ability to search for and gather information in the shortest time and with the least effort. While ET in physical education plans need to reevaluate how and what potential teachers are taught about evaluation and to consider those physical education teachers and their programs, which will no doubt benefit from the use of more evaluation techniques and reflection on actual practice. The additional outcome of this study, which has practical implications for teachers and teacher educators, is related to experience. ET in educational institutions is needed to be ensured that they deal with professional behaviors and behaviors throughout their program. Participants in this study used much of what they have learned in this area in their current practice. Lastly, this study may provide public schools with insights into the challenges that physical education teachers face in the light of their experiences in the malignant ET tests and their commitment to facilitate the transition from higher education to the world of practical knowledge.

Therefore, this study included two theoretical and applied aspects according to the following plan: Chapter one dealt with an introduction to the study, which determines the study background, the statement of the problem, the hypotheses of the study, its importance and objectives. The second chapter deals with the sense of educational technologies their purposes and relation to physical education, as well as the meaning of physical education and its concept, and terms related to its concept, physical education components, the educational technologies in the school, its objectives, physical education in modern society. Chapter three deliberate the study

methodology, data collection tools, study areas, sample and how to choose them. In chapter four, the results of the hypotheses were presented and explained, some suggestions were submitted, followed by the list of references and annexes.

### **3.1.1. Reasons to Choose the Topic**

It is known that each topic chosen for the study have reasons and perhaps one of the most significant reasons for choosing the topic is self-interest as well as the researcher's interest in the field of study and desire to know the secret behind the low level of educational process of physical education. In addition to benefit from the subject in both theory and practice, we also benefit from the methodology of scientific research and benefit from the other aspect of the educational process through contact with lecturers. Furthermore, identifying the main reasons that led to the decline of the educational process in the material of physical education also becomes possible as well as identifying the limits of the phenomenon studied. Any study of a subject that pursues to achieve a set of goals, whether these are scientific goals or processes, aims to increase human knowledge and to give a scientific explanation of the phenomenon of the negative image of the teacher of physical education, and to identify the dimensions.

### **3.1.2. The Study Background**

In the field of physical education teachers, Yaman studied the abilities of physical education teachers in educational techniques and stated that in the field of education, ICTs and software tools became more dominant than ever and could be obtained by almost all schools. This physical education, which is not only a significant element of formal and informal education but also a significant part of

lifelong learning, has been affected and physical education teachers have begun to use educational and multimedia techniques. However, due to some reasons such as lack of technical facilities and inadequate in-service training, educational techniques and multimedia tools are either not used in physical education classes or used inappropriately. Additionally, based on the outcomes of the study, some suggestions are made for physical education teachers to use educational techniques better (5). Sargent investigated education and digital technology in physical education through evaluative research while arguing that digital technology has not become common in teaching and learning despite the phenomenal growth, availability, and usage by society. Moreover, when digital technology is used in education, it seems to take precedence over pedagogy. In the field of physical education, the study has shown that there is little knowledge about how and why teachers in the UK use digital technology in their school. Thus, this research aims to explore the understanding and experiences of physical education teachers regarding how to use digital technology in their practices and why to use them (3).

In this context, a study conducted by Bahadur analyzed the use of educational techniques in education and education activities. As mentioned by the researcher, this study provides insight into how technology policies are applied in this national context and what challenges are faced in the higher education sector in this developing country. From the empirical point of view, the study applies a qualitative and determined approach to a case study to investigate and collect detailed and comprehensive information on the challenges of using educational technology in a selected educational establishment in Nepal. The outcomes show that lack of infrastructure is the primary challenge. Besides, the lack of plans and strategies for

the use of technology appears to be a challenge. Additionally, the observed state institution faces problems with teacher motivation (4).

Baert, examined a combination of technology under the teaching of physical education teachers. The researcher argued that in 2008, the education standards of local physical education teachers comprised a more combined approach to teaching pre-service teachers about technology and stated that candidates for teachers should be able to plan and implement integrated learning experiences in technology that meet the lesson objectives. With the inclusion of the 2008 standards, the physical education faculty of educators has the task of creating education that effectively integrates technology. This study found low levels of efficiency and integration. On average, efficiency levels were the primary use of technology, and levels of integration indicated that PETE professors were familiar with the use of technology but often did not integrate it or teach it to students. Furthermore, the efficiency levels expected integration significantly. Computer techniques, mileage, and heart rate monitoring tools were often incorporated into PETE programs. Teachers have expressed concerns about the proliferation of technologies (2).

In this regard, Kivanc and Mustafa observed the prior knowledge of the content of technical education of physical education teachers, the self-efficacy of technology integration, and the expectations of the results of educational technology. Besides, the researchers found that the technological knowledge of educational knowledge TPCK, TISE integration of self-efficacy technology and the effects of technological education projections ITOE estimates pre-service physical education teachers at satisfactory levels while university instructors were not an excellent example of the use of technology in the classroom. Pre-service teachers stated that the combination

of physical education and emerging sports-related technologies were almost non-existent in teaching practices in the university environment. TPCK, TISE, and ITOE are reasonably related to each other ( $P < 0.05$ ). Pre-service teachers' perceptions of TPACK, TISE, and ITOE were positively influenced by their understanding of the integration of university teaching technology into university teaching (1).

Regarding the higher education in the digital age, Duderstadt et al. identified the technology issues and strategies for American schools. The study found that technology has positive and robust effects on teaching, which frees the classroom from the place and time constraints, and completes students' learning by accessing the source material. As a result, higher education has undergone significant changes in teaching to management (6). Additionally, Säljö investigated the digital learning tools and challenges facing the institutional traditions of learning: techniques, social memory and the developmental nature of education. He argued that techniques support not only learning but also how learning happens. Learning activities are therefore under increasing pressure for developments in digital technologies (7).

In another study, Thiab identified the nature of the relationship between the directions of the teachers of physical education and sports in secondary education towards the teaching profession and the performance of teaching. Therefore, the study was conducted to determine the degree of these trends regarding positive or negative, as well as to measuring the level of actual teaching performance through the teaching practices in the lesson of physical education and sports. The researcher, therefore, used two tools, namely, the measure of the trend toward the teaching profession and the teaching performance scale, where they distributed to a random sample of 250 teachers distributed in 60 states of the center and west of Algeria. The

results indicated that teachers have positive attitudes towards the teaching profession of physical education, which led them to achieve some good teaching performance in various teaching skills related to planning (8).

While, Saadawi and Mazari, in their study, analyzed the levels of physical education and sports teachers' professions for educational competencies in the light of variable experience and scientific qualifications. As the researcher mentioned, this study aimed to identify the differences in the educational competencies of the performance of teachers of physical education of knowledge according to the variable years of experience in teaching and scientific qualification and to identify the availability of educational competencies performance of teachers of physical education for the second stage and determine their performance levels. The study found that the teachers of physical education and sports have a high degree in the exercise of educational performance competencies and that there are no statistically significant differences in the practice of teachers of physical and sports education for the performance of educational competencies attributed to the variable of scientific qualification. There are no significant variances in the practice of professors of physical education for the educational competencies' performance attributed to the variable experience (9).

### **3.2. The Statement of the Problem**

The population growth, besides the lack of qualified educational staff in many countries and the increasing scientific knowledge, created a high pressure on the educational systems, making them unable to carry out their responsibilities and new roles produced by social and economic changes, and new scientific methods. Hence,

this led to the recompense of education experts and specialists to seek actions about the failure of educational systems to keep pace with scientific development and technological excellence. Besides, they push forward the educational process since the teachers conscious of physical education in his/her significant role in teaching and preparation, upbringing, and keen to direct and mobilize energies and creativity generation, find work and persevere with determination, also works on the development momentum itself and adjusts his/her performance and behavior of teaching from time to time.

Physical education, in the meantime, has changed as an institute subject that willingly adjusts to technology trends to foster student learning. Some efforts to nurture and facilitate technology integration in physical education show the growth in interest in this topic over the past years: various physical education teacher education (PETE) programs, textbooks, and journal papers have implemented technology issues as a consistent topic in the dominion of physical education research and practice. Nevertheless, there are various practical research papers on the benefits of using technology in physical education, while little empirical research has been conducted to realize the present possibility of the perceptions of educational technologies in physical education and their levels utilized by teachers (2). Then, through the work of the researcher, is a specialist of physical education, for a long time in the field of education for the primary and secondary levels, the researcher felt the need for a self-assessment tool in which the teacher of physical education judges the performance under the tool (questionnaire). Rather than the external evaluation of the performance of the teacher by the educational supervisor, the researcher was led to give confidence and freedom to the teacher in the assessment itself and the level of

opinion in an attempt to diagnose the strengths and weaknesses from this point of view. Therefore, the researcher makes recommendations and proposals for officials to prepare teachers and to train them to overcome the weak and to strengthen the strong.

### **3.2.1. Purpose of the Study**

The purpose of this study was to analyze the current status of educational technologies in physical education and their levels utilized by teachers in the Elazığ Province. Thus, this study purposed to identify the types of technologies currently qualified to physical education teachers in the Elazığ Province as well as assessing the current technological proficiency of physical education teachers as supposed by the secondary and higher schools in the Elazığ Province while examining the features that affect technologies utilization of PET ability within the secondary and higher schools in the Elazığ Province. Additionally, this study aimed to classify and highlight educational technologies, which are believed to be useful for schools.

### **3.2.2. The Significance of the Study**

The significance of the study lies in the theoretical and practical contributions that the conceptual approach to teaching can help the improvement of the level of competence of teachers and the effectiveness of instruction and identification of any of the variables that are more important in interpreting the percentage of variation in educational performance competencies among the teachers of physical education and sports. In the character of the teachers, indicators can be used in the selection and preparation of the teaching profession as factors developed for the performance of

educational competencies among teachers of physical education and sports and increase the chances of success in the profession. The practical educational contributions that can be added in the study are the evaluation of the areas of educational performance of teachers of physical education and sports in general, and teachers of physical education and sports in particular. Additionally, it is significant to understand the factors that may hinder or facilitate the integration of technology by educators.

### **3.2.3. Research Question**

The purpose of this thesis study is to examine the educational technologies in physical education and their levels utilized by teachers in the Elazığ Province. Hence, this study aims to answer one essential question: To what extent the educational technologies in physical education are utilized by teachers in the Elazığ Province? Thus, to answer this question, this study addresses the following sub-questions:

- What technologies are currently being qualified to pre-service teachers?
- How are these technologies introduced in physical education?
- How and which technologies used can provide insight into the need for technical guidance?

### **3.2.4. Limitation**

The study limitations by spatial, temporal, and human boundaries are as follows: Firstly, the spatial boundaries, the questionnaire statements have been applied on a survey sample in the in Middle and High Schools in the Elazığ Ministry of National Education in Turkey. Secondly, time boundaries: this limitation is

represented by the duration of the study applied to the in Middle and High Schools in the Elazığ in questions by providing a survey questionnaire, which started by initial visits to classify the study problems and questioning the teachers and the educational staffs to discuss their comments and ideas about the study and its purposes. Moreover, the the questionnaires forms were distributed and then collected back. Lastly, the human boundaries: these include human confines to look at the teachers as the survey sample in Middle and High Schools in the Elazığ.

### **3.3. Educational Technologies in Physical Education**

#### **3.3.1. The Concept of Educational Technologies**

Education in its purest sense means the process of adaptation or compatibility to achieve compatibility between human values and trends imposed by the environment to the degree of physical and spiritual development in it. Education is also an exercise, the human being or the individual learns by doing things in the home, the street, and school. It is not limited to school where individuals meet. The ultimate objective of education is to help the human personality to grow correctly and to be emotionally and socially liberated from hatred, hate, and humiliation (1). Education based on the preparation of good citizens by providing them with the habits and skills that facilitate their satisfaction. All of this is made during the early stages of an individual's life. Therefore, adaptation is, in fact, the results of the latest stages of experiences and experiences that affected the way individuals learned different ways, which satisfy their needs and help them deal with other people in the field of social life (10).

Techology is one of the most commonly used word in our time, even by the ordinary citizen. It has increased the vagueness and ambiguity that surrounds us.

Thus, the meanings may be different, inconsistent and contradictory according to the user (11). So, this technology has varied definitions given to the aspiring but that it is composed of two parts, first is techno, which means a craft, or art while the second is logy, which means generalization or study (12). Educational Technologies are the cohort or use of knowledge and processes to solve learners' problems and expand students' capabilities, in addition to all the things people do to adapt the natural world to meet students' needs (13).

Educational technology covers any educational instrument, equipment, electronic device or mechanical, which can help students achieve quantified education goals. Educational technology comprises both instructional and learning technologies. While the industrial revolution has dramatically influenced the spread of educational technologies in the world in various fundamental ways, the twentieth century is the century of technology through the development of computer technology and the emergence of the Internet and websites, which have accelerated as a result of this influence. Technology has become more widely available in the life forms of society, making life more complex and demanding to keep abreast of the evolution of technology and its effects (14).

While the term technology is a significant topic in various fields including education, thus, technology has become the highway for knowledge transfer in most countries. The technology integration today is through innovations and transformations of our societies that have entirely changed the way people live, work, and think (15). There are those who believe that technology is the product of the arts and the characteristics of the material that makes machinery and equipment. The use of the term technology in modern times, especially after the industrial

revolution, began when the machine took its prominent place in the field of industrial production (16). Hence, educational technology in schools and other educational institutions, which are supposed to prepare students to live in the knowledge society, need to consider the integration of ICT in their curricula (10). The Software and Information Industry Association in the United States published a 135-page report in 2000 entitled “The 2000 Research Report on the Effectiveness of Technology in Schools” and analyzed 300 professional journals, doctoral theses, and quality research results relating to educational technology within this report. Accordingly, this report displayed how technology increased student success, that technology developed the attitudes and confidence of students towards learning, and how technology developed the interaction of instructors and students in an educational environment (17).

According to Jumaimi (18), the use of educational technology with people with special needs requires consideration of the factors that might contribute to the success of such experiments because any misuse of technology selection or error in the way it is used will have adverse effects on this category. Chan points to the need for technology to fit the situation of the person who uses it to achieve the desired goal. The factors that are fundamental to the achievement of educational goals and the enhancement of learning through the use of educational technology for people summarized in the unique needs of (19):

- The use of educational technology has an apparent effect in filling a deficit or deficiency of the user, without which the technology cannot fill this deficit or lack. Therefore, the purpose of their use is to break the barrier between people with special needs because of their disabilities and learning.

- Educational technology use should not be a distracting factor for users of this technology. The proliferation of sound effects in software, for example, does not help to focus during the learning process.
- The use of educational technology is a factor in enhancing students' ability to learn. When a program is available, the repetition and recurrence of the individual in the slow-learning class can help to achieve the intended learning objectives.

In this regard, Thiab strongly highlighted that changes occur anywhere and that no one can escape from them in his or her own life. Mainly in the following areas: age, standards, diversity, victimization, violence, terrorism, economics, environment, technology, and school, the change prompts many national and local establishments and organizations to spend hundreds of millions of dollars to keep pace with this. Development and its introduction into all available fields of life, including the educational process which is considered the most critical areas in the preparation of the citizen in training professionally developed and impart different intellectual, mental and educational skills (8). Educational technologies organized and systematized procedure of applying contemporary educational technology to expand the superiority of physics teaching. While it is an organized way of theorizing the implementation and valuation of the educational process, for instance, schooling, teaching then is supported with the application of modern educational teaching techniques. It comprises instructional useful materials, approaches, and organization of work and relationships, such as the performance of all applicants in the process of physical education (4).

However, the teachers need to employ their memory stock of knowledge and information and acquired skills and patterns of behavior in various areas of teaching activities, whether associated with the planning and implementation of the lesson or decision-making, administrative and evaluation or other professional skills necessary to ensure an acceptable level of practice for the profession (20). Teachers, especially lecturers of physical education, regardless of their level and experience, need to employ the available measuring educational technologies or tools to test their teaching performance if they want continuity of development and progress and to enable them to positively affect the learning of students and improve the process education. The task of refining the teaching and learning process is a priority for many countries, whether developing or advanced, because this process contributes significantly to the achievement of the goals and hopes of these countries (21).

As a result of a comprehensive field survey, the key factors influencing teachers use of educational technologies identified as access to resources, quality of programs and devices, ease of use, promotion of change, participation, power solidarity among peers, primary and national school policies, commitment to professional development. Therefore, this situation is particularly apparent in research comparing private and public schools. It also knows that feasible investments have made in the technological infrastructure of public schools within the scope of large projects. However, it is one of these conditions, which makes technological investments useful in making teachers able to use technology for educational purposes. Thus, along with these financial and technical constraints, it can be argued that the lack of public policy, education and expertise are the main factors preventing teachers from using technology in the classroom (22). The rapid

progress in electronic technology is making significant effects on global education systems. New technologies undoubtedly have influenced social and educational policies as much as the economic system. Those planning the education of the future must know which directions these technologies will lean in the future and must act accordingly (23). Technology is a potent tool in reforming schools, increasing student success, and ensuring the effectiveness of teaching (24).

### **3.3.1.1. The Components of Educational Technologies**

### **3.3.1.2. Capabilities of Using Technology**

The capabilities of using technology in educational institutions usually mean the technology-based schooling and learning process, which are closely correlated with the use of educational procedures in schools. Due to the fact that students or scholars are familiar with technology and will learn better in a technology-based environment, the issue of ICT integration in schools, particularly in the classroom, is significant (25). Thus, capabilities of using technology are the evidence, skills, technical, administrative and institutional, which allow productive educational institutions to utilize educational equipment and knowledge efficiently (26). In this context, Omar et al. (27) indicated that the education's technological capabilities, particularly in physical education, include a much broader range of effort that every school is needed to assume in order to engage and build upon the knowledge that has to be utilized in production. Therefore, this is because the use of technology in education contributes significantly to the educational features in which the use of ICT will lead to active learning with the help and support of ICT components and mechanisms (28).

Technology-based education and learning could make various changes in schools and educational institutions that need for proper preparation and policymaking. Both the researchers and policymakers, therefore, must have the same insight about the plan. The first procedure is to ensure that all undergraduates are given a chance to use ICT. Therefore, this aims to decrease the digital divide between schools. The second procedure is to focus on the role and function of ICT in education. Additionally, another procedure emphasized the use of information and communication technology to access educational knowledge, communication, besides as a teaching's productivity tool (19).

### **3.3.1.3. Technology Integration**

The integration of technology in education is the actual application of educational technologies to achieve proposed learning results. It is generally believed that education improved through the use of technology besides that students need to develop technology skills, to be creative members of society. Therefore, providing high-quality teaching comprises the anticipation that teachers use educational technologies effectively in their classroom and that they teach their students to use educational technologies (29). Most educational physicians value the integration of technology to some step; however, various scholars and policy analysts have claimed that technology is not being used to its full advantage (30). Even at school's rich of technology, the actual integration of technology into the instructional process is rare. Hence, to completely realize this criticism, it is needed that in-depth attention of the goals and measures are used for evaluating technology integration (31). While most efforts to integrate educational technology into schools have the stated goal of proper

and active use of technology, so, with the integration of technology in the daily lives of students, there is a concern of how well teachers are prepared to teach with technology. Physical education teachers do not escape this concern, nevertheless, several contemporary efforts have focused mainly on gaining access to and increasing the extent of technology use (32).

Accordingly, Bebell and Kay mentioned that although the educational technology available in schools and educational institutions may have improved in recent years, procedures of access expected offer an overoptimistic indicator to the integration of educational technology. Even though, some feel that for the variability of details the present level of technology admittance in schools is far too irregular and commonly insufficient to make much of an influence (33).

In the same regard, Warschauer and Ames point to that some question the insight and worth of doing. Therefore, many believe that physical education teachers must support the pledge to improve access to technology over construction as an institutional backing priority (34). Like any educational aimed project, integration of technology in educational settings needs an operation plan. Without an essential analysis, appropriate planning and managing activities, educational projects are fated to slow improvement or total failure. In this context, underlines the significance of adopting a plan that creates on actual school needs and one that is accurate, realizable, and effective. Thus, any educational plan must be formed, not for the singular purpose of putting technology in the classroom, but for reflecting the actual desires of schools in order to make effective technology arrangement and to produce improved learning atmospheres (4).

#### **3.3.1.4. Professional Development**

The professional development plans for education are based on distinct concepts of how students learn as well as different models of how teachers learn. Critics often classify plans according to design structures such as the duration or intensity of the program or the use of specific methods such as trainers or online tutoring. Nevertheless, these sorts do not illumine the primary purpose of programs or buildings related to education and teacher learning (35). The professional development refers to various sorts of learning experiences linked to the work of the individual, such as teachers, engineers, accountants, and people in a variety of professions. Besides, industries participate in professional development to learn and apply new acquaintance and skills that will advance their performance in the job. In the field of education, investigations have revealed that the quality of education and school leadership are the most critical factors in increasing student achievement. Thus, to be an effective teacher, school leader, and districts, they frequently increase their information and skills to implement the best educational performs. Therefore, teachers learn to help students learn at the highest levels (36).

The professional development for schools also refers to the progress of the individuals or teachers in their proficient role. More precisely, physical education teaching progress is the development of professional attained by the teacher as a result of increasing experience and systematic examination (37). When observing professional development for schools, one must study the content of the practice, the growths by which the professional development will occur, besides the frameworks, it will take place. Nevertheless, educator instructors cannot encourage the learning of

teachers without developing their previous acquaintance and experiences through the learning process (38).

Accordingly, James and McCormick mentioned that teachers' autonomy is essential if teachers learn, therefore, teacher autonomy could be maintained if teachers are allowed to classify their learning purposes and can express and meditate on learning in independent developments and peer processes. They also found that school teachers must have definite opinions about where development should go so that they have a shared vision. James and McCormick further argue that schools must have a support system for the development of professional teachers and that teachers should give the opportunity to plan, implement and evaluate their practices based on ideas from studies of their practices (39).

#### **3.3.1.5. Technological Literacy**

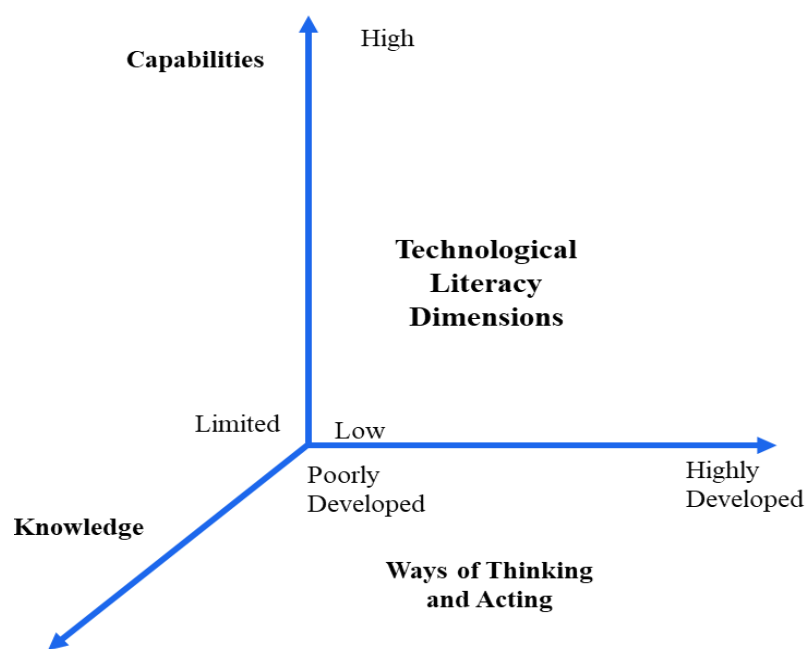
The technological literacy is defined in the report of the National Library and Information Committee as a technical literacy skill to benefit from a wide range of information tools, as well as primary sources in designing information solutions to their problems (3). The technological literacy is the capability to use, achieve, and apprehend technology. Technological literacy also includes a vision where each teacher or even an ordinary citizen has a degree of knowledge about the nature, conduct, rule, and significance of technology from a broad perspective. Characteristically, it comprises educational plans where students become involved in critical thinking as they propose and improve services or products, structures, and settings to solve applied problems (40).

According to Gray et al., technologically literate teachers or individuals recognize that the solution to one problem could cause another problematic situation. Additionally, they appreciate the relations among each technology and individuals, society, and the environment (41). Thus, by most procedures, the superiority and accessibility of educational technology in schools, along with the technological literacy of teachers and students, have improved meaningfully in the past decade. Furthermore, physical education teachers are commonly committed to technology use in their educational career. Technologically literate individuals or teachers are familiar with the nature and limitations of the design process (42). There are various efforts to form a better concept that illustrates teacher relationship with other skills and other forms of illiteracy. Although the educational goals that include traditional illiteracy, namely computer literacy, information search skills, and critical thinking skills have linked to technological illiteracy, they are essential to the discovery of information when an individual need it, and to have the ability to locate, evaluate, and effectively use the information as an essential skill for lifelong learning (13). We are living today in the age of the technology, communication and information revolution. Technological illiteracy, therefore, is one of the major problems facing our modern world. Besides the change it has made in human life, it created a new kind of illiteracy, which can cause informational illiteracy (43).

According to Executive Summary (44), and NAE, (42) technological literacy covers three dependent dimensions, as shown in Figure 1, below.

- Technologically literate teachers or individuals realize that technology includes more than information, and facts, also the capability to transfer information into new visions.

- Technologically literate teachers or individuals identify the generality of technology in everyday life, besides its risks and assistance.
- Technologically literate individuals are aware of the ideas and scope of technology.
- Technologically literate persons understand that technology reflects the values and the culture of society.
- Technologically literate individuals realize that technology is the outcome of teacher activity or educational invention.
- Technologically literate peoples appreciate technology consequences in both intentional and unintended consequences, and admit that solutions often comprise compromises.
- Technologically literate individuals realize that technology contains systems, which are assemblies of organized components intended to attain a chosen goal jointly.



**Figure 1. Technological Literacy Dimensions**

Source: (13)

Lastly, identifying that literacy is a significant requirement for lifelong learning, some are now using the concept of knowledge literacy, which is added to the above: skills correlated for information interpretation, re-creation of information for the institution in which the beneficiary operates as well as the orientalism of future changes that can occur in this institution (4).

#### **3.3.1.6. Technology Guidance**

The educational technology guidance and advisory unit of the educational institutions is a distinct element established in schools as well as in educational organizations to solve the related research as well as the problems of the students who are not connected. Thus, these units assist students in facilitating daily learning difficulties and decision-making to support students to create educational efficiency through the development of core programs (45). While Subasinghe argues that contemporary educational institutions have become an exchange of efficiency and competition, the problem faced by the student in the context of directing the constant and useless factors that are useful in the scientific productivity of the student is complicated (46). The educational technology guidance unit is the school-related unit that purposes to achieve the primary objective of serving to solve learners' problems and enhance the efficiency of students. Technology guidance is also the process of school guidance (47).

As Vishala mentions that teaching is a mental ability growth, it is a social integration process. Therefore, when considering education as a psycho-improvement process, it is essential to pay attention towards the two units specifically, individuals and society (48). As indicated by Kennedy, the educational

technology guidance service is active in two ways to solve the problems related to education and physical education teaching. Therefore, this is to provide the teacher with the systematic assistance are needed to be taught, providing opportunities to strengthen the relationship between the teacher and the student. Creating students for the study environment is necessary for the teacher to learn with productive results, provide tools and promote awareness about teaching techniques (44).

In this context, Kivanc and Mustafa claim that the role of teachers is significant in enabling students to recall teacher lecturers correctly. The emergence of a successful teacher is one of the goals in the educational guidance process. The idea of educational guidance is to build a better relationship between teacher and student. It allows students to understand better than to produce a successful and productive learning process (5). Educational technology guidance is a development of achieving student targets, classifying future behavior improvement methods and selection of professional needs in school. Hence, the essentials of technology are needed by career guidance experts and teachers who choose to provide services through technology. Professional guidance counselors and teachers should be present on the use of secure technology and ethical standards, for instance, electronic technology, computer, cell, and landline telephone, answering machine, fax, and television to confirm confidentiality of all dealings correlated to the client (9).

The training, knowledge, and administration on professional guidance, school, and technical guidance are of paramount importance in providing services that are best practices. Profession guidance practitioners and teachers are encouraged to demonstrate competence and efficiency through formal specialized training for the use of technology in the provision of career guidance services and teachers. Peer

monitoring and support are recommended for practitioners who cannot train independently within a geographical area and highly recommended to all physics teachers (46).

### **3.3.1.7. Social, Ethical, and Legal Provisions**

The teachers may face pressures between personal beliefs, professional codes of conduct, and ethical values when confronted with ethical issues. In reviewing the decomposition of 22 articles of education and teacher education, it was found that teachers understood and responded to ethical dilemmas differently and showed different levels of moral sensitivity. Bullough also argued that some made ethical decisions about what was the right thing to do based on their ethics and life experiences, while others gave priority to social and institutional standards, yet others still had a more flexible view and a range of moral privileges (49). Teachers, especially physical education teachers, need teaching tools to sustain the attention of multiple perceptions on an issue and tools to smooth their thinking (50). Furthermore, Barret et al. mentioned that researchers continue to say that the field of teacher education must deal with ethics in the profession in ways similar to other licensed professions, such as psychology, medicine, and law, with direct teaching on the subject, and explicit statements regarding the rights and privileges of clients, patients, and practitioners (51). In this context, Moir suggests that unlike those professions where there is a greater focus on direct subject learning and specialized courses to teach moral decision-making, teachers often engage in a pilot process that must learn how to make ethical decisions about their educational practices (21). Teachers in private education learn about the special education law and how to

implement it, but many do not engage in discussions about specific ethical concerns that arise from time to time and challenge their decision-making. For instance, they need to know how to evaluate the rights of parents or students about school policy (52).

In managing students' problematic behavior, many teachers do not develop awareness about flexibility and lack of understanding of individual students' needs at times to escalate problem behaviors. They do not learn how to balance the flexibility of thinking with consistency in the decision-making process. By engaging in conversations centered on different ethical dilemmas, they can learn to use tools to facilitate their thinking and evaluate their decision-making (53). As Davies and Harre argued that when discussing the definition of ethics, individual teachers, parents, and administrators have a unique view according to their own experiences and location. Some rely on words such as truth, ethics, and values. Others were more inclined towards politics, code of conduct, and professionalism (54). However, it seems that everyone generally agrees that teachers should be ethical and that educators have access to training to understand the ethical issues involved in decision-making, in a review of the curricula of teachers from 156 colleges and universities (55).

In the same regard, Glanzer and Ream revealed that only 9% of physical education teacher programs offer courses in ethics as program or elective requirements, compared to 71% of business programs, 60% of nursing programs, and 51% of social work programs. While Glanzer and Ream cautioned against circulating this conclusion beyond the sample identified in their study, their findings suggest that ethics are not well established in education programs compared to many other vocational schools, such as social work, counseling, law, and medicine. The

influence of strong teaching is increasing in contemporary society. Learning standards are now higher than they were before, as citizens and workers need more knowledge and skill to survive and succeed (53). Education is increasingly crucial for the success of individuals and nations alike. Increasing evidence suggests that teachers' abilities - among all educational sources - are vital contributors to student learning. Additionally, the demand for teachers is growing. Teachers need not only to maintain order and provide useful information to students but also to increase their effectiveness in enabling a variety of students to learn more complex materials (51).

#### **3.3.1.8. Educational Communication**

According to Jurik, regular communication is an inescapable element of relations between education stakeholders. Whether these relations are good or not, whether constructive or not, they will be reproduced in how they relate, and the way they interact can help shape the tone and results of relationships (56). Communication is about people producing, education and sharing meaning. In the education sector, a communication objective is to help each group of stakeholders understand its role and responsibilities while seeking to understand and accept others (57). While communication plays a significant role in all areas of life, especially in the teaching of physical education, being the core of any community, it helps learners to share and recognize meanings. Communication derives from the word community, which means sharing. Therefore, it plays an essential role in generating considerate and establishing relationships (58).

The classroom is a complex area of communication, where the communication processes include verbal, nonverbal and semi-oral components, designed to mediate

the behavior of students and teachers. The impact of partners on others depends on the quality and depth of the interaction. Thought long about the teacher's method of work, the speech organized is essential for the efficiency of business, where the focus is now on how partners interact with mutual interaction and how they participate (59).

According to Evertson, interaction among teachers and students could back the actual communication in the classroom or may be a source of problematic situations and even school violence. In the middle of this approach, the teacher is in action and knows how to communicate with his students (60). Communication in teaching is so general that it is transformed into almost oceans. Now, the question of the development of communication competency is searched often, the teacher is a decidedly valued figure in the community and teaching is considered to be the most sacred and distinctive profession. While history is full of evidence about countries where education is distinguished (58), in this context, one study of Jurik visibly highlights the significance of communication among teachers and students, Thus, verbal interactions between teachers and students, besides students' characteristics, are meaningful to students learning and motivation. In this study, the researchers examined how to ask the teacher's questions and comment on individual student characteristics and gender prediction of the learning activity of cognitive learning motivation (56).

#### **3.4. The Relationship of Education to Physical Education and Sports**

The term physical education acquired new meaning after the addition of the word education; a physical word refers to the body, which often refers to various

physical characteristics such as strength, speed, physical growth, and physical endurance (1). Thus, when the word education is added to the body, we obtain the term physical education and according to Baert, physical education process takes place in the exercise of the activities that belong and protect the human body. When the human being, walk or jump, or the exercise of any physical activity that helps him/her to strengthen the body and safety, the process of education is done at the same time and education may make human life more vital, or the vice versa may be the type of destruction and corresponds to the type of experience that accompanies this education may be a positive and pleasant experience (2).

Besides, the opposite would be a miserable experience for the individual and it may affect the building of a strong and cohesive society, or individuals of this society may inherit it, which is harmful to all. The role of physical education is to help in achieving the educational goals and its success or deviation from the goals depends on the validity of the leadership responsible for directing it (35). Physical education is an essential part of the public education process. It is not a footnote or decoration added to the school program as a means of child labor. On the contrary, it is a vital part of education through the preparation of adequately guided and scientifically prepared programs that can provide children with the necessary skills to spend their leisure time productively. They thus grow socially and participate in various physical activities that have long sacrificed to physical and mental health (9).

The attribute that makes physical education unique among subjects of school is human undertaking and consideration of the issue as a means of physical activity. Thus, the human body may be considered the primary information in the physical education category, which may lead to a missing link between technology and

physical education in practice. It was reported that two tables of argument may explain that this perception is absent. First, the media and ICTs may appear as a threat to children and adolescents, taking into account the valuable physical activity of leisure time (42). According to Bird, Physical education has helped different purposes for people in the history of diverse countries and cultures. From prehistoric times, physical activities have formally or informally played a significant role in human society (61). Physical training is continually needed for reasons like defense needs, environmental factors, and survival. In other situations, however, the most motivating component of physical activity was the desire for a better quality of life. It was observed that technology increases motivation for the materials and learning whose uses are presented in physical education programs (62).

In this regard to Thiab argues that the primary function of physical education and sports is to help the child to reach the highest level possible within his abilities so that he/she can discover surroundings at best (8). The practice of education achieves the same purposes. Physical exercise is beneficial to health, and basic motor skills lead to a more pleasant and flexible life as well as the strengthening of the spirit and the development of the human customs of any society (2). The study of history shows that there are communities and civilizations, which previously believed the importance of physical education in the preparation of young people. In ancient Athens, for example, everyone taught three things: physical exercise and the origins of language and music (63).

## **4. METHODOLOGY**

### **4.1. METHOD**

The primary purpose of this study is to identify educational technologies in physical education and their levels utilized by teachers in the Elazığ province. The method approved by this study is to reveal teachers' perspectives in the Elazığ province. Therefore, this study is a descriptive study that uses hypothesis testing.

The hypotheses will be based on the role presented in the study model. Data collection through the scanning tool will support the cross section. The use of the survey method is the most appropriate way to collect information from the population in a short time and with the lowest budget. The present study will examine educational technologies in physical education and their levels utilized by teachers in the Elazığ province, to analyze the levels of technologies utilized by teachers based on the research questions formulated according to the objectives of the study. Consequently, the section discourses the study approach and design, and data sources.

#### **4.1.1. The Study Approach and Design**

Regarding to the design of the study and its approach; this study was carried out with the quantitative method. Accordingly, the quantitative approach that reveals

an appropriate study is to identify the educational technologies in physical education and their levels utilized by teachers in the Elazığ province. The quantitative method is commonly used in the study when working with statistical data. Quantitative research includes the usual quantities and analytical procedures that support the explanation, description, search and brightness of the relationships between subjects. Furthermore, a quantitative study can be regarded as a study process through statistical and quantitative results that determine actual attempts to measure the purpose of the study. The design of the study is more appropriate because it allows respondents to provide their relevant information on the subject of study interest to a survey questionnaire that uses a 5-point Likert scale, which is more appropriate for data collection.

#### **4.1.2. The Study Population and Sampling**

The population of this study consists of middle and high schools in association with the Elazığ province. The schools are selected as the study population while they are possible to well recall on physical education teachers as they have knowledge and information on the educational technologies used in schools. Thus, by the purpose of the study, physical education teachers working in association with the Elazığ provincial MoNE as of the 2018 academic year will constitute the population of the research. Those schools in Elazığ provincial MoNE are authentic targets for the population size, where the study pursues to determine their teachers' thoughts on their educational technologies' levels used by teachers. Thus, the study sample technique presented as well as the sampling procedure.

The persistence of sampling procedures is conducted by establishing a range of processes to narrow down a study population to classify the proper sample. A total of 149 physical education teachers who actively work at “middle (76) and high (73) schools” in association with the Elazığ provincial MoNE, who were chosen through random sampling, will constitute the sampling. Permission will be obtaining for the research from the Elazığ Directorate of National Education, where the research will be conducted as revealed in Table 1 below.

**Table 1: Distribution of Physical Education Teachers who work at Middle and High Schools in the Elazığ Directorate of National Education (2017-2018).**

| <b>Elazığ National Education Directory</b> | <b>Middle School</b> | <b>High School</b> | <b>Total</b> |
|--|----------------------|--------------------|--------------|
| Physical Education and Sports Teachers     | 76                   | 73                 | 149          |

#### **4.1.3. The Survey Measurement**

##### **4.1.3.1. The Variables Conceptualization**

According to Simsek, educational technology is a division of science that stands out with people who ask themselves 'how can I teach others more easily what I know,' which aims at the most effective use of the equipment used by implementing specific methods in the process of learning and teaching by ensuring the timeliness of knowledge (64). While, Bayraktar argues that individuals who realize the invention and the facility brought by technology wanted to incorporate these innovations and facilitate them into the educational process, which occupies a prominent place in human life. Educational technology concept relates to the teaching method and helps to achieve specific goals by facilitating education. Educational technology is a complex process involving all aspects of human learning, which develops and

implements appropriate designs for the use of human resources, knowledge, methods, techniques, and equipment, for the systematic analysis of problems and the production of solutions to these problems, and evaluating all these applications (65). Educational technology was similarly defined by Doğdu and Arslan as the active use of elements in the learning process in the name of generating targeted and planned education (66). Educational technology includes practices that are formed with the effective use of equipment, through the inclusion and evaluation of all elements in the learning process and specific methods through appropriate processes (67). It has forced to change the nature of ever-changing educational systems, and many countries have based their national education policies on ICTs. The cultivation of individuals who can use ICTs has become a requirement of modern education (68).

#### **4.1.3.2. Operational Definition of the Variables**

From the definitions have explained the indicators below that will scale the study variables environmental educational technologies and its dimensions such as:

- First, Capabilities of Using Technology
- Second, Educational Technology Integration
- Third, Professional Development
- Fourth, Technological Literacy
- Fifth, Technology Guidance
- Sixth, Social, Ethical, and Legal Provisions
- Seventh, Communication

#### 4.1.3.3. Operationalization of Study Variables

The presented indicators would measure the components of educational technologies in physical education in the middle and high schools in association with the Elazığ provincial through employing statistical (quantitative analysis) and disbursing the following indicators. Nevertheless, for each of the indicator controlled with the five-points Lecrt scale, one indicates as "strongly disagree", two indicates as "disagree", three indicates as "un-decided", four indicates as "agree", and five indicates as "strongly agree".

1. The first indicator is the capabilities of using technology that measured by asking the following questions.

**Table 2: Capabilities of Using Technology Indicators of Survey Data**

|                                  |   |
|----------------------------------|---|
| Capabilities of Using Technology | 1. I make a video using multimedia elements (sound, picture, text, etc.).                                   |
|                                  | 2. I scan and save a picture or document.   |
|                                  | 3. I make changes such as resolution and size in a picture.   |
|                                  | 4. I format portable disks.   |
|                                  | 5. I convert files between formats (MP3-WAV, AVI-MPEG, BMP-JPG, etc.)                                       |
|                                  | 6. I save a text document as a readable file (PDF, PDB, HTML, etc.).  |
|                                  | 7. I make video calls over the internet.  |
|                                  | 8. I save data I downloaded from the internet on removable disks.   |
|                                  | 9. I store my data in space on the internet (Google Drive, Dropbox, email, etc.).                           |
|                                  | 10. I make difficult adjustments relating to sound settings.  |
|                                  | 11. I restore an operating system.  |
|                                  | 12. I use an anti-virus program.  |
|                                  | 13. I create a free, ready-made-template website and add content.   |
|                                  | 14. I record sound using a microphone and appropriate program.  |
|                                  | 15. I download a hardware (computer part) driver program (software) from the internet or install from a CD. |
|                                  | 16. I share folders through a wireless network (wireless, Bluetooth, infrared, etc.).                       |
|                                  | 17. I print documents from a printer connected to a wired or wireless network.                              |

|  |  |
|--|--|
|  | 18. I send a file (image, text document, presentation, etc.) by attaching it to an email.                |
|  | 19. I adjust the settings of the monitor unit (monitor, projector) of a computer.                        |
|  | 20. I know the difference between file sizes and storage units (bit, megabyte, gigabyte, etc.).          |
|  | 21. I create a password (WEP, WPA, etc.) against security threats that may come from a wireless network. |

2. The second indicator is the educational technology integration that measured by asking the following questions.

**Table 3: Educational Technology Integration Indicators of Survey Data**

|   |  |
|---|--|
| <b>Educational Technology Integration</b> | 22. I prepare written questions electronically.  |
|   | 23. I create exams online (electronically) and give them to my students.   |
|   | 24. I design materials to support student-centered activities.   |
|   | 25. I know that preparations must be done before using technology in classes.  |
|   | 26. I select and use different technologies for different gains.   |
|   | 27. I download and edit educational materials from the internet.   |
|   | 28. I find alternative solutions to problems I may face during the use of technology in class.   |
|   | 29. I use the necessary technologies (computer, projector, printer, document camera, scanner, video camera, sound system, overhead projector, etc.) found in the school. |
|   | 30. I install and use ready-made educational software (animation, simulation, package tutorial, etc.) on a computer.   |
|   | 31. I use e-books relating to my branch in my class.   |
|   | 32. I use materials that support individual learning for students with learning disabilities.  |
|   | 33. I choose the materials that I may use to enrich lessons.   |
|   | 34. I utilize technology to ensure the permanence of knowledge.  |
|   | 35. I use interactive materials that encourage individual learning.  |
|   | 36. I utilize technology to support the individual learning of students.   |
|   | 37. I act according to the principles of instructional design while designing materials.   |
|   | 38. I analyze exams and items with computer software.  |

3. The third indicator is the education's professional development measured by asking the following questions.

**Table 4: Professional Development Indicators of Survey Data**

|                          |   |
|--------------------------|---|
| Professional Development | 39. I monitor sites that may contribute to my professional development.   |
|                          | 40. I participate, and complete courses/seminars/presentations conducted remotely.                                |
|                          | 41. I participate in online communities (Facebook, Twitter, Instagram, Google Plus, etc.) to monitor innovations. |
|                          | 42. I feel a desire to use new technology for educational purposes.   |
|                          | 43. I actively use management information systems (MEBBIS, e-Okul, etc.).   |
|                          | 44. I monitor and apply to in-service education online.   |

4. The fourth indicator is the education's technological literacy measured by asking the following questions.

**Table 5: Education's Technological Literacy Indicators of Survey Data**

|                                    |   |
|------------------------------------|---|
| Education's Technological Literacy | 45. I know technology can always make problems.   |
|                                    | 46. As much as I can understand a text by reading it in print, I understand it when reading it digitally. |
|                                    | 47. I know the frequently used file formats (PDF, DOC, EXE, PPT, XLS, etc.).                              |
|                                    | 48. I store folders and files in an organized fashion and use them when necessary.                        |
|                                    | 49. I know the meanings of site extensions (GOV, COM, NET, MIL, etc.).                                    |
|                                    | 50. I connect to a wireless network from a computer or mobile device.                                     |
|                                    | 51. I know the principles of use of a technological device.   |
|                                    | 52. I know in which situations a technological device must be sent for repair.                            |
|                                    | 53. I realize when a file has a virus.  |
|                                    | 54. I express the relationship of software with hardware.   |
|                                    | 55. I use a touch-screen computer or device (smartboard, smartphone, tablet, etc.) without issue.         |
|                                    | 56. I give examples of different operating systems.   |
|                                    | 57. I quickly adapt to new technologies I encounter.  |

5. The fifth indicator technology guidance measured by asking the following questions.

**Table 6: Technology Guidance Indicators of Survey Data**

|                     |   |
|---------------------|---|
| Technology Guidance | 58. I guide students on the use of technology.  |
|                     | 59. I lead in the use of new technologies in education.   |
|                     | 60. I know digital ethics (rights of use, private information, etc.) and am an example on this topic for my students. |
|                     | 61. I do not accept, and I question the accuracy of all information on the internet.                                  |
|                     | 62. I help teachers who need support in the field of technology.  |
|                     | 63. I guide research that my students do on the internet.   |

6. The sixth indicator is the social, ethical, and legal provisions measured by asking the following questions.

**Table 7: Social, Ethical, and Legal Provisions Indicators of Survey Data**

|                                       |  |
|---------------------------------------|--|
| Social, Ethical, and Legal Provisions | 64. I know that I need to specify the sources of information I use.                          |
|                                       | 65. I act based on legal responsibilities on the subject of copyright.                       |
|                                       | 66. I pay attention to the issue of the sharing and confidentiality of personal information. |
|                                       | 67. I am aware of the responsibility and obligation that sharing on social platforms brings. |
|                                       | 68. I know and pay attention to cybercrimes.   |

7. The seventh indicator of scholarly communication measured by asking the following questions.

**Table 8: Educational Communication Indicators of Survey Data**

|                           |   |
|---------------------------|---|
| Educational Communication | 69. I can use a social network for educational purposes and direct my students in this direction. |
|                           | 70. I use online systems to communicate with parents and students collectively.                   |
|                           | 71. I guide students in the active use of email groups.   |
|                           | 72. I share educational materials with my students on social networks.                            |

## **4.2.Data Collection Procedures**

To address the investigative features of the topic, the researcher collected primary data by conducting a survey. While this study used questionnaire form, which is one of the most widely used data collection tools in social research. Therefore, this is due to the advantages that this tool achieves, whether for shortening the quality or completeness or the liquidity of data processing statistically. The questionnaire form is a model that includes a group of answers to the respondents obtains information about a topic, a problem or a situation that directly addressed and called a questionnaire. The questionnaire asks the respondent to answer directly.

Thus, the questionnaire established is a significant tool for collecting data for the study. It is designed precisely for this aim and distributed to the middle and high schools in association with the Elazığ provincial MoNE. As indicated, the questionnaire is mostly a set of questions, sense, and content determined by the purposes of the survey. The survey questionnaire comprises partial introductory references to the respondent with a brief explanation of the subjects of the research and procedures for completing the questionnaire; an essential part of the set of questions measured for obtaining data from the survey sample; one or more semantic groups consistent to the structure of the working hypothesis.

### **4.2.1. Description of the Data Collection Instrument**

The questionnaire is established dependent on the literature reviewed. The questionnaire scale reflected an essential method of data collection for this study. However, this was precisely designed for this purpose and spread the middle and high schools in association with the Elazığ provincial MoNE. Consequently, schools

participate in the service of public interest. Additionally, the current study uses probability-sampling technique with random sampling.

While the survey instrument comprises two sections, the first section comprises different demographic variables. Thus, the research includes questions on the topics of the gender and age of physical education teachers, the level of the school at which they work, year of professional seniority, placement unit at which they work, level of education, status of previous participation in training related to technology, technologies found at school, and personally owned technologies while the second section includes the study independent variables capabilities of using technology, technology integration, professional development, technological literacy, technology guidance, social, ethical, and legal provisions, and educational communication, as shown in Table 9.

**Table 9: The Data Collection Instrument**

| Major Variables                         | Sub- Variables Components   | No of Statements | Scale Symbol | Sources            |
|---|---|------------------|--------------|--------------------|
| <b>First: Demographical Data</b>        | Gender and Age, the level of the school at which they work, professional seniority, placement unit at which they work, level of education, the status of previous participation in training, technologies found at school, and personally owned technologies. | 9                |              | By Researcher      |
| <b>Second: Educational Technologies</b> | Capabilities Of Using Technology  | 21               | Q1-Q21       | Bayraktar, (2015). |
|   | Technology Integration  | 17               | Q22-Q38      | Bates and          |
|   | Professional Development  | 6                | Q39-Q44      | Poole,             |
|   | Technological Literacy  | 13               | Q45-Q57      | (2003).            |

|  |                               |   |         |                     |
|--|-------------------------------|---|---------|---------------------|
|  | Technology Guidance, Social,  | 6 | Q58-Q63 | Shephard,           |
|  | Ethical, And Legal Provisions | 5 | Q64-Q68 | (2004).             |
|  | Educational Communication.    | 4 | Q69-Q72 | Witfelt,<br>(2000). |

**Sources:** (65), (67), (69) and (70).

#### 4.2.2. Scale

The survey scale designed depends on the published journal articles, research papers and studies as displayed above. The study variable is educational technologies in physical education that have seven dimensions as capabilities of using technology, technology integration, professional development, technological literacy, technology guidance, social, ethical, and legal provisions, scholarly communication. Furthermore, this scale's statements and questions were improved by Bayraktar, (65), Bates and Poole, (67), Shephard, (69), and Witfelt, (70). While the items in the second sections measured through using a five-point of Likert scale ranging from "strongly disagree" one to "strongly agree" five.

#### 4.2.3. Data Analysis

This study used some statistical procedures to determine the variable and its dimensions. First, the study runs Cronbach's alpha to inspect the survey reliability. Then, demographic information and data evaluated based on limitations of being and not being parametric in order to determine the "educational technologies in physical education and their levels utilized by teachers in the Elazığ province." For those that are parametric, the T-test and Variance Analysis (ANOVA) will be used; and for methods that are not parametric, the Mann Whitney Test and the Wilcoxon Test will be used. The significance level of the acquired data will be regarded as ( $p > 0.05$ ).

SPSS V-24 was used to analyze, and the properties were presented using tables and figures.

#### 4.2.4. The Reliability Analysis

As shown in Table 10, the result of Cronbach's alpha test values for all indicators of the study variable which is educational technologies in physical education is 0.938, while the overall loaded value is higher than the appropriate and recommended value that is 0.60 by most researchers. However, the values of all its dimensions, namely, capabilities of using technology, technology integration, professional development, technological literacy, technology guidance, social, ethical, and legal provisions, scholarly communication are 0.942, 0.936, 0.805, 0.901, 0.872, 0.833, and 0.795 > 0.60. Hence, the results of Cronbach's alpha presented a high level of consistency in the complete set of questions. Therefore, the survey questionnaire scale used for collecting data is highly reliable, as revealed in Table 10.

**Table 10: Reliability Analysis**

| Variables                             | Cronbach's Alpha | No. of Items | N   | %     |
|---------------------------------------|------------------|--------------|-----|-------|
| Capabilities Of Using Technology      | 0.942            | 21           | 149 | 100.0 |
| Technology Integration                | 0.936            | 17           | 149 | 100.0 |
| Professional Development              | 0.805            | 6            | 149 | 100.0 |
| Technological Literacy                | 0.901            | 13           | 149 | 100.0 |
| Technology Guidance                   | 0.872            | 6            | 149 | 100.0 |
| Social, Ethical, And Legal Provisions | 0.833            | 5            | 149 | 100.0 |
| Educational Communication             | 0.795            | 4            | 149 | 100.0 |

|                |              |           |            |              |
|----------------|--------------|-----------|------------|--------------|
| <b>Overall</b> | <b>0.938</b> | <b>72</b> | <b>149</b> | <b>100.0</b> |
|----------------|--------------|-----------|------------|--------------|

## **5. FINDINGS**

This chapter purposes to deliberate survey data, and then apply the data analysis, which starts with an explanation of the survey demographic variables that collected from the respondents in the middle and high schools in association with the Elaziğ provincial MoNE. Accordingly, the demographic variables comprise frequencies distributions and data percentages of the questions on the topics of the gender and age of physical education teachers, the level of the school at which they work, year of professional seniority, placement unit at which they work, level of education, status of previous participation in training related to technology, technologies found at school, and personally owned technologies. Whereas, the other parts of this chapter contain statistical tests of the data obtained through descriptive statistics tests, variance analysis ANOVA and independent t-test. Finally, the outcomes of the data analysis were shown in Tables and Figures below.

### 5.1. The Demographic Information and Data

As previously mentioned, the survey demographic information and data were collected in the middle and high schools in association with the Elazığ provincial MoNE to provide a dependable sample in this study. Thus, the demographic information below was collected as gender and age, the level of the school at which survey sample works, years of professional seniority, placement unit at which survey sample works, level of education, status of previous participation in training, technologies found at school, and personally owned technologies, as shown in the Tables below:

In Table 11, presenting the frequencies distributions and percentage of the gender of a survey sample participated in the study, 75.8%, or 113 teachers in the middle and high schools in association with the Elazığ provincial MoNE who willingly contributed, were males, whereas 24.2% or 36 teachers of total survey respondents were females.

**Table 11: Frequencies and Percentages of the Sample's Gender**

| Gender       | Frequency  | Percent      | Valid Percent | Cumulative Percent |
|--------------|------------|--------------|---------------|--------------------|
| Valid Female | 36         | 24.2         | 24.2          | 24.2               |
| Male         | 113        | 75.8         | 75.8          | 100.0              |
| <b>Total</b> | <b>149</b> | <b>100.0</b> | <b>100.0</b>  |                    |

Table 12 summarizes that 51%, or 76 teachers were doing their educational profession in the middle the Elazığ province, while 49% or 73 teachers of total survey sample were teaching at a high school in the same province Elazığ.

**Table 12: Frequencies and Percentages of the Sample's School**

| Schools | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-----------|---------|---------------|--------------------|
|---------|-----------|---------|---------------|--------------------|

|                     |            |              |              |       |
|---------------------|------------|--------------|--------------|-------|
| Valid Middle School | 76         | 51.0         | 51.0         | 51.0  |
| High School         | 73         | 49.0         | 49.0         | 100.0 |
| <b>Total</b>        | <b>149</b> | <b>100.0</b> | <b>100.0</b> |       |

Regarding the rates distributions and proportions of the years of seniority in the profession, 28.2% of the total survey sample or 42 teachers in the middle and high schools in association with the Elazığ provincial MoNE were equally distributed in seniority in the profession by (6-10), and (11-15) years. Moreover, 16.8% or 25 teachers' seniorities in the profession were by 21 years and over while 14.8 or 22 teachers in the same school's seniority in the profession were by 16-20 years, followed by the 12.1% of the total survey sample with the seniority by 1-5 years, as revealed in Table 13.

**Table 13: Frequencies and Percentages of the Years of Seniority in the Profession**

| Seniority in the Profession | Frequency  | Percent      | Valid Percent | Cumulative Percent |
|-----------------------------|------------|--------------|---------------|--------------------|
| Valid 1-5 Years             | 18         | 12.1         | 12.1          | 12.1               |
| 6-10 Years                  | 42         | 28.2         | 28.2          | 40.3               |
| 11-15 Years                 | 42         | 28.2         | 28.2          | 68.5               |
| 16-20 Years                 | 22         | 14.8         | 14.8          | 83.2               |
| 21 Years and Over           | 25         | 16.8         | 16.8          | 100.0              |
| <b>Total</b>                | <b>149</b> | <b>100.0</b> | <b>100.0</b>  |                    |

As Table 14, it was revealed that all teachers who took part in this survey were accommodated in the province center.

**Table 14: Frequencies and Percentages of the Type of Accommodation Unit at Which Teachers Work**

| Type of Accommodation | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------------|-----------|---------|---------------|--------------------|
| Valid Village         | 0         | 0       | 0             | 0                  |
| Town                  | 0         | 0       | 0             | 0                  |

|                   |            |              |              |       |
|-------------------|------------|--------------|--------------|-------|
| District          | 0          | 0            | 0            | 0     |
| Provincial Center | 149        | 100.0        | 100.0        | 100.0 |
| <b>Total</b>      | <b>149</b> | <b>100.0</b> | <b>100.0</b> |       |

Table 15 shows the rates distributions and proportions of the participators ages, where 35.6% of the overall survey sample or 53 teachers in the middle and high schools in association with the Elazığ provincial MoNE were aged between 36 and 40 years, while, 18.8% or 28 teachers were aged between 31 and 35 years, as well as the same percentage for the ages between 41 and 45 years while 14.8% or 22 teachers in the Elazığ province middle and high schools were aged between 26 and 30 years. Moreover, 5.4% of the total survey sample were aged between 21 and 25, and 46-50 years equally. Finally, 1.3% or two teachers were aged 51 years and over, as revealed in Table 15.

**Table 15: Frequencies and Percentages of Age Groups**

| Age Groups   | Frequency  | Percent      | Valid Percent | Cumulative Percent |
|--------------|------------|--------------|---------------|--------------------|
| Valid 21-25  | 8          | 5.4          | 5.4           | 5.4                |
| 26-30        | 22         | 14.8         | 14.8          | 20.1               |
| 31-35        | 28         | 18.8         | 18.8          | 38.9               |
| 36-40        | 53         | 35.6         | 35.6          | 74.5               |
| 41-45        | 28         | 18.8         | 18.8          | 93.3               |
| 46-50        | 8          | 5.4          | 5.4           | 98.7               |
| 51 and Over  | 2          | 1.3          | 1.3           | 100.0              |
| <b>Total</b> | <b>149</b> | <b>100.0</b> | <b>100.0</b>  |                    |

Table 16 indicates the rates distributions and proportions of the survey sample's education level. It is confirmed that of the total participators: 85.2% or 127 teachers are bachelor degrees holders; while 13.4% or 20 teachers in both middle and high schools were master degrees holders. However, those held Ph.D. degrees came at 1.3 percent or two teachers only.

**Table 16: Frequencies and Percentages of the Level of Education**

| Level of Education |              | Frequency  | Percent      | Valid Percent | Cumulative Percent |
|--------------------|--------------|------------|--------------|---------------|--------------------|
| Valid              | Bachelor's   | 127        | 85.2         | 85.2          | 85.2               |
|                    | Master's     | 20         | 13.4         | 13.4          | 98.7               |
|                    | Doctorate    | 2          | 1.3          | 1.3           | 100.0              |
|                    | <b>Total</b> | <b>149</b> | <b>100.0</b> | <b>100.0</b>  |                    |

As Table 17, demonstrating the teachers participated in training related to technology, 71.8% or 107 of the total survey contributors confirm that they participated in training related to educational technology while 28.2% or 42 teachers of the total survey sample indicated that they did not take any training related to educational technology.

**Table 17: Frequencies and Percentages of the Participated in Training**

| Participated in Training |              | Frequency  | Percent      | Valid Percent | Cumulative Percent |
|--------------------------|--------------|------------|--------------|---------------|--------------------|
| Valid                    | No           | 42         | 28.2         | 28.2          | 28.2               |
|                          | Yes          | 107        | 71.8         | 71.8          | 100.0              |
|                          | <b>Total</b> | <b>149</b> | <b>100.0</b> | <b>100.0</b>  |                    |

Table 18 showed the educational technologies available in schools, which were 20.8% or 31 teachers in both schools confirming that four educational technologies were available in their schools, such as a computer, projector, smart board, and multifunction printer while 18.1% or 27 teachers of the overall survey sample identified that three educational devices available in their school namely: computer, projector, and smart board. Besides, 11.4% or 17 teachers reported that computer and smart board were available at their school, as well as at the same rate, teachers confirmed all mentioned technologies available at the schools they teach.

Furthermore, 8.7% or 13 teachers of the total survey sample revealed that computers were only available at their school. While 7.4% or 11 teachers knew that the smart board that available. In this regard, 6.0% or 9 teachers indicated that the computer and projector as the educational technologies were available. Moreover, 4%, 2.7%, 2.0%, and 0.7%, respectively, reported that (computer, smart board and multifunction printer), (projector), (projector and smart board), (computer, projector, smart board, and document camera), (computer, smart board and document camera), and (multifunction printer), respectively, were available at the schools they teach. However, 2.7% or 4 teachers in the same schools did not confirm any educational technologies.

**Table 18: Frequencies and Percentages of the Technologies Used in School**

| <b>Technologies Used in School</b> |  | <b>Frequenc<br/>y</b> | <b>Percent</b> | <b>Valid<br/>Percent</b> |
|------------------------------------|--|-----------------------|----------------|--------------------------|
| Valid                              | None   | 4                     | 2.7            | 2.7                      |
|                                    | Computer   | 13                    | 8.7            | 8.7                      |
|                                    | Projector  | 4                     | 2.7            | 2.7                      |
|                                    | Smart Board  | 11                    | 7.4            | 7.4                      |
|                                    | Document Camera  | 1                     | .7             | .7                       |
|                                    | Computer and Projector   | 9                     | 6.0            | 6.0                      |
|                                    | Computer and Smart Board   | 17                    | 11.4           | 11.4                     |
|                                    | Computer and Multifunction Printer                               | 1                     | .7             | .7                       |
|                                    | Projector and Smart Board  | 3                     | 2.0            | 2.0                      |
|                                    | Computer, Projector and Smart Board                              | 27                    | 18.1           | 18.1                     |
|                                    | Computer, Smart Board and Document Camera                        | 1                     | .7             | .7                       |
|                                    | Computer, Smart Board and Multifunction Printer                  | 6                     | 4.0            | 4.0                      |
|                                    | Computer, Projector, Smart Board and Document Camera             | 3                     | 2.0            | 2.0                      |
|                                    | Computer, Projector, Smart Board and Multifunction Printer       | 31                    | 20.8           | 20.8                     |
|                                    | Computer, Smart Board, Document Camera and Multifunction Printer | 1                     | .7             | .7                       |
|                                    | All of them  | 17                    | 11.4           | 11.4                     |
|                                    | <b>Total</b>   | <b>149</b>            | <b>100.0</b>   | <b>100.0</b>             |

Table 19, displaying the teacher's technology, indicated that 20.8% or 31 teachers were in confirming that they have a desktop, laptop computer, tablet, and smartphone while they use these tools in education. Although 18.1% or 27 teachers of the overall survey sample identified that they have a laptop and smartphone. Also, 15.4% or 27 teachers reported that they own desktop, laptop, and smartphone. Furthermore, 12.1% or 18 teachers of the total survey sample revealed that they have a desktop and smartphone. While 7.4%, 6.7%, 6.0%, and 5.4%, respectively, said that they have (desktop, laptop, and smartphone), (laptop computer), (smartphone), and (desktop, tablet, and smartphone), respectively. In the same context, 4.7%, 1.3%, and 0.7%, respectively, confirm that they have these devices (tablet computer), (desktop computer), (tablet computer and smartphone), (tablet computer and smartphone), respectively.

**Table 19: Frequencies and Percentages of the Teachers Personal Technology**

| <b>Personal Technology</b>       | <b>Frequency</b> | <b>Percent</b> | <b>Valid Percent</b> |
|----------------------------------|------------------|----------------|----------------------|
| Valid Desktop Computer           | 2                | 1.3            | 1.3                  |
| Valid Laptop Computer            | 10               | 6.7            | 6.7                  |
| Tablet Computer                  | 7                | 4.7            | 4.7                  |
| Smart Phone                      | 9                | 6.0            | 6.0                  |
| Desktop and Laptop Computer      | 1                | .7             | .7                   |
| Tablet Computer and Smart Phone  | 18               | 12.1           | 12.1                 |
| Laptop and Smart Phone           | 27               | 18.1           | 18.1                 |
| Tablet Computer and Smart Phone  | 2                | 1.3            | 1.3                  |
| Desktop, Laptop, and Smart Phone | 11               | 7.4            | 7.4                  |
| Desktop, Tablet, and Smart Phone | 8                | 5.4            | 5.4                  |
| Desktop, Laptop, and Smart Phone | 23               | 15.4           | 15.4                 |
| All of them                      | 31               | 20.8           | 20.8                 |
| <b>Total</b>                     | <b>149</b>       | <b>100.0</b>   | <b>100.0</b>         |

## 5.2. Descriptive Statistics

The aim at this part of the data analysis is to apply descriptive statistics for the study variables, which are quantified on contributors' responses to rate the significance of the study variables on five-point Likert Scale. Besides, descriptive statistics were applied to quantitatively define the critical components of the variables by using statistical mean, standard deviations, the rate of agreement and one sample t-test. Whereas the investigators are gaining a large of raw data, mean is one of the most beneficial measures of shorting data to determine an average of that set of data. Nevertheless, an average is a measure of the center of the dataset whereas there are three mutual customs of relating the center of a set of numbers namely statistical mean, the median, and the mode.

However, standard deviations are the kind of averages of these deviations from the mean. The rate of agreement has to be launched by using the equations below to rate the significance of (agree or disagree) of each component from the responses of the survey sample. Moreover, as mentioned earlier, there are five survey indicators (strongly agree, agree, neutral, disagree and strongly disagree) that states as a (100%, 80%, 60%, 40%, and 20%) respectively. Additionally, there is a 5-point Likert scale, which means the total is 100%. Therefore, by using Eq.1., we can realize the rate of agreement and disagreement with the questions from the respondents' point of view.

$$\text{Rate of Agreement} = \frac{\text{Mean} * 100}{5 (\text{Five - Point Likert Scale})}$$

### 5.2.1. Descriptive Statistics of the educational technologies in physical education and its levels

As shown in Table 20, the results of descriptive statistics mean, and standard deviation values of educational technologies in physical education are 3.8176, and 0.7704, respectively. While 76.35% of the total survey sample identified the educational technologies in physical education and their levels utilized by teachers in the Elazığ province in both middle and high schools, which is held by  $t(60.481)$ ,  $df(1148)$ , at the  $Sig(0.000)$  is less than  $\alpha(0.05)$ .

Table 20 indicated the statistical mean values of the educational technologies in physical education levels, namely, capabilities of using technology, technology integration, professional development, technological literacy, technology guidance, social, ethical, and legal provisions, and communication, which are 3.6727, 3.7615, 3.9597, 3.9293, 3.8087, 4.1060, and 3.8926, respectively. The standard deviation scores of the same levels were .90074, .87594, .84888, .79953, .90344, .80825, and .92418, respectively. Furthermore, 73.45%, 75.23%, 79.19%, 78.58%, 76.17%, and 82.12% respectively of the total responses agreed on that the levels of educational technologies in physical education utilized by teachers in the Elazığ province in both middle and high schools. That was supported by  $t$ -test 49.772, 52.419, 56.940, 59.989, 51.460, 62.011, 51.414, respectively, at the  $p$ -values (0.000) for levels, that was less than  $\alpha(0.05)$ , Thus, all the levels were significant ( $p$ -value $<0.05$ ).

**Table 20: Statistics of the educational technologies in physical education and its levels**

| Variables | Descriptive Statistics |                |                       | T-test |    |                 |
|-----------|------------------------|----------------|-----------------------|--------|----|-----------------|
|           | Mean                   | Std. Deviation | The rate of Agreement | t      | df | Sig. (2-tailed) |
|           |                        |                |                       |        |    |                 |

|  |               |               |               |               |            |              |
|--|---------------|---------------|---------------|---------------|------------|--------------|
| <b>Educational Technologies</b>              | <b>3.8176</b> | <b>.77044</b> | <b>76.35%</b> | <b>60.484</b> | <b>148</b> | <b>0.000</b> |
| <b>Capabilities of Using Technology</b>      | <b>3.6727</b> | <b>.90074</b> | <b>73.45%</b> | <b>49.772</b> | <b>148</b> | <b>0.000</b> |
| <b>Technology Integration</b>                | <b>3.7615</b> | <b>.87594</b> | <b>75.23%</b> | <b>52.419</b> | <b>148</b> | <b>0.000</b> |
| <b>Professional Development</b>              | <b>3.9597</b> | <b>.84888</b> | <b>79.19%</b> | <b>56.940</b> | <b>148</b> | <b>0.000</b> |
| <b>Technological Literacy</b>                | <b>3.9293</b> | <b>.79953</b> | <b>78.58%</b> | <b>59.989</b> | <b>148</b> | <b>0.000</b> |
| <b>Technology Guidance</b>                   | <b>3.8087</b> | <b>.90344</b> | <b>76.17%</b> | <b>51.460</b> | <b>148</b> | <b>0.000</b> |
| <b>Social, Ethical, and Legal Provisions</b> | <b>4.1060</b> | <b>.80825</b> | <b>82.12%</b> | <b>62.011</b> | <b>148</b> | <b>0.000</b> |
| <b>Communication</b>                         | <b>3.8926</b> | <b>.92418</b> | <b>77.85%</b> | <b>51.414</b> | <b>148</b> | <b>0.000</b> |

### 5.2.2. Descriptive statistics of the educational technologies in physical education higher values

Table 21 revealed the results that ( $X_{18}$  and  $X_8$ ) riches capabilities of using technology “Teachers send a file (image, text document, and presentation) by attaching it to an email.” as well as “Teachers in both schools save data they downloaded from the internet on removable disks.”. Furthermore, it was determined that ( $X_{34}$  and  $X_{26}$ ) riches the technology integration level “Teachers utilize technology to ensure the permanence of knowledge.” “Teachers in the middle and high schools in Elazığ province select and use different technologies for different gains.” Furthermore, the result indicates that ( $X_{43}$  and  $X_{42}$ ) riches the professional development for education “Teachers feel a desire to use new technology for educational purposes.” Moreover, teachers in the middle and high schools in Elazığ province actively use management information systems (MEBBIS, e-Okul, etc.).

**Table 21: Descriptive Statistics of the Educational Technologies in Physical Education Higher Values**

|  |  |                               |
|--|--|-------------------------------|
|  |  | <b>Descriptive Statistics</b> |
|--|--|-------------------------------|

| Variables                                    | Questions | Mean | Std. Deviation | Rate of Agreement |
|--|-----------|------|----------------|-------------------|
| <b>Higher Values</b>                         |           |      |                |                   |
| <b>Capabilities of Using Technology</b>      | X18       | 4.21 | 1.073          | 84.2%             |
|  | X8        | 4.15 | 1.267          | 83%               |
| <b>Technology Integration</b>                | X34       | 4.11 | .983           | 82.2%             |
|  | X26       | 4.01 | 1.142          | 80.2%             |
| <b>Professional Development</b>              | X43       | 4.19 | 1.051          | 83.8%             |
|  | X42       | 4.00 | 1.115          | 80%               |
| <b>Technological Literacy</b>                | X50       | 4.20 | 1.097          | 84%               |
|  | X51       | 4.15 | 1.095          | 83%               |
| <b>Technology Guidance</b>                   | X62       | 4.18 | .987           | 83.6%             |
|  | X58       | 3.87 | 1.082          | 77.4%             |
| <b>Social, Ethical, and Legal Provisions</b> | X67       | 4.44 | .841           | 88.8%             |
|  | X68       | 4.26 | .987           | 85.2%             |
| <b>Communication</b>                         | X69       | 4.38 | .858           | 87.6%             |
|  | X70       | 4.01 | 1.081          | 80.2%             |

Table 21 also showed that (X50 and X51) riches the technological literacy regarding the teachers connect to a wireless network from a computer or mobile device. Moreover, teachers know the principles of use of a technological device.” The results showed that (X62 and X58) reserves technology guidance level of educational technologies in physical education regarding the teachers help to their colleagues, particularly to those who need support in the field of technology. Besides, teachers guide students on the use of technology. The results show that (X69 and X70) riches social, ethical, and legal provisions level of use, so, it means that “teachers aware of the responsibility and obligation that sharing on social platforms brings.” Moreover, “Teachers in both schools know and pay attention to cybercrimes.” Additionally, (X34 and X26) riches the communication level of educational technologies in physical education. Hence, the results confirm that “Teachers utilized a social network for educational purposes and direct students in this direction. “Teachers in the middle and high schools in Elazığ province use online systems to communicate with parents and students collectively.” Accordingly, the

tables above provided the descriptive statistics analysis that the answers on all levels of use of educational technologies of physical education teachers confirmed that all levels utilized by teachers in the Elazığ province in both middle and high schools were at a significant level. However, the social, ethical, and legal provisions and professional development respectively levels were utilized by teachers in the Elazığ province in both middle and high schools at the rates of (82.12%, and 79.19%), respectively.

### **5.3. Variance Analysis**

It is essential to identify that for those that are parametric, the independent t-test and Variance Analysis (ANOVA) was used; and for methods that are nonparametric, the Mann Whitney U Test and the Wilcoxon Test were used. The significance level of the acquired data was accepted as ( $p>0.05$ ). While the variance analysis will be applied according to the demographic information and data that have two levels or more, ,namely: gender and age of physical education teachers, the level of the school at which they work, year of professional seniority, level of education, status of previous participation in training related to technology, technologies found at school, and personally owned technologies. However, T-test and Variance Analysis (ANOVA) will not be used for placement unit at which they work, since it has one level only.

#### **5.3.1. Variance Analysis According to Gender**

As revealed in Table 22, the independence t-test for variance analysis according to gender was applied to clarify if there are any variances between the

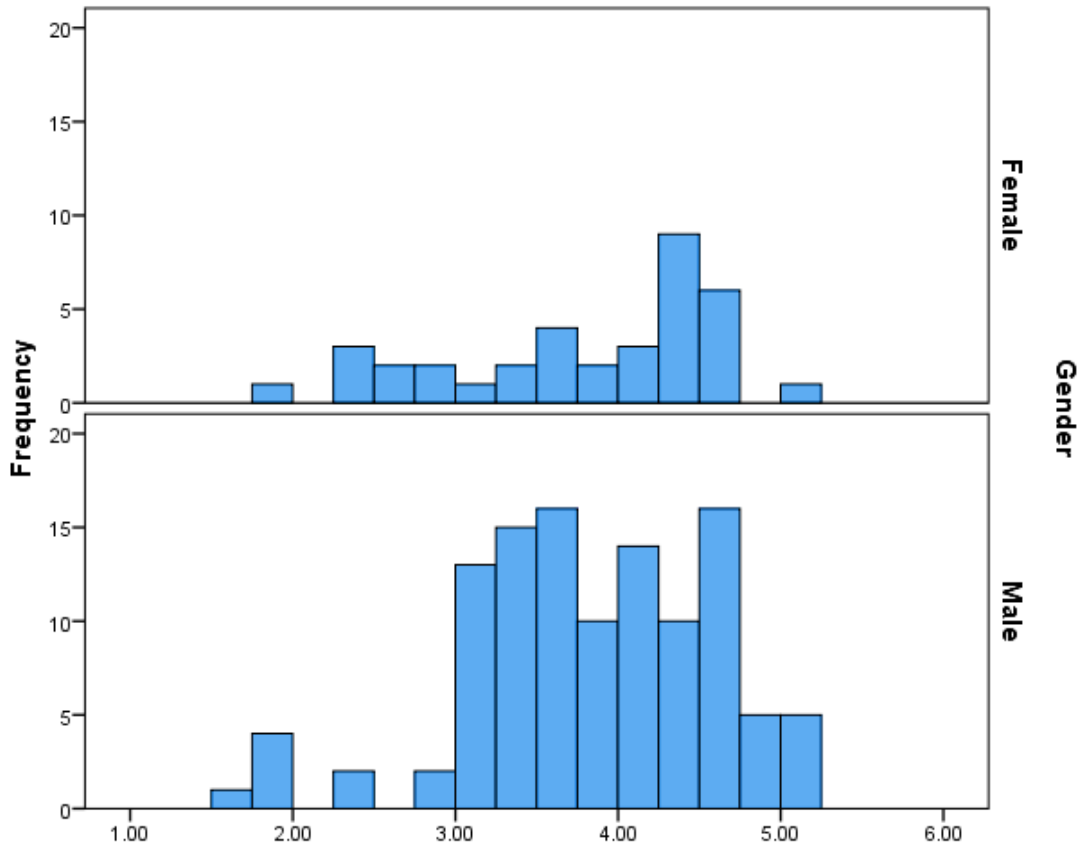
replies of the survey samples according to female and male, since normally distributes, no outliers and sample size was larger than the minimum for the nonparametric test. While, the independence t-test results confirmed that there isn't variance in the means among female and male teachers, toward utilizing the educational technologies in physical education and their levels by teachers in the Elazığ province in both middle and high schools,  $F(1.533; p0.218 > 0.05)$ . However, table 23 of group statistics show Female and Male statistical means (3.7967, 3.8242) respectively that both smellier at their nature, as indicated by Figure 2.

**Table 22: Independent Samples Test According to Gender**

|                          | Levene's Test for Equality of Variances |       | t-test for Equality of Means |       |                 |                 |                       |   |         |        |
|--------------------------|---|-------|------------------------------|-------|-----------------|-----------------|-----------------------|---|---------|--------|
|                          | F                                       | Sig.  | t                            | df    | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference |         |        |
|                          |   |       |                              |       |                 |                 |                       | Lower                                     | Upper   |        |
| Educational Technologies | Equal variances assumed                 | 1.533 | .218                         | -.186 | 147             | .852            | -.02756               | .14793                                    | -.31990 | .26479 |
|                          | Equal variances not assumed             |       |                              | -.175 | 53.868          | .861            | -.02756               | .15706                                    | -.34245 | .28734 |

**Table 23: Group Statistics According to Female and Male**

|                          | Gender | N   | Mean   | Std. Deviation | Std. Error Mean |
|--------------------------|--------|-----|--------|----------------|-----------------|
| Educational Technologies | Female | 36  | 3.7967 | .84187         | .14031          |
|                          | Male   | 113 | 3.8242 | .75014         | .07057          |



**Figure 2: Graph of Educational Technologies in Physical Education According to Female and Male Respondents.**

### 5.3.2. Variance Analysis According to Level of School

Table 24 shows that the independence t-test of variance analysis was used according to the level of school to illuminate if there is variance among the replies of the survey samples according to the level of school since normally distributes. No outliers and sample size was larger than the minimum for the nonparametric test. Whereas, the independence t-test results established that there isn't variance in the means among teachers in middle school and high school, toward utilizing the educational technologies in physical education and their levels by teachers in the Elazığ province in both middle and high schools,  $F(1.084; p0.300 > 0.05)$ . Nevertheless, table 25 of group statistics shows middle school high school statistical

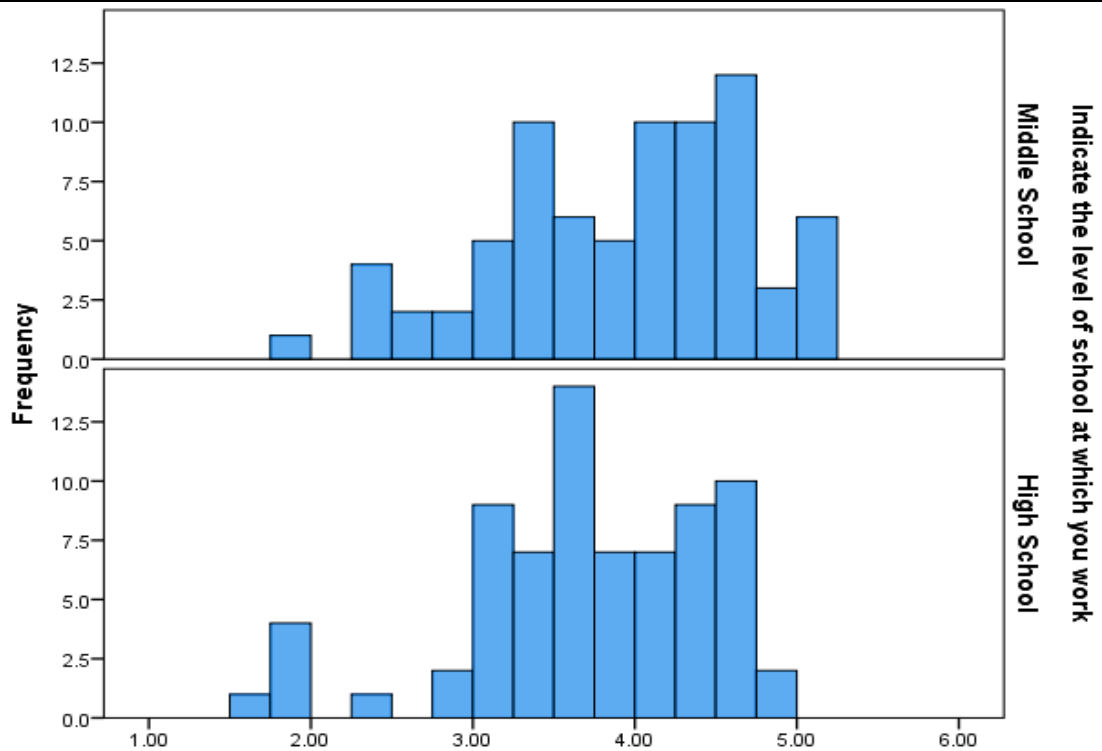
means (3.9126, and 3.7186) respectively that both smellier at their nature, as shown in Figure 3.

**Table 24: Independent Samples Test According to Level of School**

|                          | Levene's Test for Equality of Variances | t-test for Equality of Means |      |       |         |                 |                 |                       |   |        |
|--------------------------|---|------------------------------|------|-------|---------|-----------------|-----------------|-----------------------|---|--------|
|                          |   | F                            | Sig. | t     | df      | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference |        |
|                          |   |                              |      |       |         |                 |                 |                       | Lower                                     | Upper  |
| Educational Technologies | Equal variances assumed                 | 1.084                        | .300 | 1.544 | 147     | .125            | .19404          | .12567                | -.05432                                   | .44240 |
|                          | Equal variances not assumed             |                              |      | 1.545 | 147.000 | .124            | .19404          | .12557                | -.05412                                   | .44220 |

**Table 25: Group Statistics According to Level of School**

|                          | level of school | N  | Mean   | Std. Deviation | Std. Error Mean |
|--------------------------|-----------------|----|--------|----------------|-----------------|
| Educational Technologies | Middle School   | 76 | 3.9126 | .78169         | .08967          |
|                          | High School     | 73 | 3.7186 | .75111         | .08791          |



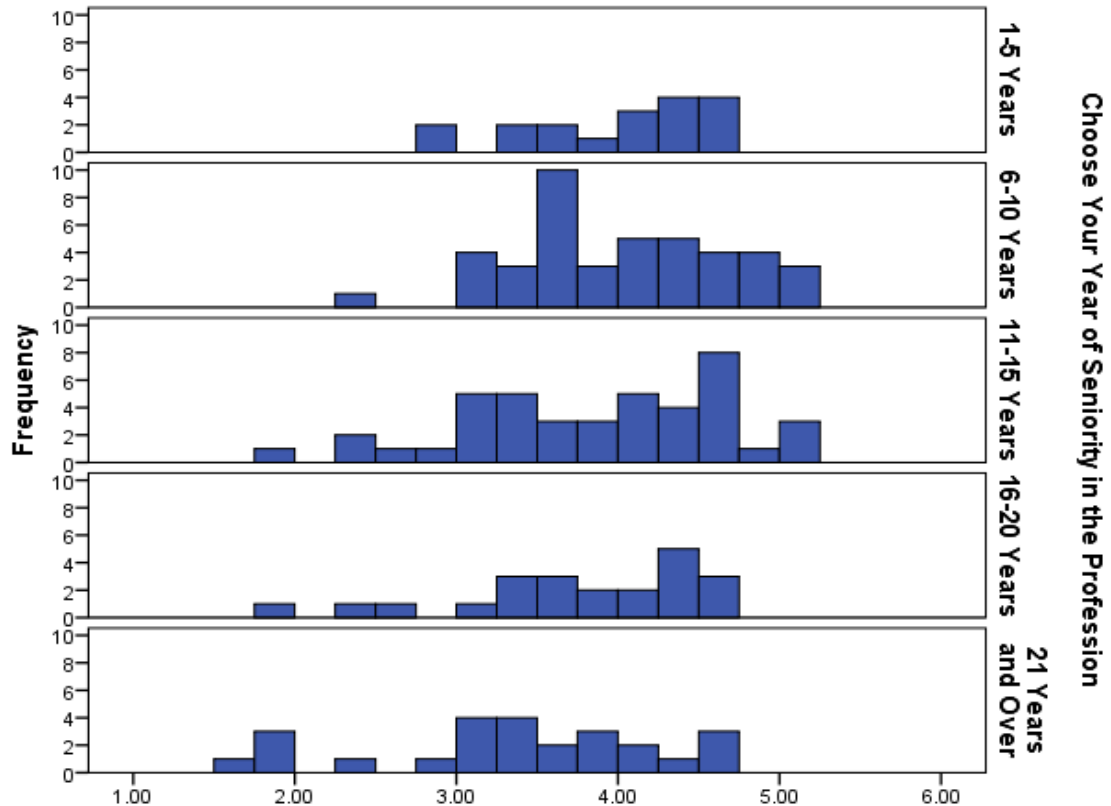
**Figure 3: Graph of Educational Technologies In Physical Education According to Level of School.**

**5.3.3. Variance Analysis According to Seniority in the Profession**

As nonparametric method, and more than two levels of seniority in the profession Friedman test ANOVA used, besides the results established, there is variance in the means among teachers answers according to seniority in the profession, toward utilizing the educational technologies in physical education and their levels by teachers in the Elazığ province in both middle and high schools, Chi-Square (28.356;  $p0.000 < 0.05$ ), and DF (1, 148), and there are differences in mean rank, as shown in table 26.

**Table 26: Ranks and Test Statistics According to Seniority in the Profession**

|  | Mean Rank |
|--|-----------|
| Educational technologies in physical education | 1.72      |
| Seniority in the Profession                    | 1.28      |
| N  | 149       |
| Chi-Square                                     | 28.356    |



|             |      |
|-------------|------|
| df          | 1    |
| Asymp. Sig. | .000 |

a. Friedman Test

**Figure 4: Graph of Educational Technologies in Physical Education According to Seniority in the Profession**

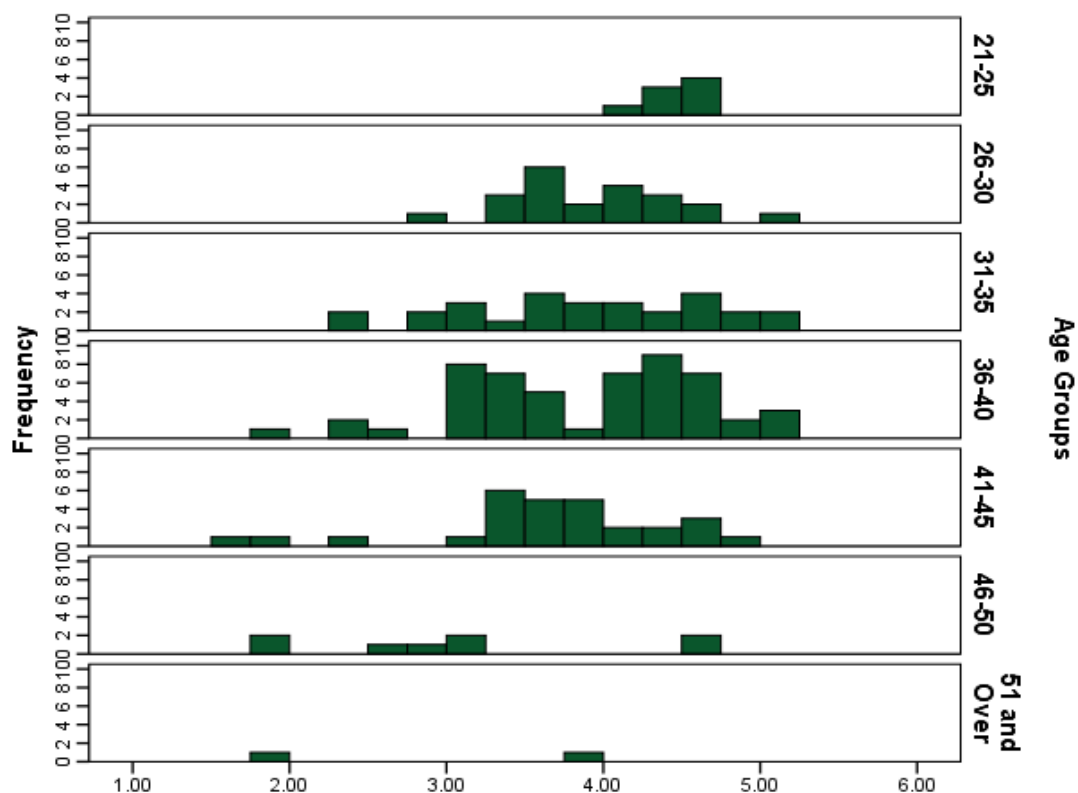
### 5.3.4. Variance Analysis According to Age Groups

The ANOVA test of variance was used according to age groups to illuminate if there is variance among the replies of the survey samples according to age groups, as nonparametric. Whereas, the Friedman test ANOVA results recognized that there isn't variance in the means among teachers answers according to their age groups, Chi-Square (1.510;  $p0.219 > 0.05$ ), and DF (1, 148), and there are no significant differences in mean rank, as revealed in Table 27.

**Table 27: Ranks and Test Statistics According to Age Groups**

|  | Mean Rank |
|--|-----------|
| Educational technologies in physical education | 1.55      |
| Age Groups                                     | 1.45      |
| N  | 149       |
| Chi-Square                                     | 1.510     |
| Df   | 1         |
| Asymp. Sig.                                    | .219      |

a. Friedman Test



**Figure 5: Graph of Educational Technologies in Physical Education According to Age Groups**

**5.3.5. Variance Analysis According to Levels of Education**

The ANOVA test of variance was used according to teachers' levels of education to indicate that if there is any variance among the replies. While the ANOVA test results confirmed that there is no variance in the means between levels of education as an associate, bachelor, master, and a doctorate of the teachers, F (.918;  $p0.402 > 0.05$ ), as shown in Table 28.

**Table 28: ANOVA Test According to Levels of Education**

|                | Sum of Squares | df  | Mean Square | F    | Sig. |
|----------------|----------------|-----|-------------|------|------|
| Between Groups | 1.091          | 2   | .545        | .918 | .402 |
| Within Groups  | 86.759         | 146 | .594        |      |      |
| Total          | 87.850         | 148 |             |      |      |

**5.3.6. Variance Analysis According to Participate in Training Related to Technology**

The ANOVA test of variance was used according to teachers participates in training related to technology to identify if there is variance among the replies of the survey samples according to participate in training. While, Whereas Mann-Whitney U and Wilcoxon W tests results recognized that there is variance in the means among teachers answers according to participate in training, Mann-Whitney U test is (1127.000), Wilcoxon W test is (2030.000), at level of sig ( $p0.00 < 0.05$ ), and Z (-4.726), and there are differences in mean rank, so, for teachers who did not participate in training related to technology mean rank is (48.33), and for teachers

participated in training related to technology mean rank is (85.47), it confirms that the teachers who participated in training related to technology more preferred to utilized the levels of educational technologies in physical education.

**Table 29: Ranks and Test Statistics According to Participate in Training Related to Technology**

|  | Participated in Training Related to Technology? | N  | Mean Rank | Sum of Ranks |
|--|---|--|-----------|--------------|
| Educational technologies in physical education | No  | 42   | 48.33     | 2030.00      |
|  | Yes   | 107  | 85.47     | 9145.00      |
|  | Total   | 149  |           |              |
|  |   | Educational technologies in physical education |           |              |
| Mann-Whitney U                                 |   |  |           | 1127.000     |
| Wilcoxon W                                     |   |  |           | 2030.000     |
| Z  |   |  |           | -4.726       |
| Asymp. Sig. (2-tailed)                         |   |  |           | .000         |

a. Grouping Variable: Participated In Training Related To Technology.

### 5.3.7. Variance Analysis According to Technology Used in School

The ANOVA test of variance was used according to the technology used in school indicates that if there is any variance among the responses. While the ANOVA test results confirmed that there is no variance in the means between technology used in school,  $F(1.480; p0.121 > 0.05)$ , the results confirm that most teachers in both schools using different educational devices namely computer, projector, smart board, document camera, computer and projector, computer and smart board, computer and multifunction printer, as showed in Table 30.

**Table 30: ANOVA Test According to Technology Used in School**

|                | Sum of Squares | df  | Mean Square | F     | Sig. |
|----------------|----------------|-----|-------------|-------|------|
| Between Groups | 12.569         | 15  | .838        | 1.480 | .121 |
| Within Groups  | 75.281         | 133 | .566        |       |      |
| Total          | 87.850         | 148 |             |       |      |

### 5.3.8. Variance Analysis According to Teacher Personal Technology

The ANOVA test of variance was used according to personal teacher technology, to shows that if there is any variance among the teachers' replies. Whereas the ANOVA test results established that there is variance in the means between teachers have own personal technology or not own,  $F(2.037; p0.029 > 0.05)$ , the results confirm that same teacher in both schools have not owned personal technology that related to their educational career namely desktop computer, laptop computer, tablet computer, and smartphone. Thus, it is essential for teachers to have modern devices, in particular, those can be used in teaching, as presented in Table 31.

**Table 31: ANOVA Test According to Teacher Personal Technology**

|                | Sum of Squares | df  | Mean Square | F     | Sig. |
|----------------|----------------|-----|-------------|-------|------|
| Between Groups | 12.350         | 11  | 1.123       | 2.037 | .029 |
| Within Groups  | 75.500         | 137 | .551        |       |      |
| Total          | 87.850         | 148 |             |       |      |

## 6. DISCUSSION

### 6.1. Conclusions

The purpose of this master thesis is to identify the educational technologies in physical education and their levels utilized by teachers in the Elazığ province. Therefore, to reach this purpose, the study used descriptive statistics, independent t-test, and variance analysis ANOVA. Based on the descriptive statistics' educational technologies in physical education and their levels, all levels were statistically significant and influential for the effective physical education, while to reach superiority physical education, all physical education teachers and professionals must have access to appropriate training tools, guideline, and physical education analysis. Therefore, educational technologies in physical education include the practices that are formed with the real use of equipment, through counting all essentials found within the educational process and by using specific approaches using suitable processes, besides the assessment of these practices.

Nevertheless, from teachers' perspectives capabilities of using technology, technology integration, professional development for education, education's technological literacy, technology guidance, social, ethical, and legal provisions, and communication, respectively the critical feature motivating the effect of using PET by teachers. Accordingly, the study found that all levels of educational technologies in physical education were utilized by teachers in the Elazığ province in middle and high schools at a significant level. However, the social, ethical, and legal provisions

and professional development respectively were most expressively utilized by teachers in both schools the Elazığ province.

While teachers in the middle and high schools in Elazığ province confirmed that same educational technology available in their schools, such as a computer, projector, smart board, and multifunction printer, where they have access and capabilities of using these technologies, as the indicators of capabilities of using technology, the study found that teachers in both schools make a video using multimedia elements such as sound, picture, text, while most teachers scan and save a picture or document and converting files between formats (MP3-WAV, AVI-MPEG, and BMP-JPG). As well as making video calls over the internet, and creating a free, ready-made-template website and add content. Teachers also store data in space on the internet (Google Drive, Dropbox, and email) as well as making difficult adjustments relating to sound settings, and for record sound using a microphone and appropriate program. Furthermore, teachers share folders through a wireless network (wireless, Bluetooth, and infrared), send a file for instance image, text document, and presentation, by attaching it to an email.

Regarding the educational technology integration, this study realized that most teachers in the middle and high schools in Elazığ province prepare written questions electronically, as well as creating exams online (electronically) and giving them to the students, then analyzing exams and items with computer software. Most importantly, teachers design materials to support student-centered activities. Therefore, this study also found that teachers know that preparations must be done before using technology in classes, besides selecting and using different technologies for different gains. However, teachers in middle and high schools in Elazığ province

download and edit educational materials from the internet, and in particular, choosing the materials that they used to enrich lessons while the results revealed that teachers found alternative solutions to problems they faced during the use of technology in class. Consequently, teachers utilized technology to support the individual learning of students, besides interacting materials that encourage individual learning.

As professional development in education, teachers monitor sites that may contribute to their professional development as well as participating and completing development opportunities such as courses, seminars, and presentations conducted remotely and participating in online communities like Facebook, Twitter, Instagram, and Google Plus to monitor innovations. In the context of technological literacy, the study realized that teachers in both schools know that technology can always create problems. As much as they can understand a text by reading it in print, they understand it while reading it digitally. Additionally, they store folders and files in an organized fashion and use them when necessary in addition to connecting to a wireless network from a computer or mobile device. Teachers also know the principles of using a technological device, and using a touch-screen computer or device (smartboard, smartphone, and tablet) without issue. Thus, most of them confirm that they quickly adapt to new technologies they encounter.

Regarding technology guidance for educational purpose, the study found that teachers guide students on the use of technology, and lead in the use of new technologies in education. So, most of them know digital ethics as rights of use, private information, and set an example of this topic for the students. As social, ethical, and legal provisions, this study found that surveyed teachers know that they

need to specify the sources of information that they use, importantly acting based on legal responsibilities on the subject of copyright. However, teachers' pay attention to the issue of the sharing and confidentiality of personal information. Besides they were aware of the responsibility and obligation that sharing on social platforms brings. In the meantime, they know and pay attention to cybercrimes. For scholarly communication, teachers significantly use a social network for educational purposes and direct students in this direction. Therefore, they share educational materials with students on social networks while some teachers indicated that they use online systems to collectively communicate with parents and students as well as guiding students in the active use of email groups.

The Independence T-test and Variance Analysis ANOVA indicated that there isn't a variance in the means between female and male teachers, toward utilizing the educational technologies in physical education and their levels by teachers in the Elaziğ province in middle and high schools. while the study also found that there is no variance in the means among teachers in both schools, toward utilizing the educational technologies in physical education and their levels. The Friedman ANOVA test results also indicated that there isn't a variance in the means among teachers answers according to their age groups. In this context, the ANOVA test results confirmed that there is no variance in the means between levels of education as an associate, bachelor, master, and doctorate. Although the ANOVA test results confirmed that there is no variance in the means between technology used in school, thus, most teachers in both schools using different educational devices namely computer, projector, smart board, document camera, and multifunction printer.

However, the results established that there is a variance in the means among teachers answers according to seniority in the profession, toward utilizing the educational technologies in physical education and their levels. Whereas, Mann-Whitney U and Wilcoxon W tests results revealed that there is a variance in the means among teachers answers according to participate in training, teachers who did not participate in training related to technology use all levels of educational technologies less compared to teachers who participated in training related to technology. Therefore, it was confirmed that the teachers who participated in training related to technology preferred to utilized the levels of educational technologies in physical education more. Besides, the ANOVA test established that there is a variance in the means between teachers who have personal technology. Therefore, this result confirms that the same teacher in both schools has not owned personal technology that related to their educational career namely a desktop computer, laptop computer, tablet computer, and smartphone. Thus, it is essential for teachers to have modern devices, in particular, those that can be used in teaching.

## **6.2. The Study Implications**

Conclusions in this study may be used in several important ways. Therefore, it can be used to develop the course, allowing teachers and teacher educators to handle what graduates do and do not see as important in their preparation. The study can also contribute to the literature on physical education techniques by providing a theoretical framework. Additionally, it contains the proposed effects of physical education literature and sports by providing useful instructional devices that are likely to be useful for physical education systems.

While the implementation of any material and educational arrangement on teaching aids is no longer unnecessary, it has become a necessity to ensure the success of these systems and an integral part of its system structure. Therefore, to spread physical education techniques and influences in physical education, there should be a commitment and contribution to all around physical and sports departments. Although the beginning of reliance on teaching aids in teaching and learning processes has ancient roots, it has recently developed a significant expansion recently with the advent of modern educational plans. Consequently, we realize today about the theory of modern communication and its dependence on the introduction of regulations. International studies have revealed that the level of learning among students doubles through the use of current teaching methods that help to taste science so that positive performance. Thus, modern methods and techniques provide students with the ability to search for and gather information in the shortest time and effort.

While PET plans need to reevaluate how and what potential teachers are taught about evaluation and to consider those physical teachers and their programs will no doubt benefit from the use of more evaluation techniques and reflection on actual practice. The additional outcome of this study, which has practical implications for teachers and teacher educators, is related to experience. PET educational institutions need to ensure that they deal with professional behaviors and behaviors throughout their program. Participants in this study used much of what they have learned in this area in their current practice. Lastly, this study may provide public schools with insights into the challenges that physical education teachers face in the light of their

experiences in the malignant PET test and their commitment to facilitate the transition from higher education to the world of practical knowledge.

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## 8. APPENDIXES

### Appendix1: Turkish Questionnaire Form

#### Arařtırmacının Beyanı:

Sayın Öğrenci; “**Elazığ İlindeki Beden Eğitimi Öğretmenlerinin Eğitim Teknolojileri Kullanım Düzeylerinin Belirlenmesi**” amacıyla bir yüksek lisans tez çalışması yapmayı planlıyoruz. Sizin de bu çalışmaya katılmanızı öneriyoruz. Bu çalışmaya katılıp katılmamakta serbestsiniz. Çalışmaya katılım gönüllülük esasına göredir.

Bu çalışmaya katılmanız için sizden herhangi bir ücret talep edilmeyecek ve size ayrıca bir ödeme yapılmayacaktır. Kişisel bilgiler ve araştırma bilgileri üçüncü şahıslara aktarılmayacaktır. Ancak çalışmanın kalitesini denetleyen görevliler, etik kurullar ya da resmi makamlarca gereği halinde incelenecektir. Eğer arařtırmayı kabul ederseniz arařtırmacı Awat Mahmood tarafından bulgular kaydedilecektir.

**Bilgi için:** kakashekh76@gmail.com

### **Katılımcının Beyanı:**

Araştırmacı Kaka Shaikh Omar tarafından “Elazığ İlindeki Beden Eğitim Öğretmenlerinin Eğitim Teknolojileri Kullanım Düzeylerinin Belirlenmesi” ile ilgili bir araştırma yapılacağı belirtilerek bu araştırma ile ilgili yukarıdaki bilgiler bizlere aktarıldı. Bu bilgiler ışığında bu çalışmaya kendim “katılımcı” olarak iştirak etmekte bir sakınca görmemekteyim.

Bu araştırma kapsamında araştırmacı ile aramda kalması gereken bize ait bilgilerin gizliliğine bu araştırma sırasında da büyük özen ve saygı ile yaklaşılabacağına inanıyorum. Araştırma sonuçlarının eğitim ve bilimsel amaçlarla kullanımı sırasında kişisel bilgilerimin ihtimamla korunacağı konusunda bana yeterli güven verildi.

### **ÖLÇEK FORMU**

Araştırma yüksek lisans tezi amacına yönelik bilimsel bir nitelik taşımaktadır. Lütfen her ifadeyi dikkatlice okuyunuz ve bu ifadelerden kendi durumunuza en uygun olanın yanındaki kutucuğa (X) işareti koyunuz.

Yardımlarınız için teşekkür ederim.

**Kaka Shaikh Omar**

Fırat Üniversitesi  
Sağlık Bilimleri Enstitüsü  
Beden Eğitimi ve Spor Anabilim

### **Öğretmenlerin Bilişim Teknolojisi Düzeylerini Belirleme Ölçeği Ön Formu**

#### **1- Cinsiyetinizi Seçiniz**

Kadın  Erkek

#### **2- Görev yaptığınız okul düzeyini işaretleyiniz.**

Ortaokul  Lise

#### **3- Meslekteki Kıdem Yılınızı Seçiniz.**

1-5 Yıl  6-10 Yıl  11-15 Yıl  16-20 Yıl  21 Yıl ve Üzeri

#### **4- Görev Yaptığınız Yerleşim Birimi Türünü Seçiniz.**

Köy  Belde  İlçe  İl Merkezi

#### **5- Yaşınızı Seçiniz.**

O 21-25 O 26-30 O 31-35 O 36-40 O 41-45 O 46-50 O 51 ve Üzeri

**6-Öğrenim Düzeyi Seçiniz.**  
 Ön Lisans  Lisans  Yüksek Lisans  Doktora

**7- Daha önce teknolojiyle ilgili bir eğitime katıldınız mı?**  
 Hayır  Evet

**8- Okulunuzda Bulunan Teknolojileri İşaretleyiniz.**  
 Bilgisayar  Projeksiyon Cihazı  Akıllı Tahta  Doküman Kamera  Çok Fonksiyonlu Yazıcı

**9-Kişisel olarak sahip olduğunuz teknolojiler nelerdir?**  
 Masaüstü Bilgisayar  Dizüstü Bilgisayar  Tablet Bilgisayar  Akıllı Telefon

### Öğretmenlerin Eğitim Teknoloji Yeterliliklerini Belirleme Ölçeği

Sayın Katılımcı;

Milli Eğitim Bakanlığına Bağlı okullarda görev yapan Beden Eğitimi öğretmenlerin Eğitim Teknolojisi yeterliliklerini belirlemeye yönelik bir araştırma yapmaktayız. Bu çalışmadaki veriler ve bilgilerin gizliliği korunacaktır. Seçenekler 5(Kesinlikle Katılıyorum)'ten 1(Kesinlikle Katılmıyorum)a doğru sıralanmıştır. Soruları içtenlikle yanıtladığınız için teşekkür ederiz.

#### Tamamen Katılıyorum Hiç Katılmıyorum

| <i>Teknoloji Kullanabilme Yeterlilikleri</i> |  | 5 | 4 | 3 | 2 | 1 |
|--|--|---|---|---|---|---|
| 1  | Çoklu ortam öğelerini (ses, resim, metin vb.) kullanarak bir video hazırlarım.                                 | 5 | 4 | 3 | 2 | 1 |
| 2  | Bir resim ya da belgeyi tarayıp kaydederim.  | 5 | 4 | 3 | 2 | 1 |
| 3  | Bir resim üzerinde çözünürlük ve boyut gibi değişiklikler yaparım.   | 5 | 4 | 3 | 2 | 1 |
| 4  | Taşınabilir bellekleri(diskleri) biçimlendiririm.  | 5 | 4 | 3 | 2 | 1 |
| 5  | Dosya formatları arasında dönüşüm yaparım.(mp3-wav,avi-mpeg,bmp-jpg v.b.)                                      | 5 | 4 | 3 | 2 | 1 |
| 6  | Bir metin belgesini okunabilir dosya (pdf,pdb,html v.b.) olarak kaydederim.                                    | 5 | 4 | 3 | 2 | 1 |
| 7  | İnternette görüntülü konuşma yaparım.  | 5 | 4 | 3 | 2 | 1 |
| 8  | İnternette indirdiğim verileri taşınabilir disklere kaydederim.  | 5 | 4 | 3 | 2 | 1 |
| 9  | Verilerimi internet üzerinde bir alanda (google drive,dropbox,e-posta v.b.) depolarım.                         | 5 | 4 | 3 | 2 | 1 |
| 10   | Ses ayarı ile ilgili gelişmiş ayarları yaparım.  | 5 | 4 | 3 | 2 | 1 |
| 11   | Bir işletim sistemini yeniden kurarım.   | 5 | 4 | 3 | 2 | 1 |
| 12   | Antivirüs programı kullanırım.   | 5 | 4 | 3 | 2 | 1 |
| 13   | Ücretsiz, hazır şablonlu bir internet sitesi oluşturup içerik eklerim.   | 5 | 4 | 3 | 2 | 1 |
| 14   | Bir mikrofon ve uygun program kullanarak ses kaydederim.   | 5 | 4 | 3 | 2 | 1 |
| 15   | Bir donanımın(bilgisayar parçasının) sürücü programını (yazılımını) internette indirerek ya da CD'den kurarım. | 5 | 4 | 3 | 2 | 1 |
| 16   | Kablosuz ağlar (wireless, bluetooth, kızılötesi vb.) aracılığıyla dosya paylaşırım.                            | 5 | 4 | 3 | 2 | 1 |
| 17   | Kablolu veya kablosuz bir ağa bağlı yazıcıdan çıktı alırım.  | 5 | 4 | 3 | 2 | 1 |
| 18   | Dosya(resim, metin belgesi, sunu vb.) e-postaya ekleyerek gönderirim.  | 5 | 4 | 3 | 2 | 1 |
| 19   | Bilgisayarın görüntü birimi (monitör, projeksiyon) ayarlarını yaparım.   | 5 | 4 | 3 | 2 | 1 |
| 20   | Dosya büyüklükleri ve depolama birimleri (bit, megabyte, gigabyte vb.)   | 5 | 4 | 3 | 2 | 1 |

|                                 |  |   |   |   |   |   |
|---------------------------------|--|---|---|---|---|---|
|                                 | arasındaki farkı bilirim.  |   |   |   |   |   |
| 21                              | Kablosuz ağdan gelebilecek güvenlik tehditlerine karşı şifre (WEP, WPA v.b.) oluştururum.  | 5 | 4 | 3 | 2 | 1 |
| <b>Teknoloji Entegrasyonu</b>   |  |   |   |   |   |   |
| 22                              | Yazılı sorularını elektronik ortamda hazırlarım.   | 5 | 4 | 3 | 2 | 1 |
| 23                              | Çevrimiçi(elektronik ortamda) sınav oluşturup öğrencilerime uygularım.   | 5 | 4 | 3 | 2 | 1 |
| 24                              | Öğrenci merkezli etkinlikleri destekleyecek materyaller tasarlarım.  | 5 | 4 | 3 | 2 | 1 |
| 25                              | Derslerde teknoloji kullanmadan önce hazırlık yapılması gerektiğini bilirim.   | 5 | 4 | 3 | 2 | 1 |
| 26                              | Farklı kazanımlar için farklı teknolojileri seçip kullanırım.  | 5 | 4 | 3 | 2 | 1 |
| 27                              | İnternette öğretim materyali indirip düzenlerim.   | 5 | 4 | 3 | 2 | 1 |
| 28                              | Derste teknoloji kullanımı esnasında karşılaşılabileceğim sorunlara alternatif çözümler üretirim.  | 5 | 4 | 3 | 2 | 1 |
| 29                              | Okulda bulunan (bilgisayar, projeksiyon, yazıcı, doküman kamera, tarayıcı, kamera, projeksiyon, ses sistemi, tepegöz vb.)temel teknolojileri kullanırım. | 5 | 4 | 3 | 2 | 1 |
| 30                              | Hazır eğitim yazılımlarını(animasyon, simülasyon, paket öğretici v.b.) bilgisayara yükleyip kullanırım.  | 5 | 4 | 3 | 2 | 1 |
| 31                              | Branşıyla ilgili elektronik kitapları dersimde kullanırım.   | 5 | 4 | 3 | 2 | 1 |
| 32                              | Öğrenme güçlüğü çeken öğrenciler için bireysel öğrenmeleri destekleyen materyaller kullanırım.   | 5 | 4 | 3 | 2 | 1 |
| 33                              | Dersi zenginleştirmek için kullanabileceğim materyali seçerim.   | 5 | 4 | 3 | 2 | 1 |
| 34                              | Bilginin kalıcılığını sağlamak için teknolojiden yararlanırım.   | 5 | 4 | 3 | 2 | 1 |
| 35                              | Bireysel öğrenmeleri teşvik edici etkileşimli materyaller kullanırım.  | 5 | 4 | 3 | 2 | 1 |
| 36                              | Öğrencilerin bireysel öğrenmelerini desteklemek için teknolojiden yararlanırım.  | 5 | 4 | 3 | 2 | 1 |
| 37                              | Materyal tasarlarırken öğretim tasarımı ilkelerine uygun hareket ederim.   | 5 | 4 | 3 | 2 | 1 |
| 38                              | Bilgisayar yazılımları aracılığıyla sınav ve madde analizi yaparım.  | 5 | 4 | 3 | 2 | 1 |
| <b>Mesleki Gelişim</b>          |  |   |   |   |   |   |
| 39                              | Mesleki gelişimime katkıda bulunabilecek siteleri takip ederim.  | 5 | 4 | 3 | 2 | 1 |
| 40                              | Uzaktan eğitimle yürütülen kurs/seminer/sunuma katılıp tamamlarım.   | 5 | 4 | 3 | 2 | 1 |
| 41                              | Yenilikleri takip etmek için çevrimiçi topluluklara(facebook,twitter,instagram,google plus v.b.) katılırım.  | 5 | 4 | 3 | 2 | 1 |
| 42                              | Yeni bir teknolojiyi öğretim amaçlı kullanmak için istek duyarım.  | 5 | 4 | 3 | 2 | 1 |
| 43                              | Yönetim bilgi sistemlerini (mebbis, e-okul vb.) aktif şekilde kullanırım.  | 5 | 4 | 3 | 2 | 1 |
| 44                              | Hizmet içi eğitimleri çevrimiçi olarak takip edip başvuru yaparım.   | 5 | 4 | 3 | 2 | 1 |
| <b>Teknoloji Okur Yazarlığı</b> |  |   |   |   |   |   |
| 45                              | Teknolojinin her zaman sorun çıkarabileceğini bilirim.   | 5 | 4 | 3 | 2 | 1 |
| 46                              | Bir metni kâğıttan okuyarak anlayabildiğim kadar, dijital ortamda okuduğunda da anlarım.   | 5 | 4 | 3 | 2 | 1 |
| 47                              | Sık kullanılan dosya formatlarını (pdf, doc, exe, ppt, xls) bilirim.   | 5 | 4 | 3 | 2 | 1 |
| 48                              | Klasörleri, dosyaları belirli bir düzende depolar ve gerektiğinde kullanırım.  | 5 | 4 | 3 | 2 | 1 |
| 49                              | Site uzantılarının (gov, com, net, mil vb.) anlamlarını bilirim.   | 5 | 4 | 3 | 2 | 1 |

|                                       |   |   |   |   |   |   |
|---------------------------------------|---|---|---|---|---|---|
| 50                                    | Bilgisayar ya da mobil cihazlardan kablosuz bir ağa bağlanırım.   | 5 | 4 | 3 | 2 | 1 |
| 51                                    | Teknolojik bir cihazın kullanım ilkelerini bilirim.   | 5 | 4 | 3 | 2 | 1 |
| 52                                    | Bir teknolojik cihazın hangi durumlarda servise gönderilmesi gerektiğini bilirim.                       | 5 | 4 | 3 | 2 | 1 |
| 53                                    | Bir dosyanın virüslü olduğunu fark ederim.  | 5 | 4 | 3 | 2 | 1 |
| 54                                    | Donanımlarla yazılımların ilişkisini ifade ederim.  | 5 | 4 | 3 | 2 | 1 |
| 55                                    | Dokunmatik bir bilgisayar ya da cihazı (akıllı tahta, akıllı telefon, tablet v.b.) sorunsuz kullanırım. | 5 | 4 | 3 | 2 | 1 |
| 56                                    | Farklı işletim sistemlerine örnekler veririm.   | 5 | 4 | 3 | 2 | 1 |
| 57                                    | Yeni karşılaştığım teknolojilere kolaylıkla uyum sağlarım.  | 5 | 4 | 3 | 2 | 1 |
| <b>Teknoloji Rehberliği</b>           |   |   |   |   |   |   |
| 58                                    | Teknoloji kullanımı konusunda öğrencilere rehberlik ederim.   | 5 | 4 | 3 | 2 | 1 |
| 59                                    | Eğitimde yeni teknolojiler kullanılmasında önderlik yaparım.  | 5 | 4 | 3 | 2 | 1 |
| 60                                    | Dijital etiği (kullanım hakları, özel bilgiler vb.) bilir, öğrencilerime bu konuda örnek olurum.        | 5 | 4 | 3 | 2 | 1 |
| 61                                    | İnternetteki her bilginin doğruluğunu kabul etmem, sorgularım.  | 5 | 4 | 3 | 2 | 1 |
| 62                                    | Teknoloji alanında desteğe ihtiyacı olan öğretmenlere yardım ederim.                                    | 5 | 4 | 3 | 2 | 1 |
| 63                                    | Öğrencilerimin internet ortamında yaptıkları araştırmalara rehberlik ederim.                            | 5 | 4 | 3 | 2 | 1 |
| <b>Sosyal, Etik ve Yasal Hükümler</b> |   |   |   |   |   |   |
| 64                                    | Kullandığım bilgilerin kaynağını belirtmem gerektiğini bilirim.   | 5 | 4 | 3 | 2 | 1 |
| 65                                    | Telif hakları konusunda yasal sorumluluklara göre davranırım.   | 5 | 4 | 3 | 2 | 1 |
| 66                                    | Kişisel bilgilerin paylaşımı ve gizliliği konusuna dikkat ederim.                                       | 5 | 4 | 3 | 2 | 1 |
| 67                                    | Sosyal ortamlardaki paylaşımlarımın bana getirdiği sorumluluk ve yükümlülüklerin farkındayım.           | 5 | 4 | 3 | 2 | 1 |
| 68                                    | Bilişim suçlarını bilir ve dikkat ederim.   | 5 | 4 | 3 | 2 | 1 |
| <b>İletişim</b>                       |   |   |   |   |   |   |
| 69                                    | Bir sosyal ağı eğitim amaçlı kullanabilir, öğrencilerimi de bu doğrultuda yönlendiririm.                | 5 | 4 | 3 | 2 | 1 |
| 70                                    | Veliler ve öğrenciler ile toplu iletişim kurmak için çevrimiçi sistemleri kullanırım.                   | 5 | 4 | 3 | 2 | 1 |
| 71                                    | E-posta gruplarının aktif olarak kullanımında öğrencilere rehberlik ederim.                             | 5 | 4 | 3 | 2 | 1 |
| 72                                    | Sosyal ağlarda öğrencilerimle eğitsel paylaşımlarda bulunurum.  | 5 | 4 | 3 | 2 | 1 |

## Appendix 2: English Questionnaire Form

### Declaration of the Researcher

Dear Student, we are planning to conduct a graduate thesis study for “**An Identification of the Levels of Use of Educational Technologies of Physical Education Teachers in the Elazığ Province**” We encourage you to participate in

this study. You are free to decide whether to participate in this study. Participation in the study is voluntary.

You will not request any fee for your participation in this study, and no additional payment will be made to you. Personal information and research information will not be transferred to third parties. However, it will be examined as necessary by officials, ethics committees, or authorities who inspect the quality of the study. If you agree to the research, findings will be recorded by the researcher:

Kaka Shaikh Baba Shaikh OMAR

Master Student

For information: [kakashekh76@gmail.com](mailto:kakashekh76@gmail.com)

**Declaration of the Participant:**

The information above has reported using about this research, being specified by researcher Kaka Shaikh Omar that research will conduct related to “**An Identification of the Levels of Use of Educational Technologies of Physical Education Teachers in the Elazığ Province**” In light of this information, I do not see any objection to myself participating as a “participant” in this study.

I believe that the confidentiality of information belonging to us that must remain between the researcher and me in the scope of this study approached with great care and respect during the research. I am adequately confident that my personal information will rigorously be protected during the use of the results of the research for educational and scientific purposes.

**ÖLÇEK FORMU**

**Preliminary Form on the Scale of “An Identification of the Levels of Use of Educational Technologies of Physical Education Teachers in the Elazığ Province”**

**1- Choose Your Gender**

Female  Male

**2- Indicate the level of school at which you work.**  
 Middle School  High School

**3- Chose Your Year of Seniority in the Profession.**  
 1-5 Years  6-10 Years  11-15 Years  16-20 Years  21 Years and Over

**4- Choose The Type of Accommodation Unit At Which You Work.**  
 Village  Town  District  Provincial Center

**5- Choose Your Age**  
 21-25  26-30  31-35  36-40  41-45  46-50  51 and Over

**6- Choose the Level of Education**  
 Associate's  Bachelor's  Master's  Doctorate

**7- Have you previously participated in training related to technology?**  
 No  Yes

**8- Indicate the Technology Found at Your School.**  
 Computer  Projector  Smart Board  Document Camera  Multifunction Printer

**9- What technology do you personally own?**  
 Desktop Computer  Laptop Computer  Tablet Computer  Smart Phone

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**“An Identification of the Levels of Use of Educational Technologies of Physical Education Teachers in the Elazığ Province”**  
 Dear Participant,  
 We are researching to identify the Educational Technology competencies of Physical Education teachers who work in schools Associated with the Ministry of National Education. The confidentiality of the data and information in this study will be protected. The options have ordered from 5 (Definitely Agree) to 1 (Definitely Disagree). We thank you for candidly responding to the questions.

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|                           |                              |
|---------------------------|------------------------------|
| <b>I completely agree</b> | <b>I do not agree at all</b> |
|---------------------------|------------------------------|

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| <i>Capabilities of Using Technology</i>   | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| <b>1</b> I make a video using multimedia elements (sound, picture, text, etc.).         | 5 | 4 | 3 | 2 | 1 |
| <b>2</b> I scan and save a picture or document.   | 5 | 4 | 3 | 2 | 1 |
| <b>3</b> I make changes such as resolution and size in a picture.                       | 5 | 4 | 3 | 2 | 1 |
| <b>4</b> I format portable disks.   | 5 | 4 | 3 | 2 | 1 |
| <b>5</b> I convert files between formats (MP3-WAV, AVI-MPEG, BMP-JPG, etc.)             | 5 | 4 | 3 | 2 | 1 |
| <b>6</b> I save a text document as a readable file (PDF, PDB, HTML, etc.).              | 5 | 4 | 3 | 2 | 1 |
| <b>7</b> I make video calls over the internet.  | 5 | 4 | 3 | 2 | 1 |
| <b>8</b> I save data I downloaded from the internet on removable disks.                 | 5 | 4 | 3 | 2 | 1 |
| <b>9</b> I store my data in space on the internet (Google Drive, Dropbox, email, etc.). | 5 | 4 | 3 | 2 | 1 |
| <b>10</b> I make advanced adjustments relating to sound settings.                       | 5 | 4 | 3 | 2 | 1 |
| <b>11</b> I restore an operating system.  | 5 | 4 | 3 | 2 | 1 |
| <b>12</b> I use an anti-virus program.  | 5 | 4 | 3 | 2 | 1 |

|    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
| 13 | I create a free, ready-made-template website and add content.   | 5 | 4 | 3 | 2 | 1 |
| 14 | I record sound using a microphone and appropriate program.  | 5 | 4 | 3 | 2 | 1 |
| 15 | I download a hardware (computer part) driver program (software) from the internet or install from a CD. | 5 | 4 | 3 | 2 | 1 |
| 16 | I share folders through a wireless network (wireless, Bluetooth, infrared, etc.).                       | 5 | 4 | 3 | 2 | 1 |
| 17 | I print documents from a printer connected to a wired or wireless network.                              | 5 | 4 | 3 | 2 | 1 |
| 18 | I send a file (image, text document, presentation, etc.) by attaching it to an email.                   | 5 | 4 | 3 | 2 | 1 |
| 19 | I adjust the settings of the monitor unit (monitor, projector) of a computer.                           | 5 | 4 | 3 | 2 | 1 |
| 20 | I know the difference between file sizes and storage units (bit, megabyte, gigabyte, etc.).             | 5 | 4 | 3 | 2 | 1 |
| 21 | I create a password (WEP, WPA, etc.) against security threats that may come from a wireless network.    | 5 | 4 | 3 | 2 | 1 |

### ***Technology Integration***

|    |  |   |   |   |   |   |
|----|--|---|---|---|---|---|
| 22 | I prepare written questions electronically.  | 5 | 4 | 3 | 2 | 1 |
| 23 | I create exams online (electronically) and give them to my students.   | 5 | 4 | 3 | 2 | 1 |
| 24 | I design materials to support student-centered activities.   | 5 | 4 | 3 | 2 | 1 |
| 25 | I know that preparations must be done before using technology in classes.  | 5 | 4 | 3 | 2 | 1 |
| 26 | I select and use different technologies for different gains.   | 5 | 4 | 3 | 2 | 1 |
| 27 | I download and edit educational materials from the internet.   | 5 | 4 | 3 | 2 | 1 |
| 28 | I find alternative solutions to problems I may face during the use of technology in class.   | 5 | 4 | 3 | 2 | 1 |
| 29 | I use the necessary technologies (computer, projector, printer, document camera, scanner, video camera, sound system, overhead projector, etc.) found in the school. | 5 | 4 | 3 | 2 | 1 |
| 30 | I install and use ready-made educational software (animation, simulation, package tutorial, etc.) on a computer.   | 5 | 4 | 3 | 2 | 1 |
| 31 | I use e-books relating to my branch in my class.   | 5 | 4 | 3 | 2 | 1 |
| 32 | I use materials that support individual learning for students with learning disabilities.  | 5 | 4 | 3 | 2 | 1 |
| 33 | I choose the materials that I may use to enrich lessons.   | 5 | 4 | 3 | 2 | 1 |
| 34 | I utilize technology to ensure the permanence of knowledge.  | 5 | 4 | 3 | 2 | 1 |
| 35 | I use interactive materials that encourage individual learning.  | 5 | 4 | 3 | 2 | 1 |
| 36 | I utilize technology to support the individual learning of students.   | 5 | 4 | 3 | 2 | 1 |
| 37 | I act according to the principles of instructional design while designing materials.   | 5 | 4 | 3 | 2 | 1 |
| 38 | I analyze exams and items with computer software.  | 5 | 4 | 3 | 2 | 1 |

### ***Professional Development***

|    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
| 39 | I monitor sites that may contribute to my professional development. | 5 | 4 | 3 | 2 | 1 |
| 40 | I participate and complete courses/seminars/presentations conducted | 5 | 4 | 3 | 2 | 1 |

|    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
|    | remotely.   |   |   |   |   |   |
| 41 | I participate in online communities (Facebook, Twitter, Instagram, Google Plus) to monitor innovations. | 5 | 4 | 3 | 2 | 1 |
| 42 | I feel a desire to use new technology for educational purposes.   | 5 | 4 | 3 | 2 | 1 |
| 43 | I actively use management information systems (MEBBIS, e-Okul, etc.).                                   | 5 | 4 | 3 | 2 | 1 |
| 44 | I monitor and apply to in-service education online.   | 5 | 4 | 3 | 2 | 1 |

### ***Technological Literacy***

|    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
| 45 | I know technology can always make problems.   | 5 | 4 | 3 | 2 | 1 |
| 46 | As much as I can understand a text by reading it in print, I understand it when reading it digitally. | 5 | 4 | 3 | 2 | 1 |
| 47 | I know the frequently used file formats (PDF, DOC, EXE, PPT, XLS, etc.).                              | 5 | 4 | 3 | 2 | 1 |
| 48 | I store folders and files in an organized fashion and use them when necessary.                        | 5 | 4 | 3 | 2 | 1 |
| 49 | I know the meanings of site extensions (GOV, COM, NET, MIL, etc.).                                    | 5 | 4 | 3 | 2 | 1 |
| 50 | I connect to a wireless network from a computer or mobile device.                                     | 5 | 4 | 3 | 2 | 1 |
| 51 | I know the principles of use of a technological device.   | 5 | 4 | 3 | 2 | 1 |
| 52 | I know in which situations a technological device must be sent for repair.                            | 5 | 4 | 3 | 2 | 1 |
| 53 | I realize when a file has a virus.  | 5 | 4 | 3 | 2 | 1 |
| 54 | I express the relationship of software with hardware.   | 5 | 4 | 3 | 2 | 1 |
| 55 | I use a touch-screen computer or device (smartboard, smartphone, tablet, etc.) without issue.         | 5 | 4 | 3 | 2 | 1 |
| 56 | I give examples of different operating systems.   | 5 | 4 | 3 | 2 | 1 |
| 57 | I easily adapt to new technologies I encounter.   | 5 | 4 | 3 | 2 | 1 |

### ***Technology Guidance***

|    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
| 58 | I guide students on the use of technology.  | 5 | 4 | 3 | 2 | 1 |
| 59 | I lead in the use of new technologies in education.   | 5 | 4 | 3 | 2 | 1 |
| 60 | I know digital ethics (rights of use, private information) and am an example on this topic for my students. | 5 | 4 | 3 | 2 | 1 |
| 61 | I do not accept, and I question the accuracy of all information on the internet.                            | 5 | 4 | 3 | 2 | 1 |
| 62 | I help teachers who need support in the field of technology.  | 5 | 4 | 3 | 2 | 1 |
| 63 | I guide research that my students do on the internet.   | 5 | 4 | 3 | 2 | 1 |

### ***Social, Ethical, and Legal Provisions***

|    |  |   |   |   |   |   |
|----|--|---|---|---|---|---|
| 64 | I know that I need to specify the sources of information I use.                          | 5 | 4 | 3 | 2 | 1 |
| 65 | I act based on legal responsibilities on the subject of copyright.                       | 5 | 4 | 3 | 2 | 1 |
| 66 | I pay attention to the issue of the sharing and confidentiality of personal information. | 5 | 4 | 3 | 2 | 1 |
| 67 | I am aware of the responsibility and obligation that sharing on social platforms brings. | 5 | 4 | 3 | 2 | 1 |
| 68 | I know and pay attention to cyber-crimes.  | 5 | 4 | 3 | 2 | 1 |

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**Communication**

|           |   |          |          |          |          |          |
|-----------|---|----------|----------|----------|----------|----------|
| <b>69</b> | I can use a social network for educational purposes and direct my students in this direction. | <b>5</b> | <b>4</b> | <b>3</b> | <b>2</b> | <b>1</b> |
| <b>70</b> | I use online systems to communicate with parents and students collectively.                   | <b>5</b> | <b>4</b> | <b>3</b> | <b>2</b> | <b>1</b> |
| <b>71</b> | I guide students in the active use of email groups.   | <b>5</b> | <b>4</b> | <b>3</b> | <b>2</b> | <b>1</b> |
| <b>72</b> | I share educational materials with my students on social networks.                            | <b>5</b> | <b>4</b> | <b>3</b> | <b>2</b> | <b>1</b> |

