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ABSTRACT
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SCIENTIFIC AND PEDAGOGICAL BASIS OF THE USE OF TEACHING RESOURCES AT GENERAL EDUCATION SCHOOLS

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GENERAL CHARACTERISTICS OF RESEARCH

The topic's relevance and the degree of its use**.** In a contemporary era characterized as "Knowledge century", "Information century", rapid growth of science and methodology, significant increase in the spread and use of computer technologies in almost all spheres of society, and fast access to information are of utmost importance for the development of people and society. Against the backdrop of revolutionary technological transitions in the 21th century economy, there is no doubt that the physical strength has already been overcome by an educated brainpower which is called real power, the communication technologies are widely used in education, and natural resources have transformed into a high potential human capital.

Modern development tendency of the world, spread of COVID-19 virus widely across our country since March 2020, application of distant - online education due to closing of educational institutions during special quarantine regime (04.03.20 - 22.05.20; 16.09.21 - 23.05.22**)**, facilitation of transition process to distant education by using softwares such as Teams, Zoom, WhatsApp in online lessons, arrangement of teaching process on the basis of electronic resources, telecommunication, program-technical means, mutual interaction of teacher and pupils (students) from distance, fundamental realignment in the society, amendments to the content and context of, principles and methodologies of relationships between teaching resources at schools, and rapidly growing scientific-technical development necessitated the need to overall update in educational system, particularly in teaching resources of general education schools, and broader application of technological tools in educational system necessitated the preparation of mechanisms meeting the modern requirements.

For the purpose of the development of education and its quality indicators in our republic, necessary teaching resources for schools of various directions and categories should be studied and the

mechanism of the best use be created. To be more specific, the education system must be modernized in all aspects and all effective instruments must be shown.

At the same time, the study of pedagogical, psychological and physiological scientific basis of the use of teaching resources remains as an actual challenge. In this regard, the use of innovative teaching resources by taking into consideration the age, physiological, psychological, individual characteristics and potential of learners at general education schools is deemed the most relevant challenge.

The development in this sphere requires the increase in the efficiency of the work to be implemented concerning the strengthening of material-technical base of educational system, human resource development, provision of general education schools with modern technological equipment and teaching resources, elaboration of innovative training methodologies and appropriate resources for all stages of education, application of new innovative, interactive learning methods, preparation of modular education components for information and communication technologies, drafting of methodical papers, didactic materials, instruction books based on the information and communication technologies, analytical research and estimation problem thereof.

It is not a coincidence that recently, in provision of the right to education set forth in the Constitution of the Republic of Azerbaijan, the relevant laws and other regulatory legal acts determining main principles of state policy and general terms of educational regulations and on the separate stages of education have clearly expressed the new approaches and their importance on the use of modern teaching resources, and highlighted the main principles of state policy on the development of the system of modern teaching resources and of the fundamental training methodologies.

Series of events are held for a wider use of modern teaching resources at general education schools, provision of high-speed internet connections, improvement of relevant knowledge and skills of

personnel working at schools. One of them is "E-school" pilot project established in 2009.

Therefore, in addition to context of education in current conditions, the notion of using teaching resources comprises an integral part of education and is considered an important issue.

However, be it in the past or now in our Republic, certain problems exist from both pedagogical-methodological and didactic point of view, as well as the issue of supplying modern teaching resources for general education schools and efficient use of them.

Please note that the issue on the use of teaching resources at general education schools for learning has never been a topic for thorough research; no studies have been carried out; in didactics, only their (visual means) interaction with life have been reviewed; to investigate its role has been taken no notice. Therefore, P.I. Pidkasisty, L.V.Zankov and other pedagogues did not consider the teaching resources as an efficient tool for the cognitive ability of the pupils.

The actual problem concerning the use of teaching resources has been investigated in the paperworks such as "Audio-Visual Materials in Teaching" by Elyi D.P., "Resource Centers" by Bristow,W.H. and Simon L., "Audio-Visual Materials" by Allen W.H., "The state of audiovisual technology: 1961-1966" by Godfrey E.P., "A Brief History of Educational Technology, Educational Media Year book" by Wesley C.Meierhenry,"An Analysis on the Use and Effects of Technology in Educational Institutions" by Aksoy H.H., "Educational Technology: Theories and Methodologies" by Alkan C., "Didactics of high school: Some problems of modern didactics" by Danilov M.A., and Skatkin M.N. and other similar research projects.

Furthermore, the books "Pedagogy" authored by Professors Muradkhanov M.A. et al., "Pedagogy" by Abbasov A.N. and Alizada H.E., "Pedagogy" by Ibrahimov F.N. and Huseynzada R.L., "Pedagogy" by Pasahyev A.K. and Rustamov F.A., "Pedagogy" by Ahmadov H.H. and Zeynalov N.E., as well as "Didactics" authored by Feyziyev J.A. and Ibrahimov F.N., etc. accordingly considered the tren-

ding experience and put the problem into the research. When touching upon the supportive tools used by the teacher in the classroom environment, the books show that the visual aids and teaching resources are becoming the integral part of education provided that they are applied systematically, scientifically, and regularly.

Today the life itself raises the issue of development and improvement of usage methodologies of modern teaching resources.

Relevance of the dissertation topic submitted, firstly, originates from this. This research paper is relevant for addressing the problem, and also playing as a guidance for further researches. Fundamental reforms in the field of education, provision of schools with modern teaching resources, existence of some real challenges in their application during the training process, necessity to eliminate these challenges make this paper especially significant. At the same time, making these matters a topic for scientific research, elaborating certain recommendations are of utmost importance from theoretical and practical relevance viewpoint.

Taking into consideration the relevance of the problem, the dissertation topic is determined as follows: "Scientific-pedagogical basis of the use of teaching resources at general education schools".

Research object is the system regulating the use of modern teaching resources at general education schools.

Scope of research covers the theoretical basis and technologies of the use of teaching resources at general education schools.

Research objective is to establish the system regulating the use of modern teaching resources at general education schools.

Research tasks. In accordance with the research purpose and hypothesis, object and scope, the following tasks are specified: to clarify the theoretical aspects of a teacher's activity at general education schools in the use of teaching resources during educational process; to study the general issues of the work on the use of teaching resources; to bring to the center of attention the didactic, psychological, and physiological basis of the work on the use of tea-

ching resources; to analyse the didactic, psychological, and physiological sides of the work on the use of teaching resources;; to examine the existing literature; to draw up the real application mechanism on the classification of teaching resources; to formulate the principles of preparation, selection and application of teaching resources; to draft the principles of planning of teaching resources; to consider the use of teaching resources as a factor increasing the efficiency indicators of instructional process in educationalprocess; to regard the learning of learners as a quality criterium of the use of teaching resources; to substantiate that a teacher's interpersonal and professsional qualities regulate the moral-psychological atmosphere of educational environment and improve the work on the use of teaching resources; to find out the ways for increasing the quality of the use of teaching resources during educational process; to make up the general picture of organization, implementation, and results of the experiment.

Research methodologies. The methodological basis of the research comprises didactic approach to essence, pedagogical fact, summary of theoretical provisions, methods, and tools that are applied in order to understand and sum up events and processes.

The following research methodologies have been applied during the course of researches:

1. Theoretical analysis; 2. Sociological methodologies (surveying, interview, written questionnaire); 3. Analytical diagnostics (comparison between formation and development of indicators on different subjects); 4. Modeling: Document inspection and systematization; 5. Mathematical statistics; 6. Pedagogical observations; 7. Pedagogical interview; 8. Pedagogical experiment.

Fundamental provisions submitted for defence:

1. The use of teaching resources is the integral part of education, training process. Modern teaching resources are used by the individual subject teachers, as well as the leadership and all pedagogical staff members of general education institutions.

2. Efficiency of the use of modern teaching resources considerably depends on the infrastructure of teaching resources, physical supply of educational environment, moral and psychological atmosphere, the level of teacher-learner relationship building, theoretical and methodological capacity of teachers, professional competence, and the grade of pedagogical mastery.

3. Efficiency of the use of modern teaching resources largely depends on the learner's position with regard to training, teaching process, subjects, and topics taught as well.

4. Efficiency of the use of modern teaching resources also very much depends on the selection of relevant teaching resources, their context, their compliance with learners' ages and individual characteristics, and the level of proficiency.

5. Competency level of the pedagogical staff members of the use of teaching resources and their degree of readiness for this determine the efficiency of the use of teaching resources inside and outside the classroom.

6. The use of teaching resources can bear fruits when it is accompanied by certain conditions, namely, this process is carried out under the supervision of all pedagogical staff of the educational institution, and the process and its outcome are debated and assessed at the pedagogical council of the institution.

Contribution of the research to science. The system on the use of teaching resources at general education institutions has been set up.

The dissertation concentrates on the complex dialectics of mutual interaction of teachers, learners, and teaching resources in the sphere of the use of teaching resources, the context and content of the education policy in this regard, including the policy on the wider application of information and communication technologies to country's education system, the theoretical aspects of the use of teaching resources at general education schools and of the teacher performance, as well as the didactic, psychological, and physiological grounds of the

work on the use of teaching resources; the use of teaching resources by learners is regarded as an efficiency indicator, and the work on the learning of learners as a quality criterium of the use of teaching resources; the teacher's interpersonal and professional qualities are brought to the center of attention as a factor regulating the moral and psychological atmosphere of learning environment and improving the use of teaching resources; features of the use teaching resources in the course of learning, planning, drafting, selection thereof and the ways of effective use, financially suitable state of modern teaching equipment and resources (ICT) are studied and examined as an important matter.

Theoretical significance of research. Scientific outcomes put forward in the research will enhance the pedagogy theory with new ideas and ensure building on the scientific basis the work of forming necessary knowledge, skills and capacities that can be considered distinctive features for the creation of opportunities and conditions for the use of modern teaching resources.

Practical significance of research. Basic scientific ideas and proposals suggested in the research, positive experience, working system on the problem, research outcome will help the pedagogical staff of general education institutions, teaching staff, all education workers, as well as the students of graduate and postgraduate studies, and all interested parties in carrying out purposeful, systematized, and balanced activities on the use of teaching resources.

Research approbation and application. The system proposed has been put into action in the Northern, Southern, Eastern, Western geographical parts of Azerbaijan, in the schools of Lankaran and Ganja cities, Gabala, Oghuz, and Guba districts, including school No. 82 in Baku. The author of the dissertation has published numerous articles concerning the problem considered in the paper, that is 27 articles in the republic and 11 articles in foreign countries in journals recommended by the Supreme Attestation Commission under the President of the Republic of Azerbaijan. The author has also pub-

lished a monograph and a methodological instruction. The author attended 9 international and national scientific conferences and the report thesis have been published.

The name of the institution where the dissertation was conducted: Department of Education Theory and History of the Institute of Education of the Republic of Azerbaijan.

The structure of the dissertation and its volume in terms of character count. The total volume of the dissertation in characters. Dissertation consists of introduction, 4 chapters covering 12 paragraphs, conclusions and proposals, literature list and appendices. Introduction – 18231 characters, 10 pages; chapter I – 116787 signs, 74 pages; chapter II – 132756 signs, 71 pages; chapter III – 112064 signs, 61 pages; chapter IV – 47062 signs, 36 pages; results and suggestions – 13083 marks, 7 pages; the list of used literature – 25 pages, including 14 pages of appendices, the dissertation consists of 439983 characters, 300 pages in total.

MAIN CONTEXT OF THE RESEARCH

Introduction part covers the relevance of problem, the level of use, research object, scope, purposes and tasks, hypothesis, research methodologies, scientific contribution, theoretical and practical significance, and provisions submitted to defence.

The first chapter is called **"**General issues of the use of teaching resources at general education schools"**.** This chapter consists of four paragraphs. The first paragraph discusses the **"**Content and context of "teaching resources**"** and firstly, clarifies the notion of "Teaching resources" which is closely related to research object. In this sense, "The Azerbaijani language definition dictionary" and other sources are referred. Its importance in different stages of societal development, its significance, and issues related to its present-day content are analysed and interpreted altogether.

Even in 1950s, the notion of "teaching resources" have been used in the paperworks such as "Resource Centers" by Bristow W.H. and Simon L.Y, "Audio-Visual Materials" by Allen W.H., "Audio-Visual Methods in Teaching" by Dale E. when it comes to the supportive tools used by the teacher in the classroom environment.

In 1960s, in the paperworks "Teaching Machines: An Introductory Overview" by Lumsdaine A.A., "Talkback: The missing ingredient. Audio-Visual Instruction" by Almstead F.E. and Graf R.W., "The state of audiovisual technology: 1961-1966" by Godfrey E.P., "A Conceptual Scheme for the Audiovisual Field" by Knowlton J.Q., the notions of "Educational technologies", "instructional technologies", "pedagogical technologies" have been mentioned along with "teaching resources" as the the supportive tools used by the teacher in the classroom.

The definition of "teaching technology" which was massively used in the pedagogical references in 1970s had been in force in 1980-90 s. as well, the terms "audio-visual resources", "audio-visual technology" have been in use alongside the notion "process".

To note that resulting from the start of formation of information-oriented society, the notions "information resources", "teaching resources" have been being used in the pedagogical references since 1980s until today along with the notions "teaching technology", "pedagogical technology".

Although it has been used with some joint notions till today, the name and definition of the field are contradictory. The names, definitions given in this regard have been subject to changes and development.

Before talking about the "Teaching resources", first of all, it could be better to separately examine the notions "teaching", "resource", including "technology" from a semantic point of view. "The Azerbaijani language definitions dictionary" (Vol. IV, page 287) defines the word "teaching" as "something taught", "learning", "receiving knowledge", "instructing". Here the word "teaching" is

used as “to impart knowledge”. Therefore, the word “teaching” can be accepted as a notion described as “instructing”, “learning”.

Against the backdrop of the use of technical tools in educational process, firstly, the notion “teaching technology” was formed and gradually entered into the pedagogy as “pedagogical technology”.

The term “technology” comes from the Greek words “techne” (art, skill) and “logos” (word, study). “Technology” (technologia) means an art of product-making, a collection of knowledge about the methods and means for carrying out production processes.

“Technology” is the practical application of science and methods of use in the production.

“Instructional technology” is a “systematic approach” to subject(s) to provide different, any kind of knowledge or information.

Currently, numerous technological products from boards to books, from projectors to computers are used at every stage of education. Technological products – teaching equipment and resources are usually used by the teacher as a supportive tool for facilitating the explanation of any topic. That means instructional technology is a supportive tool, a resource for any kind of teaching and learning in the instructional-teaching process.

Now we will discuss the etymology of the word “resource”. “New Dictionary of the Russian language: explanatory and derivational”, as well as the definitions dictionary of the US and Great Britain defines the word “resource” as follows: the word “resource” comes from the 17th century French dialect words “ressourse”, “resourdre”, resource, risɔrs, “re sors” and means “source”, “supply”, “source of support”, “rise again”, “recover”. It is used as a noun.

Statements about the definition and meaning of the word "resource" can be classified as follows.

Resource: sources and means; a source of supply, support, or aid that can be drawn upon when needed. It is a stock or supply that can be drawn on as a means of support in order to maintain any

function or eliminate serious problems and challenges; a supply, a source that is used during the teaching process, etc.

Teaching resources makes a system of purpose, content and methods, ensuring a number of learning styles: by a) reading; b) hearing; c) seeing; d) both seeing and hearing; e) interpreting; f) creating and expressing; it triggers more than one sense organ by simultaneously referring to sight, hearing, and touch senses. Consequently, favorable learning environment is formed at the highest level.

The more usage of sense organs during teaching processes makes the learning more interesting and efficient and thus, the knowledge gained does not get forgotten easily; presentation of information through the means of visual resources attracts the attention of learners, generates interest, motivates, makes the lesson pleasurable; facilitates the ability of perception and remembering; simplifies and concretizes abstract, complex notions, objects, processes and events; ensures saving the time; provides the individual needs (individual characteristics, skills, difference in levels) of learners; allows for a reliable monitoring; ensures the easy and reliable monitoring and investigation of objects, facts, events, and operations which are impossible to bring to the classroom; allows for the presentation of the related contents at different time slices; allows for reuse, etc.

As mentioned above, the recent teaching resources are products that largely include scientific information and mechanisms. In other words, the science of teaching resources is the directed application of laws and innovations to addressing the educational problems. Namely, the teaching resources are an application of science. Computers, "Smart" boards, projectors, and other similar teaching equipment can be regarded as resources emerged as an outcome of the application of science.

The second paragraph "Evolution history of teaching resources" deals with the development history of teaching resources and

equipment in international practices, and touches upon its importance as a fundamental educational unit.

One of the very substantial tasks of pedagogy is to explore the evolution history of teaching resources (including teaching equipment), to improve hereof, and put forward proposals noticing the current requirements.

Teaching resources that can ensure imparting knowledge, skills, habits and activities to individuals in teaching-instructional processes and in practice have undergone a way of development from both physical supply and theoretical point of view. Each period on this way has its own particular philosophical approach. Theoretical part of this development is always ahead. Over the centuries, exactly these philosophical views provided the new learning and teaching methodologies, theories for the development of existing teaching-instructional methods.

Classifications by individual authors (Dale E., Alkan C.O., Wilkinson G.L., Meierhenry W.C., Reiser R.A., Saettler P. Cuban L. and others) on the development history of teaching equipment and resources have been summarized as follows.

Period I: Oral and written period.

Characteristic features: Discovery of fire; formation of initial educational laws: Sophists, Platon, Socrates.

Inventions and discoveries: Discovery of papyrus (the 4th millennium BC); invention of the first alphabet by Phoenicians (the 1st millennium BC); Period of first pedagogues and universities.

Dates: Until 1500s.

Period II: Period of visual and audio equipment.

Characteristic features: Start of use of audio-visual equipment and others in education, the programmed education.

Inventions and discoveries: Invention of the first presentation projector (1646); establishment of modern libraries (1651); production of the first calculation devices (1820); use of telegraph (1844);

establishment of the first mechanical computer (1836); invention of radio.

Dates: between 1500-1900.

Period III: Double feature (individual education and public education).

Characteristic features: Formation and development of the computer-based education and internet usage.

Inventions and discoveries: UNIX, ARPANET (1969); HTTP and Scanner; the first wireless phone (1981); Microsoft, the first IBM PC and Macintosh (1981); CD-ROM processors (1984); PDA – Personal Digital Assistant (200), SMS, MC; Windows (1984).

Dates: 1900-1990s.

Period IV: Digital era.

Characteristic features: Formation of digital-virtual educational environment.

Inventions and discoveries: Digital classrooms (2010); e-mail, electronic mail; full smart homes (2014), digital-electronic newspapers multimedia; approval of distant – remote education as a normal education.

Dates: the 21st century.

Period V: Cybernetics era.

Characteristic features: Profound change of education.

Inventions and discoveries: Obsolescence of keyboard and mouse; fibre-plastic sequence; real digital books; the first virtual classroom; prohibition of book printing; holographic education technologies and their application in schools.

Note 1: Cybernetics stems from the Greek word “kybernētēs” and means “the art of steering”. It is a science enabling a human or automated device to manage any work or reach a certain goal within the framework of modern technological resources.

2. Holography – is a name given to the method of generating three-dimensional images with laser light. Holography is technique

that relatively records the information in waves from the objetcs and reconstrcuts it without any loss.

Dates: Future education.

The biggest progresses in the field of educational technologies are related to the invention of electricity, one of the inventions in the 19th century. An electric lamp, telephone, telegraph, radio, television, video, tape-recorder, typewriter and other similar equipment entered into the field of education. Products that emerged after the use of electricity played as the start line of new educational technologies, teaching resources.

The 20th century: 1900-1913: The School museums movement: resources for schools such as exhibitions, 3D stereographic monitors, films, pictures, charts. Note: at that time, the textbooks were accepted by teachers as main resources, and others as supportive means.

1914-1930: initial steps in establishing the national institutions in the field of visual education. The first catalog of instructional films (US, 1910); the visual instruction movement. Thomas Edison's contribution to creation of educational motion pictures. Inclusion of resources in the educational program. Targets and personality-oriented education; the use of school museums, motion pictures, drawings, photos in instructional process (1920s).

The terms "visual resources" and "visual instructional means" were used at that time. In 1922, Thomas Edison claimed that the educational motion pictures would make a revolutionary effect in the field of education. Unfortunately, this statement did not realize afterwards.

1940-1950: "Golden age" of teaching equipment and resources is considered the 1940s (during the World War II). Change in the army and the need to rapid teaching in introduction of new weapons to military personnel necessitated the use of films, slides, photos and the related equipment. This movement also spread among civilians, allowed the development of a certain group interested in the use of

instructional equipment and resources in education, and paved the way to massive use of technological devices in education.

1960s saw the following: educational television, TV channels for educational purposes, emergence of more affordable computers. In the US, project proposals on the application of computers in education, the computer-assisted education movement.

1970s covers the following: instructional technology, modifycation to the terminology of teaching resources, application of video inside the classroom, programmed education; replacement of audio-visual teaching resources with the new technological equipment, innovative teaching resources, and application in education; 1977 TICCIT Project – application of computer-assisted instruction in the US and its influence on England, France, Federal Republic of Germany, and other countries.

In 1980s, the computer movement was widespread in leading countries across the globe.

Characteristics of 1990s: CD, CD-ROM, VCD, DVD, computer-assisted and profound education, the start of using the internet in education, the application of multimedia, computers and internet, and virtual sources in educational system; distant education, spread of internet- / Web-based education, arrangement of special school or classrooms (laboratories) consisting of computers.

Affordability of computers, budget-friendly educational services, presentation method of any topic in education, progresses in computer technologies are distinctive components of this new equipment.

Characteristics of the 21st century: formation of automatic / digital virtual educational environment, application of iPods in educational system (2001), multimedia based educational system (digital notepads, “smart” board, digital books, fiber optic tables, etc.), digital newspapers; arrangement of digital classrooms (2010); e-mail, digital school, all-digital homes (2014); widespread distant (remote) education and its approval as a normal education.

Thus, we finalized the analysis on the stages of the use of teaching resources and equipment in education. Currently, modern technological products – teaching resources are accepted as an integral part of education. Contribution of teaching resources to education, development of a learner is an undeniable reality.

The third paragraph of the Chapter I is called "Analysis of the scientific literature from the standpoint of the position and signifycance of the subject in education". In this paragraph, existing foreign and domestic literature with regard to the problem has largely been analysed, theoretical overviews have been made, and importance of scientific literature concerning the problem has been interpreted. The advanced factors in the practice of the developed countries and the groundbreaking expertise on the use of teaching resources have been reviewed and outlined.

The 3rd paragraph in this chapter firstly studies the use of teaching resources at general education schools in terms of legal norms. The efficient use of teaching resources at general education schools must be based on the normative-legal acts: decisions, programs, and strategies. Otherwise, the absence of certain procedures makes the regulation of the use of teaching resources in instructional process impossible. Appropriate rules of significant importance have been elaborated, numerous laws have been adopted, legal norms have been identified in order to regulate this process in the republic from the date of its independence till today.

In the "National Strategy on the Development of Information and Communication Technologies in the Republic of Azerbaijan (2003-2012)", "State program on the provision of secondary schools with the information and communications technologies in the Republic of Azerbaijan" (2005-2007), "State Program on Informatization of Education System in the Republic of Azerbaijan in 2008-2012", "National Strategy for development of information society in the Republic of Azerbaijan for 2014-2020", "Development Concept "Azerbaijan – 2020: The Vision Of The Future", "Azerbaijan 2030:

National Priorities for Socio-Economic Development", "General education concept in the Republic of Azerbaijan (National Curriculum)" and other similar normative-legal documents, new approaches to and their importance in the use of modern teaching resources at general education schools are clearly expressed, main principles of the state policy on the setting up of infrastructure and fundamental instructional methodology of modern teaching resources are brought to the attention, and stipulate the implementation of tasks such as the establishment and development of the regulatory framework on modern teaching resources in educational system, the creation, development of digital teaching resources.

These laws resolutely triggered the gradual solution of problems prevailing with regard to the improvement of educational system, and the rapid growth of the field in the country.

Paragraph three of chapter II broadly analyses the foreign and domestic scientific-pedagogical literature and makes theoretical overviews after the analysis with regard to normative legal acts in terms of the subject.

The book "Educational Technology: Theories and Methodologies" by Professor of Ankara University, Dr. Cavat Alkan, the research titled "Using of computer technology at schools and problems encountered" by the teachers of Ankara Yildirim Beyazıt University, Dr. Bekir Gur, Dr. Murat Özoğlu, Başer Tekin, highlight that it is necessary to study the innovations and the position of educational technology within the general framework of measures taken in the field of education. In the learning-teaching process, the teacher, the teaching resource and the learner should be considered together, and the education should be adjusted to the demand of the time.

The book "Elementary and Middle School Mathematics: Teaching Developmentally" by Dr. Van de Walle, Karen Karp S., and Jennifer Bay-Williams, well-known mathematics educators, illustrates the characteristic features of mathematics in contemporary times

unlike the traditional way of teaching, as well as the use of modern teaching resources in educational processes.

The book introduces the ways and specific methods of integrating teaching strategies and teaching equipment and resources through the comprehensive and efficient use of new technologies.

In the report "Teaching Pre-Service Teachers Technology: An Innovative Approach" on their joint research carried out in the end of 1990s at 9th international conference in Washington (1998), American pedagogues, teachers of University of Florida, Gunter, Glenda A., Gunter, Randolph E., Wiens, Gregory A., drew particular attention to the role and importance of modern technologies in education. In the research projects of D' Angelo, Jill M., Woosley, Sherry Ann, it is noted that the issues such as integrating modern technologies, teaching resources into the curriculum, instructing teachers about the use of modern instructional equipment and teaching resources before their professional career, internet, and multimedia support, the use of electronic resources maintain their relevance and gradually increase their importance.

Dr. Harry Daniels, Professor of Oxford University, UK, in his book "Vygotsky and Pedagogy", highlights that the teacher should very well get acquainted with the teaching resources (including equipment) prior to usage and obtain practice on how to use them.

In the article "The state of application and prospects of the technology in education" by Lary Cuban, an American educator, Professor of Stanford University, John Schuster, an American psychologist and Professor of Harvard University D.E.Hanvkraid at the international conference held in Paris under the auspices of UNESCO and in the research project conducted in this direction it is shown that together with the rapidly growing modern technologies, renovation of teaching equipment and resources meeting today's requirements is very important.. One of the major problems in the process based on the application of modern teaching resources and equipment is the issue of providing schools with teaching equipment and resources.

In the textbook "Pedagogy" co-authored by Prof. Hasanov A.M. and Aghayev E.E., the use of computers and similar equipment in education is suggested as a principle of education and interpreted as the priorities of the use of visual resources.

The monograph "Pedagogical technologies" co-authored by Prof. Mehrabov A.O. and Assoc. Prof. Abbasov E.M., the book "The methodology of teaching the history of Azerbaijan" by Prof. Jabrayilov I.H., as well as the methodological guidance "Access to the use of teaching equipment and resources at general education schools" by Mammadova N.I., Doctor of Philosophy in Pedagogy, (Baku: Mutarjim, 2017, p. 220) cover the issues concerning the application and importance of modern teaching resources at educational process, and thoroughly detailed the advantages of the use of modern teaching resources, including the computer technologies.

Thoughts expressed by Osman Gunduz, Director of "Multimedia" Information Systems and Technologies Center, President of Azerbaijan Internet Forum, in his book "Internet. Azerbaijan Internet Resources", with regard to the advantages of the use of methodlogies based on the modern teaching equipment and resources (ICT-based) are of particular interest in this regard.

The majority of researchers claim that the systematic improvement of teachers' skills and capacities in relevant direction, study of applying new instruction methodology based on ICT, creation of resources base, encouragement of school management and teachers for the effective application of ICT in educational process, as well as the improvement of school infrastructure and maintenance of supply are today's critical requirements.

Summarizing the abovementioned, it should be noted that the views expressed are still relevant in educational system of numerous countries, including Azerbaijan.

Chapter I, Paragraph 4 is called the "State of the use of teaching resources at general education schools" This paragraph deals with the state of the use of teaching resources at general education

schools and diagnostically analyses characterizing the future of teaching resources. General issues related to the use of modern teaching resources and equipment as a principal factor of pedagogical process are studied and hereby, chief advantages and shortcomings, objective and subjective reasons bearing them have been summarized and substantiated with specific provisions.

Views of teachers with regard to the use of teaching resources in educational process. Firstly, teachers' professional background has enjoyed particular attention, methodological work of teachers, arrangement of the use of teaching resources, maintenance of schools with teaching resources and equipment and other issues have been studied in terms of the problems raised, teacher and learner activity in various spheres has been assessed and made a source of reference, and monitoring materials have been systematized, examined, and interpreted.

In the dissertation, the appropriate use of teaching resources at general education schools is regarded as an efficiency ratio of education, the teacher's interpersonal and professional qualities are brought to the center of attention as a factor regulating moral and psychological atmosphere of classroom environment and improving the use of teaching resources; the use of teaching resources in educational process is put to the research as an immediate problem requiring solution and considered as a main factor increasing the efficiency indicators of education. Pedagogical experiment has been utilized in the course of the research in order to draw up the working system of teacher in the use of teaching resources at general education schools and to evaluate its influence on learners' status of learning ability, upbringing, and growth.

At the early stage of the pedagogical experiment, teachers and learners of general educational schools were involved in mass surveys. Conversations and interviews were carried out and observations were made. The survey mainly aimed at exploring the arrangement state of the use of teaching resources, and how the teacher-learner relationship was built. During the experiment, the use of

teaching resources on separate schools and subjects, events with different types of organization, teacher and learner activity, teacher-learner, learner-learner relationships, and the arrangement state of the use of teaching resources in educational process were observed. For identifying the current situation with regard to the problem, teachers and learners were surveyed.

Experimental and control groups were set up. Some groups were selected as experimental groups (Group I), and others as control groups (Group II). Our purpose was to bring to light the level of the efficient use of teaching resources in classroom environment by teachers and the development status of learners. In a number of instances, the indicators of experimental groups were compared with the indicators of control groups (Group I and II).

When identifying the Group I (experimental) and Group II (control), the levels of both learners and teachers in those groups were duly taken into account to be approximately equal.

Another matter of concern for us at the early stage of the experiment was related to the reasons on why the teaching resources were not used appropriately in the classroom environment.

At the early stage of the experiment, the state of the use of modern teaching resources in the classroom environment have been studied. The four possible answers (Instructional equipment and resource relevant to topic are absent in the school; I do not have a capacity to use teaching resources; There is a problem with regard to the number of learners and absence of physical condition; There is no problem) to the reasons of not using modern teaching resources in the classroom environment at general education schools were included in the questionnaire and 90 subject teachers (the Azerbaijani language and literature, social subjects, mathematics, and technical subjects) were interviewed. The responses were analyzed and given in Table 1.4.1.

Table 1.4.1

The table showing the reasons of not using modern teaching resources in the classroom environment

Question No.	Quantity	Subject	Instructional equipment and resource relevant to topic are absent in the school		I do not have the skills to use teaching resources		There is a problem with regard to the number of learners and absence of physical conditions		There is no problem	
			n	%	n	%	n	%	n	%
The use of real object and model / decoy	30	The Azerbaijani language and literature	16	53.33	0	0.00	4	13.33	10	33.00
	30	Social subjects	13	43.33	0	0.00	4	13.33	13	43.00
	30	Technical subjects	5	16.67	0	0.00	5	16.67	20	66.67
The use of visual resource	30	The Azerbaijani language and literature	14	46.67%	0	0.00%	6	20.00%	10	33.33%
	30	Social subjects	10	33.00	0	0.00	7	23.33	13	43.33
	30	Technical subjects	6	20.00	0	0.00	6	20.00	18	60.00
The use of video, CD, DVD, slides	30	The Azerbaijani language and literature	5	16.67	2	6.67	6	20.00	17	56.67
	30	Social subjects	8	26.67	2	6.67	6	20.00	14	46.67
	30	Technical subjects	9	30.0	0	0.0	4	13.33	17	56.67

Continuation of Table 1.4.1.

The use of computer	30	The Azerbaijani language and literature	10	33.33	2	6.67	3	10.00	15	50.00
	30	Social subjects	5	16.67	3	10.00	8	26.67	14	46.67
	30	Technical subjects	5	16.67	0	0.00	8	26.67	17	56.67
The use of Internet	30	The Azerbaijani language and literature	5	16.67 %	4	13.33 %	8	26.67 %	13	43.33%
	30	Social subjects	7	23.33	2	6.67	6	20.00	15	50.00
	30	Technical subjects	10	33.33	0	0.00	5	16.67	15	50.0
The use of projectors	30	The Azerbaijani language and literature	9	30.00	4	13.33	3	10.00	14	46.67
	30	Social subjects	7	23.33	3	10.00	5	16.67	15	50.00
	30	Technical subjects	7	23.33	0	0.00	6	20.00	17	56.00
The use of smart board during the lessons	30	The Azerbaijani language and literature	16	53.3	5	16.7	3	10.00	6	20.0
	30	Social subjects	13	43.3	5	16.67	4	13.33	8	26.67
	30	Technical subjects	11	36.7	2	6.7	6	20.0	11	36.7

Comparative analysis show that the reasons of not using modern teaching resources in educational process by the subject teachers (the Azerbaijani language and literature, social subjects, mathematics, and technical subjects) are different. Among the reasons, the options “Instructional equipment and resource relevant to topic

are absent in the school", "There is a problem with regard to the number of learners and absence of physical condition" and "I do not have a capacity to use teaching resources" prevailed.

Another issue of concern for us at the early stage was related to the maintenance of teaching resources.

120 teachers of the Azerbaijani language and literature, social subjects, technical subjects including mathematics, as well as the teachers of foreign languages were asked "Choose the teaching equipment and resources that are present at your school and are in favourable condition to use. Add your options"

Table 1.4.2. Shows the outcome of the survey analysis.

Table 1.4.2

Responses of teachers on the current state of provision of teaching resources (equipment)

№	Teaching resources and equipment	Total number	N	%
1.	Real object and model	120	55	45,8
2.	Writing board	120	120	100,0
3.	Visual resources (diagram, scheme, etc.)	120	77	64,2
4.	Map	120	101	84,2
5.	Written resources: test items	120	102	85,0
6.	CD, DVD, slides, and films	120	69	57,5
7.	Projector	120	16	13,0
8.	Projection projector	120	81	67,5
9.	Computer	120	85	71,0
10.	Internet connection	120	81	67,5
11.	Smart board	120	29	24,0
12.	Subject-labs / laboratories	120	113	94,0

Analysis of the responses of learners. The next case of concern at the early stage of the experiment: "What is the learner's position on the use of modern teaching resources at general education institutions?"

Table 1.4.3 illustrates the responses of the learners on the four possible answers ("Regularly every day", "2-3 times a week", "Once a month", "Never uses") with regard to the use of teaching resources in educational process (Which resources does the teacher use in the classroom environment?).

Table 1.4.3

Responses of learners on the use of teaching resources

Resources	Regularly every day			2-3 times a week		Once a month		Never uses	
	n	n	%	n	%	n	%	n	%
The use of real objects and models	300	44	14.7	85	28.0	94	31.3	79	26.3
The use of visual resources	300	36	12.0	90	30.0	104	34.7	70	23.0
Written resources: use of test items	300	216	72.0	70	23.0	10	3.3	4	1.3
The use of computer	300	70	23.0	54	18.0	96	32.0	80	26.7
The use of Internet	300	54	18.0	85	28.3	71	23.7	90	30.0
The use of projectors	300	54	18.0	70	23.3	109	36.3	67	23.3
The use of videos, CDs, DVDs	300	50	17.3	79	26.0	97	32.3	74	24.0
The use of written resources such as newspapers, magazines, etc.	300	46	15.3	79	26.3	96	32.0	79	26.3
The use of smart board	300	62	20.0	14	4.7	8	3.3	216	72.0
The use of blackboard	300	268	89,3	32	10.7	-	-	-	-

Continuation of Table 1.4.3.

Communication with teachers through the internet (mail, e-mail) outside the classroom	300	54	18.0	50	17.0	99	33.0	97	32.3

The outcome of the experiment demonstrates that among the teaching resources, the use of test items got the highest score, whereas the use of smart boards placed got the lowest.

As evidenced by the research, the following problems appear if the current condition of schools is considered: shortage of appropriate teaching resources, strong need for the teachers capable of using these resources at school, non-operational condition of the most technological devices, unfavourable condition in the classrooms for the use of technological equipment, a too many learners in the classrooms, absence of relevant software for the use of modern teaching equipment and resources, negligence of modern teaching equipment and resources by the school management, etc.

The following case of concern at the early stage of the experiment was related to the use of modern teaching resources in instructting "History of Safavid Empire" from history subject: Questions about the "History of Safavid Empire" were asked from 207 learners in Group I, and 202 learners in Group II. The lessons on the "History of Safavid Empire" in the classes chosen beforehand were taught traditionally. In both groups, the standard-verbal method, textbooks and map have been used.

Analysis of the responses shows that the results of both groups slightly differ. For example, Question 1-48.8% correct answer, 28.5% wrong answer by Group I; Question 1-45.5% correct answer, 27.2% wrong answer by Group II. 22.7% in both groups refused to respond.

Question 2 – 40.1% correct answer, 33.3% wrong answer by Group I (experimental); Question 2 – 35.6% correct answer, 38.1% wrong answer by Group II (control). 26.5% in Group I and 26.2% in Group II refused to respond.

General comparative analysis of learners' responses are in Table 4.2.1 in the second paragraph of Chapter IV.

The research concludes that in order to achieve higher results, firstly, the use of resources allowing for reaching the goal should be planned in a proper manner and these resources should be used systematically and in an efficient way. Thus, the purpose, context and method of a lesson should integrate with the teaching resource and structurally complete each other. The teacher can effectively use the resources in the classroom by applying the information communication technologies, active instructional methodologies and live talks, at the same time, by creating wider arena for learners' independence, leadership nature, and creative and cognitive activity.

The summary of the shortcomings in the use of teaching resources in education processes at general education schools of the Republic of Azerbaijan based on the outcome of the experiment above:

1. There are theoretical and practical gaps in the issue of unification-integration of teaching context and resources; 2. The principle of visualisation in educational process is not used on a satisfactory level; 3. The use of real object and model (decoy) in educational process is paid less attention;4. CD, DVD, slide, and film base of schools are not used optimally and systematically; 5. Due to the teachers' unsatisfactory pedagogic-theoretic performance in terms of the use of projection projectors and computers, these resources are not used properly;6. Advantages of visual resources are not applied in the optimal way; 7. Internet is less referred in the course of education; 8. Teachers are not fully aware of the theoretical and practical problems concerning the use of smart boards, except for only general information; 9. Among the written resources, only test

items are preferred; 10. No favorable condition is created for a learner's activity in the application of modern teaching resources.

Several reasons causing these shortcomings:

1. Publication of scientific literature on theoretical-methodological basis of modern teaching resources at general education schools of the republic is not satisfactory; 2. The study of problems concerning teaching resources does not meet today's requirements; 3. The publication of methodical literature practically helping the use of modern teaching resources in instructional process at general education schools is not at the desired level; 4. There is a great need for the preparation of the national electronic teaching resources; 5. Teachers' relevant knowledge and capacities for the use of teaching equipment and resources are not satisfactory; 6. Teachers are not regularly involved in trainings on the use of modern teaching equipment and resources; 7. Most of the teaching resources of schools are old-fashioned and not suitable for use; 8. Schools are not fully equipped with relevant resources on topics; 9. Supply of schools with modern teaching equipment and resources is paid less attention; 10. There are problems with regard to the number of learners in the classrooms and to the presence of physical condition; internet connection is not satisfactory.

Chapter II is titled "Fundamentals of the use of teaching resources at general education schools" and consists of three paragraphs. The chapter analyses the fundamentals of the of use of teaching resources at general education schools and studies them from physiological context.

The first paragraph of Chapter II is called "Didactic principles of the work on the use of teaching resources*"*. The dissertation deals with the didactic principles of the use of teaching resources at the backdrop of historical-pedagogical researches, and the teaching resources are analysed from scientific, theoretical and constructive point of views (normative application). Didactic (pedagogical)

principles mean the harmony of the interrelating purposes of pedagogical activity, distinct features, context, forms and methods.

Scientific-theoretical characteristics of teaching resources mean their structural and contextual elements, their existing law-abiding connections in instructional process, and approach to teacher - teaching resources - learner relationships in didactic context. On the other hand, the constructive (normative application) aspects cover the regeneration of teaching resources context in accordance with the today's requirements and the preparation of new application technologies.

Didactics is a Greek word originating from the words “didaktikós” and “didáskō” meaning “teaching” and “learning”. The scope of the didactics comprises the interrelation of a teacher’s (who teaches) activity and a learner’s (cognitive) activity.

The scope of general didactics includes not only the teaching and learning process, but also the condition to implement this process and the results.

Instruction is a specifically organized purposeful and controlled activity of those who teach and those who receive education (learners) and is the process of imparting and mastering knowledge and skills in the process of their interaction. In brief terms, instruction is learning.

In accordance with the comparative researches, in the beginning of 20th century, the components comprising the notion “instruction” in didactics included “teaching resources”, in addition to the notions “teaching”, “learning”, “tutoring”. From didactics viewpoint, these notions are identified by taking into account the learning and teaching purposes and performance of teaching resources.

Today, all pedagogues focus on the statement that teachers should have thorough competence on the topic they teach and the ultimate ways they will use to teach the topic to learners by applying the opportunities of modern teaching equipment and resources.

Due to the social order of information society, existing educational legislation, development in the pedagogical psychology, development of learner-centered methodologies, modern development level of science and technology, instructional equipment and resources, and particularly more active integration of computer technologies into the educational institutions, the pedagogical theory concerning the context, methodologies, and forms of arrangement of teaching and education, as well as the most relevant opportunities offered by the teaching resources and equipment, and the normative application functions thereof are undergoing changes. The change in the context of teaching resources necessitates the renewal of teaching methodologies and improvement of didactic principles of approach towards them.

Nowadays, the scope of education, its procedural components, namely, its purpose, context, methods, and teaching resources (including teaching equipment) are regarded as a whole system. The parts of the system are interrelated and complete each other. The teaching resources, which identify the relationship among these parts and are considered the most important didactic material, hold a special position, and reflect the unity of these factors in realizing the scope of education. All characteristic features of these issues mentioned are raised in the research.

The dissertation explains the approaches on the general didactic principles of the use of teaching resources at the backdrop of historical-pedagogical researches, and clarifies the essence of those principles. For instance, the principle of individuality is based on the hypothesis of the presence of individual characteristics such as the skills (high, medium, low) of learners of the same age, their perception, thinking, imagination, memory, attention, interests and preferences, strength and capacities, temperament, professional attitude, desire and efforts to work, attitude towards instruction (positive, neutral, negative), and individual attribute.

Or the principle of creating a proper environment**.** This principle is based on the hypothesis on creating the favorable condition for the instruction dealing with the use of teaching resources and for enhancing its quality. For example, no or weak internet connection in the classroom negatively affects the application of computer-based technology. Provision of instructional process with proper teaching equipment and resources; setting up the classrooms and teaching equipment pursuant to necessary hygienic requirements, the area, air volume, temperature of the classroom and adjusting desk height to learners' heights; maintenance of humanistic moral-psychological atmosphere in the classroom, building of teacher-learner relationship based on the collaboration, etc. arrangement of pleasing activity – all these allow for adhering to the principle of creating an appropriate environment.

As well as the principle of being economically affordable. In instructional process, the affordable and practical, not too expensive, economically feasible teaching equipment and resources should be preferred. If these are not possible, the teacher should create his/her resources on the topic with due regard to age and individual characteristics of learners. The use of teaching equipment and resources in instructional process should be arranged in a way that higher efficiency will be achieved by spending less finance, time, effort and energy.

The principle of collaboration, a principle of general didactics, is based on the hypothesis of the following: provision of communication and mutually humanistic collaboration between learner and teacher, teacher and parent, learner and learner, mutual understanding, collaboration in the course of education, trust-based joint creative activity, tolerance to weaknesses of learners, no intimidation, use of positive stimulation, etc.

The principle of optimality is based on the hypothesis of achieving the highest possible result by selecting and applying the

most appropriate (optimal) teaching equipment and resources, guided from the goal and specific environment.

The principle of development is based on the hypothesis that special teaching conditions should be created and the teaching should leave the development behind in order to identify and realize the learner's potentials. Formation of logical thinking and creativity of the learner in the instructional process by using the modern features of teaching resources stands for the fact that the teacher directly follows the principle of development.

Thorough compliance with these principles by the teacher during the teaching process helps arranging the lessons more efficiently and thus, increasing the quality of education.

Planning is one of the fundamental factors in didactics with regard to the use of teaching resources. The growth dynamics and complexity, and constant transformation of modern education strategy, teaching equipment and resources further increase the role and significance of systematic planning. The educational planning can be regarded as a scientific system of the forming conception of educational purpose and context or as a kind of activity or practical process aimed at the conscious regulation of the use of teaching resources (including equipment) in instructional process.

Identification of learners' learning types in relation to the use of teaching resources is of utmost importance.

Knowing the basic targets and didactic principles of the application of teaching resources in instructional process enables to organize more active and effective lessons, and ultimately, provides the involvement of more than one sense organs in learners. Thus, it helps the precise formation of vision and imagination about the process and events taught, development of their interest to learn and become more active, fast acquirement of knowledge at all stages of education and memorizing it for a long time.

The second paragraph titled "Physiological basis of the work on the use of teaching resources" analyses the physiological (natural-

scientific) basis of the use of teaching resources. It deals with the issues such as the contribution to education by several theories, particularly the theory of neurophysiological learning, aimed at explaining the natural-scientific basis of learning process, the nature of learning and its outcome. It also focuses on the submission of new ideas to considerations explaining the emergence of learning and teaching and puts forward relevant proposals.

As the brain is an organ where the learning forms, the pedagogues have always been interested in the brain structure and its activity. Recently, in developed countries, physiological basis of learning process, the brain, due to the fact that it is a learning-forming organ, its structure and activity have been paid more attention by researchers (physiologists, pedagogues).

According to physiologists, learning, particularly physiology originate from the Greek words φύσις (phúsis) "nature, origin", and -λογία (-logía) "study of".

Starting from 1970-1980s, the research projects on the physiology (natural-scientific basis) of learning in leading world countries have become widespread, and based on the psychological experiments carried out on animals, a new philosophy of life – brain-based theory regarding the physiological (biological-natural-scientific) basis of learning and memory has been launched. Neuro-cognitive science contributed to the development of a theory where the brain and learning are named as a science, and paved the way to the arising of various ideas and theories on the emergence of learning.

Although being unknown for us until recent years, this field is constantly integrating into the educational system, numerous books have been published and conferences have been held on this topic. For example, 1990s. were declared as the "Decade of Brain". In that decade, researches on the brain were paid special attention, and its contribution to education in the future was highlighted.

The term "neuroplasticity" presented by Marian Diamond, neuroscientist and Professor of neuroanatomy, has a particular

importance for education. There are numerous approaches and models about the brain structure and activity put forward by researchers. For instance, "Brain-based learning" (Neurophysiology) "Left-brain vs Right-brain Dominance" Model, "Four Quadrants of the Whole Brain Model", "Triune Brain Model", "Neuroscience" Theory, etc.

In brain-based learning (Neurophysiology) theory, the learning is explained as a biochemical modification. This theory was founded by Donald Olding Hebb. Donald Hebb and other researchers defend the neurophysiology (brain-based) theory – the idea that learning cannot be fully perceived unless the working system of brain is well studied.

The researchers state that the physiological learning process through the teaching resources consists of four stages: 1. Input. The brain receives information through the sense organs; 2. Integration. Coding, visualizing, understanding and interpreting of information received. At this stage, information sequencing, abstracting, and organizing take place; 3. Memory. Clear information is used repeatedly and kept in the memory; 4. Output. The brain sends the information as a message to cells, muscles, tongue, or the motor pathways.

The above-mentioned process can be defined as follows: the brain analyses the information through the senses during the learning process, then processes and stores it in memory, and retrieves it when needed. Every information received at this stage causes various changes in the structure of neural networks of the brain. In all learning processes, the structures of nerve cells in the brain vary and the number of synapses (the surface connecting two neurons) allowing chemical and electrical communication between the nerve cells increases. By continuing learning the new things, these neural networks in the brain grow and become more complex. The humans begin to be able to make connections between the events more easily. At this point, the importance of the health of the sense organs is in the focus.

The instructional principles of Caine and Caine are listed as follows:

1. Learning is a physiological event and is a set of reactions that the individual shows in the instructional process. Therefore, physiological health of a learner comes in first place. In particular, disorders in sense organs like vision and hearing, chronic diseases and physical disabilities negatively affect learning. 2. In learning process, the left part (mathematical, logical, analytical, verbal features) and the right part (imaginative, creative, emotional, visual) of the brain function as a whole; 3. In learning, the teaching resources addressing to multiple sense organs: eyes and ears should be used; 4. Attracting interest and attention, and motivation are important issues. 5. The fact that people recall some information without the need for repetition is related to visual memory; 6. The brain reacts to any stimuli reaching at it. Learning takes place at a point with a lot of reflexes; 7. The human brain is capable of performing multiple of functions at the same time. 8. Each brain is individual and distinctive. 9. Learners' active efforts, communicative skills, and qualities such as inventing-discovering, problem-solving, and applying the knowledge should be developed; 10. Basic skills should be imparted to learners at the early years of education; 11. Teacher should increase the learner's self-confidence by being encouraging, tolerant, caring, democratic and communicable, etc. (Caine R.N., & Caine G. Understanding a Brain-Based Approach to Learning and Teaching, Educational Leadership//, October, 1990, No. 48(2), pp. 66-70).

The main purpose of referring to brain researches in education, except for understanding the structure of the brain by pedagogues, is to make the learners perceive what potential the brain possesses, what it can do, what feelings (such as satisfaction, stress, fear) can cause what kind of developments in the brain.

It should never be forgotten that the learning is actually a notion that is complicated, unknown, and difficult to understand even if revealed by biological terms. Instead of assessing the learning only

from one aspect, it would be appropriate to regard the notion from psychological, sociological, philosophical, and maybe historical viewpoint.

To sum up the abovementioned, the proposals listed below can be given:

1. To use the teaching resource and appropriate methods and strategies that will provide a physiology based learning approach; 2. To arrange the educational activities by taking into consideration the individual learning characteristics, areas of interest, skills, and forms of learning of each learner; 3. To create a pleasing classroom environment; 4. In schools, to apply various resources that activate both brain hemispheres of the learner; 5. To create environments rich in resources that learners will use conveniently; 6. To build learners' success, knowledge, skills and habits based on various physiological models in instructional process; 7. To regularly inform the teachers about the use of teaching equipment, such as computers and projecttors, smart boards, etc. in schools;

The third paragraph of Chapter II titled "Psychological principles of the use of teaching resources" analyses the psychological basis of the use of teaching resources. Psychological principles of learning, basic conceptions and processes, individual characteristics of learners and the leading role of instructional activities (teaching resources) in their development, the role and advantages of psychological components in providing quality learning, efficient learning methods, and this and other priority matters related to learning are studied in the psychological context.

Recently, the issue of interaction in the instructional process with constantly developing and changing psychological characterristics enjoys a great relevance. In accordance with today's requirements, the leading role of instructional activities in the psychological development of learners, the interaction of pedagogy and psychology, the use of the categories and conceptions of psychology and information in the instructional-teaching process are gradually

changing and improving since not only the pedagogical, but also the psychological consistencies are of great significance in the instructional process.

According to psychological principles, the learner (who receives education) inherits the relevant skills and abilities on any subject, namely, has inborn aptitudes. However, the natural preconditions are not yet abilities, but natural possibilities. Only under the impact of relevant conditions and learning processes, those opportunities can lead to the formation of abilities and skills. If such conditions are not created, the mentioned possibilities will remain as possibilities and not turn into abilities and skills.

Consideration of learner's natural development stages and specific age characteristics is regarded as one of the main pedagogical principles by the pedagogues.

Factors related to a learner. Heredity and development. The progress of the potential powers (body organs) that the organism possesses by inheritance into the functions (able to function) that is expected of it over time is called the development. Many researchers approach the maturation in terms of age and intelligence (mind).

There are many theories regardiang the intelligence (benefactor theory, dual-factor theory, triple and multiple intelligence theory, etc.). Among them, the "Theory of Multiple Intelligences" put forward by the American psychologist, Harvard University professor Howard Gardner, is more relevant for being full of important information for teachers. It is successfully applied in global psychopedagogy in recent years. It should also be noted that Gardner, H. is a scientist who developed J. Piaget's concept of cognitive development.

Notions like demand, impulse, motivation, goal, activity, including the psychological preparation for learning are of great importance in learning. The stage of psychological preparation for learning is mainly aimed at creating a clear picture of the teaching resources to be used in the classroom environment in the minds of

the learners, raising encouragement for learning, in other words, to psychologically prepare them to perceive the information to be learned with the help of the resource.

It is not a coincidence that the individual psychological characteristics and development of learners are one of the fundamental distinctions of ensuring the efficiency and success of the instructional process. Therefore, every pedagogue who works with learners and takes part in their development should know the psychology, and have basic, scientific knowledge about the development of psychological features.

In recent years, many conceptions and various models have been put forward on the necessity of taking into consideration the individual distinctions of learners and ultimately, the forms of learning in instructional process. Each learning conception and model explains the learning based on its own approach. The Felder-Silverman learning style model attracts attention in terms of a different learning methods of the learner in the classroom environment. Thorough information is provided about the learning models that form the basis of the Felder-Silverman model, which is considered a priority in the educational system of leading countries.

The cognitive-perception conception, regarded as a modern learning theory, is a higher priority matter among conceptions on learning.

To note that merely the cognitive-perception (development) conception draws up the methodological base of subject curricula in Azerbaijan.

Cognitive psychology, a branch of psychology, studies the cognitive (cognitive, understanding) processes of consciousness. Cognitive development psychology, often known as the Gestalt theory, studies the goal, motivation, interest, attention, cognition, memory, argumentation, problem-solving, creativity, application, structure and components of information transfer.

Increasing the psychological readiness of the pedagogical staff and implementing the new methodologies in the use of psychological recommendations in instructional process have become the today's demand and is of utmost importance.

The dissertation comes to the following conclusion taking into account the above-mentioned: knowing the didactic, physiological and psychological principles of the work on the use of teaching resources and equipment in the classroom environment at general educational institutions makes the improvement of learners' moral and psychological state and the optimal establishment of teacher-learner relationships possible.

Chapter III is titled "Issues of preparation and selection of teaching resources for general education schools" and consists of three paragraphs.

The first paragraph titled "Classification of teaching resource***s"*** provides the classification of teaching resources applied in the instructional process. At the same time, various existing classifications on the teaching tools, teaching resources and equipment, the issues related to their elements are studied, and approaches related to more widespread classifications are explained.

Teaching resources and equipment are of individual nature in terms of their content and context.

By summarizing the classifications provided by various researchers concerning the educational teaching resources and equipment, it would be appropriate to classify as follows: traditional teaching resources; digital teaching resources; real objects and models (decoys).

Traditional resources (including the teaching equipment) include: writing and presentation boards; written resources; pictures; visual resources: maps; visual resources: diagram, graph, scheme, table, etc.

There are three main points making the use of written resources efficient: the readability level of the resource, its content and design.

Based on the international practice, it can be noted that the main line of written resources is composed of a textbook, a methodological resource as a guidance for teacher, and a methodological resource consisting of explanation of topics and tasks for learners.

Visual resource: pictures. Educational pictures have been used by subject teachers at all levels of education for many years.

Visual resources: maps are the principal visual resources used in the teaching process.

Mind, concept, and information maps are visual learning tools and can be used for various purposes. The right and left hemispheres of the brain work together when designing these maps.

Visual resources: graph, table, scheme, diagram. The need for the visual resources further increases if there is a lack of teaching resources at school.

Maps, graphs, schemes, tables and other similar two-dimensional resources can be made both by hand and by computer.

To note that the traditional resources are of utmost importance in the absence of modern electronic resources and equipment in classroom environment at school.

Digital resources and equipment include: slides and films; projectors); video, television, CD, DVD; visual resource, computer, "Smart" board, etc.

Slides and films. Slides are prepared relevant to different teaching programs. It is used to learn new topics, retrieve the information acquired about the topic, raise interest in topics, and attract attention.

CD, DVD, video and similar resources prevail in the teaching process compared to others and are more efficient in teaching the successes intended to achieve.

Video comes from a Latin word, meaning "I see" and is a term related to signs of display. The term stands for the projection of moving visual media on a television screen or similar monitor.

Projectors are devices displaying the image onto a screen or wall by magnifying and focusing the image from the screen of a computer or television.

The use of a computer in instructional process. Test scores, statistics, CD, display monitor, typing, making presentations, communication via microphone, and others are the advantages of computers.

"Smart" board is one of the modern teaching equipment. "Smart" board works by projecting the image on the computer with the help of a projector. All functions of the computer are suitable to use on the board with the help of a special pen.

Real objects and models (decoys) can be included in both traditional and digital resources. Real objects and models (decoys) are of particular significance among both traditional and digital resources. It is impossible to bring objects that are too big or too small to the classroom due to their size. Therefore, the best way is to make a perfect model (decoys) of that thing - the object. Real objects and models, which provide a three-dimensional real image of a living thing or a real object, are used.

Models. Models (decoys) are three-dimensional sketches of a real object made from the same or different raw materials.

Today, the future prosperity of society is significantly connected to the efficient formation, improvement, placement, and use of the infrastructure of teaching resources. In this regard, the educational system should follow the changes in the society, in particular in the field of science and technology and make appropriate modifications in itself.

The second paragraph of Chapter III is titled "Principles of preparation of teaching resources". In the second paragraph, it is highlighted that the educational bodies are at the top of the fields mostly influenced by the changes and developments in the society. It is also shown that the scope of education, teaching programs, teaching resources, the functions of the teacher and the learner have

undergone changes and are changing in accordance with the needs of information society and today's requirements.

In modern world, the continuous transition and rapid progress of society, science and technology are both the cause and the result of the change in the content of teaching resources. This very factor affects the content of other areas, as well as the teaching resources and forces them to change.

Lack of enough teaching resources, particularly the written resources, or the insufficiency, impracticability of existing resources in our country, as well as the preparatory arrangements for 12-year education in Azerbaijan, the preparation of a new curriculum bring emphasis to the necessity of creating new teaching resources.

The factors forcing the changes in the content of teaching resources can be divided approximately into two groups. 1. External factors consisting of social, economic, technological and legal effects; 2. Internal factors related to the structure of the education system, the human factor, and technology.

In the content of teaching resources, the changes emerging in the modern science and teaching process is one of the main aspects. A characteristic feature of the facts, processes and manifestations is that they are not permanent. They change in a timely manner and should give their places to new ones. In particular, the teaching resources in humanities shall be renewed on the basis of a modern science, in terms of new facts, processes and manifestations.

The preparation of teaching resources starts with the drafting and application of an appropriate plan. The plan shall include the issues on what purposes and in which activity the resource will be used and applied, respectively.

The general principles of the development of teaching resources can be grouped as follows: it should be simple and clear; should be prepared in accordance with the targets of the subject and the topic; it should include important and summarized information, not all information covering the topic of the subject and the lesson; its

content should be scientifically precise and contain actual information; there should not be any scientific error; properties of the Azerbaijani language should not be breached and should be used correctly; it should not be in contradiction to fundamental human rights; the topics of the subject should be far from extremism; should be in harmony with aesthetic, literary, cultural and social values; visual resources should complement the texts; visual design should not contradict the general values of society; the design elements should not recall the advertising features; should match the learner's individual characteristics; it should reflect the real life and show the connection with the real life of the learner; questions and tasks should provide learners with an opportunity to apply; prints should be made of durable materials that can be reused, not become useless after one use; should be written in a readable font; should be easily amended and updated, as needed.

For successful implementation of reforms with regard to the content of education in the country, comprehensive activities should be carried out in this direction.

Constructive proposals are put forward in the dissertation, taking into account the new approaches in the preparation and assessment of teaching resources, especially in humanities, in the developed countries across the globe.

The third paragraph of Chapter III is titled "Principles of selection of teaching resources". In the third paragraph, the principles on the selection of teaching resources are clarified, the main principles, efficient ways of selection, etc. are comprehensively interpreted.

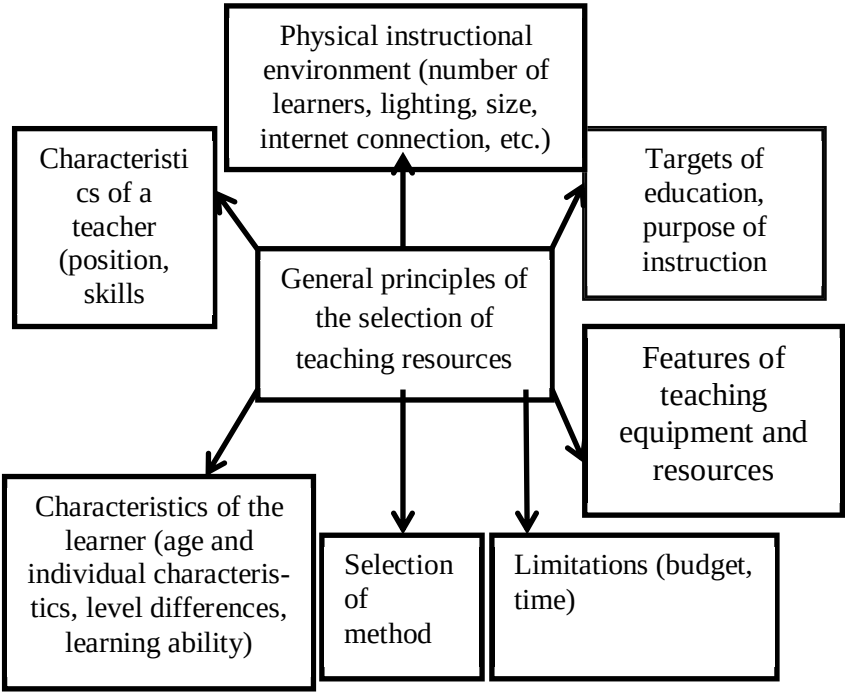
Teaching resources to be used in the instructional process: should be suitable to the teaching program, the selected pedagogical method and for the realization of the goals; should support the scientific information; the information should be true and actual; should facilitate and support the study of the subject; should be simple and clear; should have a feature that can motivate and

generate interest in learner; its technical structure should not be too complicated; should match the age and individual characteristics of learners; there must be physical conditions; should be appropriate to the time, effort and financial means to be allocated; should be economically affordable.

Teachers can conduct the selection of resources only after these requirements are determined. There are a number of general principles with regard to the selection of teaching resources (See: Scheme 3.3.1).

Scheme 3.3.1

General principles of the selection of teaching resources



Factors affecting the selection of teaching resources (equipment) are classified and given in Table 3.3.1.

Table 3.3.1

Factors affecting the selection of teaching resources (equipment)

	Factors	Real objects and models (decoys)	Written resources	Slide	Video and film	Resouces related to computer, smart board	Visual resources: picture, map, scheme, graph etc.
1	Learners can touch and see	+					
2	Can be taken out of the classroom	+	+				
3	Can be used as an after-class presentation and exam task		+				
4	Provides the participa-tion of several learners at the same time		+				
5	Can be easily removed and redesigned		+				
6	Requires small expenditure		+				
7	Expressions and keywords can be written during the lesson		+				

Continuation of Table 3.3.1

8	Can also be used for small-age groups	+	+				+
9	Can be used in full light environment	+	+		+	+	+
10	Is prepared from simple visuals		+				
11	Visual resources should be prepared beforehand		+	+	+		+
12	Short sentences, keywords, and teaching program can be used in the presentation		+				
13	Easy to carry		+	+	+		+
14	The purchased resources should be used		+	+	+		+
15	The sequences of presenting the materials can be changed easily		+	+		+	+
16	Enables the user to control as a part of the presentation can be repeated			+	+	+	+
17	Is suitable for learners with reading difficulties and speech disorder	+		+	+	+	+
18	Has a voice recording feature				+	+	
19	Is easy to use			+	+		

Continuation of Table 3.3.1

20	Provides a real image (colour etc.) at the highest level	+		+	+	+	+
21	Can be used independently without the help of a teacher		+	+	+	+	
22	Shows mobility, the image can be tracked by slowing down				+	+	
23	Provides an opportunity for real monitoring of dangerous events	+			+	+	
24	Creates a free working environment such as creation, invention				+	+	
25	Creates favorable condition to make up problematic situations that lead to group discussions, put forward hypotheses, and solve them				+	+	
26	Shapes the personal and social behavior.				+		

Features of the resource. The fact that whether the school has basic teaching equipment and resources such as a computer, projector, epidiascope, laboratory, smart board, etc. has a great impact on the selection of teaching methods and resources, as well as their use in the teaching process.

The following requirements should be met at all levels of education in the process of selecting and using resources relevant to the nature of the subjects:

The expiry date must be determined (where and when will be started, what will be done, etc.); it should be determined which teaching resources and equipment (video, picture, graphs; computer, smart board, projectors, etc.) will be used; necessary teaching resources and equipment should be brought together (video, picture, maps, internet, projector, computer, smart board, etc.); the technical side of the intended teaching resource should be thoroughly identified; design consistencies should be taken into account.

Chapter IV is called "Placement of the experiment at general education schools. Analysis and summary of results" and divided into two paragraphs. In this chapter, the impact of the use of teaching resources at general education schools on the quality of instruction is analysed, its essence is debated from the personality-oriented, result oriented viewpoints, the application principles are interpreted from a modern pedagogical point of view, and the importance of contextual reforms in general education is regarded as a necessary educational component.

The first paragraph of Chapter IV is called "Access to teaching resources". In this paragraph, the results of the second stage of the experiment, and the essence, importance, general pedagogical issues, main directions, shortcomings, forms and solutions, development ways of the effective use of teaching resources (as well as technological equipment) based on the new education policy are substantiated, and the specific features of the implementation of this activity are studied.

Some forms of the arrangement of work with teaching resources in classroom environment: Internet lessons; Presentation ; Seminar lessons; Mental-intellectual lessons; Project lessons; organization of lessons with the teacher's explanation by using

combined lessons: computer, smart board, internet, etc.; Online – lessons and so on.

Certain principles should be taken into account for using teaching resources in the classroom: compliance with the action plan prepared for the academic year: good planning of the instructional process stipulating the use of teaching resources (including teaching equipment); appropriate knowledge and competence of a teacher; learner in the role of "discoverer", "researcher"; teacher in the role of facilitator, leader, guide; psychological support to learners, consideration of age and individual characteristics; the collaboration of the teacher with learners; providing methodical help to learners in setting up goals and in maintining those goals; consideration of the form of learning; creation of conditions for the realization of learners' potential; exploration of new knowledge by learners, not by the teacher; the use of teaching resources that address to multiple sense organs; teaching equipment and resources should be available all the time and suitable for use and should not be complicated and very expensive; consideration of financial side and time; keeping the physical characteristics of instructional environment in the center of attention.

One of the arrangements of lessons with teaching resources (including teaching equipment) in the classroom environment is the presentation lessons. Presentation lessons are organized mainly by using the "Smart" board to ensure that the learners learn by understanding and perceiving, rather than mechanical rote learning.

In the dissertation, with reference to the circumstances of history subject in accordance with the modern education strategy, new educational models are proposed by using the modern teaching resources and equipment for increasing learners' independence and developing cognitive activity. Moreover, constructive suggestions are put forward for transforming them into a working mechanism.

In terms of new pedagogical thinking, the role of teaching resources and the teacher as the object of the use of teaching resources in the education system are gradually increasing. The effectiveness

of the psychological and moral atmosphere in the classroom depends on the efforts of each teacher, their pedagogical mastery, the way they acquired the pedagogical ethics and tactics, their theoretical and methodological readiness, and the level of their ability to establish teacher-learner relationships.

The positive result of using modern teaching resources is usually measured by the ultimate result of the work done. The results are considered as the measurement criterion of using modern teaching resources. If the result is high, it means that the modern teaching resources have been used efficiently in instructional process. If the use of modern teaching resources in instructional process, the work done in this regard, and the organization of instructional process are not arranged in due order, one cannot talk about the efficient use of modern teaching resources.

The results of the experiment conducted demonstrate that the systematic application of teaching resources at general education schools provides significant theoretical and practical circumstances in terms of learners' independent creative research, creative thinking, initiative, and achievements in learning process.

As stated in this paragraph, the realization of the use of modern teaching resources is included in the functions of the school, and the teachers and school management bear responsibility for solving the problem.

The second paragraph of Chapter IV is titled "Analysis and summary of the results of the experiment**".** In this paragraph, the pedagogical experiment is analyzed, the summary is reviewed, and the results are listed. The activities of learners and teachers in various directions have been evaluated and made a source of reference. Interpretation of the results is expressed in tables and diagrams.

During the experiment, the following hypothesis was put forward: the efficient use of modern teaching resources at general education schools is possible in case if this activity is scientifically substantiated and put to the practice.

Conceptual approaches in this regard provide that: compliant relations between the changes in the infrastructure and subjects of the use of teaching resources are established. That is to say: increasing the professional competence of teachers in instructional process; restoring an effective moral-psychological atmosphere in the classroom; ensuring the qualities such as creative thinking, research attitude, communicative skills, active mental activity, application of theoretical knowledge in practice, development of communication skills of learners; establishing teacher-learner relationships properly; applying modern teaching resources systematically on theoretical-pedagogical, psychological and physiological basis; forming the demand for training, self-learning, and self-improvement in learners; ensuring the development of each learner in accordance with the individual characteristics and potential when using teaching resources; considering the impact of development and innovations in the field of modern science and technology on the content of teaching resources.

In the dissertation, the relevant use of teaching resources at general education schools is regarded as an efficiency ratio; the teacher's interpersonal and professional qualities are brought to the center of attention as a factor regulating moral and psychological atmosphere of learning environment and improving the use of teaching resources; the use of teaching resources in educational process is studied as an immediate problem requiring solution and considered as a main factor increasing the efficiency indicators of education. Pedagogical experiment has been utilized in order to draw up the working system of the teacher in the use of teaching resources at general education schools and to evaluate its influence on learners' status of learning ability, upbringing, and development.

The pedagogical experiment was conducted in three stages (identification, learning and verification) in 2015-2017. The experiment was conducted in school No. 82 in Baku, as well as at the general education schools in the Northern, Southern, Eastern, Western

geographical parts of Azerbaijan: Lankaran and Ganja cities, Gabala, Oguz and Guba districts.

The third - verification stage of the pedagogical experiment mainly aimed at revealing the level of maintenance of teaching resources in the classroom, and the arrangement of the effective use by the teacher. The use of teaching resources on separate subjects, events with different types of organization, teacher and learner activity, teacher-learner, learner-learner relationships, and the arrangement state of the use of teaching resources in educational process were monitored. For identifying the current situation with regard to the problem, a survey was conducted with the teachers and learners.

During the experiment years, in a number of instances, the lessons were attended and advice was provided after the classes based on the notes taken. Along with the explicit aspects of the use of teaching resources, the conclusions concerning the optimization and improvement of the training process are also stated.

The dissertation touches upon the approach on the use of modern teaching resources in instructing “History of Safavid Empire” from history subject and in instruction process.

As mentioned above, experimental and control groups were set up. The work in experimental groups was arranged in a way that the issues of systematic, purposeful use of teaching resources in the classroom environment based on the requirements of new pedagogical thinking were paid attention. As a result, the indicators of the experimental and control groups began to vary. Following the systematic, planned, purposeful and continuous activities, considerable progress was observed in the experimental groups. Detailed information is available in the table below (Table 4.2.1):

Table 4.2.1
The table illustrating the comparative analysis of the first and second stages

No. of the test	Class	Number of learners	Stages of the experiment					
			Stage I			Stage II		
			True	Refusal	False	True	Refusal	False
1.	Experimental	207	48,8%	22,7%	28,5%	66,7%	14,0%	19,3%
	Control	202	45,5%	27,2%	27,2%	47,0%	29,7%	23,3%
2.	Experimental	207	40,1%	26,5%	33,3%	63,2%	14,5%	22,2%
	Control	202	35,6%	26,2%	38,1%	40,6%	27,7%	31,7%
3.	Experimental	207	41,5%	24,2%	34,3%	63,8%	14,5%	21,7%
	Control	202	37,6%	24,2%	38,1%	41,0%	24,7%	34,2%
4.	Experimental	207	38,6%	30,9%	30,4%	65,2%	12,6%	22,2%
	Control	202	37,6%	28,2%	34,1%	45,0%	30,1%	24,7%
5.	Experimental	207	43,0%	26,0%	30,9%	67,1%	14,5%	18,4%
	Control	202	40,0%	25,2%	34,7%	49,0%	29,2%	21,8%
6.	Experimental	207	38,6%	22,2%	39,1%	69,0%	12,0%	18,8%
	Control	202	34,7%	24,8%	40,6%	40,0%	25,7%	34,2%
7.	Experimental	207	44,0%	26,6%	29,4%	68,1%	14,0%	17,9%
	Control	202	42,0%	27,7%	30,1%	44,6%	27,7%	27,7%
8.	Experimental	207	42,0%	24,2%	34,8%	68,6%	14,0%	17,4%
	Control	202	38,1%	24,3%	37,6%	42,6%	25,7%	31,7%
9.	Experimental	207	38,2%	29,0%	32,4%	64,3%	12,0%	23,7%
	Control	202	35,1%	27,7%	37,1%	38,6%	29,2%	32,2%
10.	Experimental	207	44,4%	27,5%	28,0%	68,6%	15,5%	15,9%
	Control	202	40,5%	28,7%	30,7%	45,5%	27,2%	25,7%
11.	Experimental	207	39,1%	24,6%	36,2%	66,7%	12,6%	20,1%
	Control	202	35,1%	26,7%	38,1%	41,0%	26,2%	32,7%

Comparative analysis of the results of identification and veryfication stages with regard to tasks are given in Appendix 21-30.

The comparative analysis of the indicators of the experimental and control groups illustrate that the learners of the experimental group understood the essence of the problem better, and their indicators are higher compared to those of the control group.

Consequently, the outcome of the research conducted confirmed once again that the use of computer technology and other teaching resources related to the content of the subject was an ideal tool for education. Thus, learning and teaching become favorable when the teaching resources are used in a purposeful, planned, systematic and continuous manner in the instructional process at general education schools, and play important role in ensuring the cognitive activity of learners, in acquiring knowledge on subjects, in revealing the level of logical thinking and knowledge in a realistic and objective manner, in establishing proper teacher-learner relationships, in increasing the quality of teaching and communication skills. Therefore, it is advisable that the teachers systematically and consistently work on the problem inside and outside of the classroom.

In the result part of the dissertation, the ideas and considerations arising from the content of the research are summarized and given in the form of provisions. The research carried out allows us to come to the following conclusions: since the independence of Azerbaijan, significant changes in accordance with the today's requirements were made and are being made in all spheres of society, as well as in the education system, both in form and content. Thus, appropriate measures have been taken in determining the new theory of education, the main directions of the state policy on the education, the content, purpose and structure of education, the national educational programs and textbooks have been developed for special schools for the first time, the education system has been integrated into the international education system, the modern national edu-

cation system has been founded on the basis of the recent achievements in international practice.

Today, learning on how to apply a new training methodology based on the ICT base in the education system of the country, creating the resources base, increasing the motivation of school management and teachers for the effective application of ICT in the instructional process, as well as improving the school infrastructure and maintaining supplies are today's important requirements. Teachers should track the innovations in modern teaching resources: computer technology and audiovisual resources, Internet, "Smart" board, projectors and other similar technological trends.

In conclusion, it should be noted that the main factors to be taken into account in the application of educational resources are the following: relevance to the purpose and topic; easy to obtain and use; compliance with the age and individual characteristics of a learner; teacher and learner approach towards the resource; availability of physical condition that help achieve the goals in the instructional process; provision of efficient learning; involvement of learner in the new activities; time-consuming and economically affordable, etc.

Along with the positive aspects, the research uncovered a number of serious problems at schools in this regard. The existing problems in the issue of the effective use of modern teaching resources in the instructional process can be grouped as follows:

1. Problems related to school and finance: Schools are not sufficiently supplied with modern teaching resources (including teaching equipment). School equipment became out of service before expiration date; the physical condition of the classrooms makes it difficult for teachers to use modern teaching resources. According to teachers, the biggest obstacle in using the modern teaching resources at the lessons is the lack of any technological equipment (computer, projector, smart board, etc.) and necessary physical conditions in the classrooms.

Excluding the “digital schools”, most of the schools have only one computer room and therefore, the teachers are required to write down their names and signatures a week before in order to use the modern teaching resources in the computer room; connection to the Internet is poor at schools.

2. Problems related to teachers and teaching program: teachers have poor computer skills, and insufficient knowledge and skills on the efficient use of digital teaching resources supporting the educational process; school leadership has low level of awareness about the innovations in the field of modern teaching resources; in a number of instances, the school management does not promote the use of modern teaching resources; the teaching program is too complex; the effort to complete the teaching program; the teaching program and annual planning for subjects are very detailed, in particular, the size of some topics is big; the national teaching resources in the Azerbaijani language relevant to the content of the subjects are limited; the shortage in this issue for mainly literature and social subjects, the shortage in the number of technical specialists; lack of methodical support for subject teachers in using modern teaching equipment (computer, smart board, etc.) and resources; the large number of learners in classrooms, insufficient support of school-parent relationships in this regard; inappropriate level of awareness-raising campaigns about the advantages and opportunities of using modern teaching resources; insufficient consideration of the didactic, physiological and psychological principles of the use of teaching resources in the instructional process.

The research project allows for putting forward the following **proposals**:

- Modernization of teaching resources together with the rapidly-growing modern technologies, transformation into the condition meeting the present-day requirement, more efficient use of their assets and advantages; provision of every education institution

with relevant technical equipment and resources and realization of their connection to the centralized education network;

- Particular importance on the systematic approach in the application of modern teaching resources. Systematic approach. Consideration of purpose of education, its scope, methods, teaching resources, and teaching equipment as a unique system that will complete each other adequately. Since the modification in one of the components affects the remaining elements, adopting the system modification as a law is important;

- Provision of all educational institutions of Azerbaijan (including the schools situated in the remote regions) with internet connection; due support by the concerned state bodies to this issue; The study of the experience of the world's leading countries regarding the application of filtration process to protect learners from unwanted information and ensure the internet security when providing the schools with internet connection, implementation of measures for establishing the rules of internet use at schools;

- Organization of wide range of in-service free training courses in order to acquire appropriate skills and knowledge for teachers to use modern teaching equipment and resources and systematic continuation of this initiative; Implementation of stimulating activities among teachers for creating interest in this sphere. Presents (modern teaching equipment - computers, projection devices, tablets, video recorders, video cameras, etc.) by the Ministry of Science and Education to teachers with higher skills and leading schools once a year to encourage teachers in this field;

- Preparation and improvement of education standards and teaching programs in the field of modern teaching resources; Systematic annual planning of their instructional process;

- Establishment and development of normative-legal base on the modern teaching resources (including equipment) of educational system;

- Addressing the teacher's lack of time resulting from the excess teaching plan. Providing the subject teachers with sufficient time for their efficient use of modern teaching equipment (computer technology) and resources, and educational programs;

- School management should always keep the use of modern teaching resources in the focus and support the teachers in this regard. To increase the role of school management with regard to the innovations in this field, and to organize special training courses for providing them with a broader idea about this work.

- Preparation of national digital resources in the Azerbaijani language covering the content of all subjects, and making them free of charge for teachers; consideration of learners' individual and age characteristics in prepatation and application of teaching resources;

- Increasing the number of digital libraries;

- The importance of inclusion of the course on the existing modern teaching equipment and resources, and the use thereof in the teaching program of pedagogical higher education institutions for future teachers; At the pedagogy-oriented faculties of higher education institutions, students of the first stage of education should continuously be given systematic lessons on the use modern teaching resources (use of "Smart" board, Word, PowerPoint, Excel classes, communication with learners outside the classroom, correspondence, task processing (podcast, ActiveInspire, etc.) and ensure that they acquire theoretical knowledge and practical skills on the new technologies;

- Provision of consistent communication and coordination between school and parents, teacher and learner in order to ensure the continuous application of modern teaching resources in education. Realization of teacher-learner communication, correspondence, distribution of assignments and necessary documents with the help of technological devices, even after school hours;

- Educational measures – launch and regular broadcast of television programs aimed at informing educational personnel, espe-

cially the pedagogical staff working at schools, about the new trends on modern teaching resources are important.

The scope of research, its scientific ideas, and results obtained included in the following paperworks of the author:

1. Məmmədova N.İ. Yeni kurikuluma uyğun müasir tədris resurslarının yaradılması. "Təhsilin inkişafı üzrə Dövlət Strategiyası: persperktivlər və vəzifələr". Bakı: ARTPİ-ninTəhsil Texnologiyaları Mərkəzi, 2015, s. 260-302.

2. Məmmədova N.İ. Təlim prosesində tədris avadanlıqları və resursların istifadəsinə yeni yanaşma. Bakı: Qızlar Universitetinin Elmi əsərləri, 2016. № 2(26), s. 59-65.

3. Məmmədova N.İ. Tədris avadanlıqları və resursların məzmununun dəyişməsini zəriuri edən amillər. Azərbaycan məktəbi, 2016, № 2 (672), s. 51-57

4. Məmmədova N.İ. Humanitar fənlər üzrə tədris resurslarının məzmununa müasir yanaşma. ARTPİ-nin Elmi əsərləri, 2016. № 2 (83), s. 17-23.

5. Məmmədova N.İ. Tədris resurslarının istifadəsində müəllimin rolu. Bakı: Slavyan Universitetinin Humanitar elmlərin öyrənilməsinin aktual problemləri (Ali məktəblərarası elmi-məqalələr məcmuəsi), 2016. № 2, s. 286-292.

6. Məmmədova N.İ. Tədris resurslarından istifadə zamanı qarşıya çıxan problemlər haqqında. Azərbaycan məktəbi, 2016. №6 (676), s.35-40.

7. Məmmədova N.İ. Müasir neyrofizyoloji öyrənmə modelinin sistemi və imkanlar. ARTPİ-nin Elmi əsərləri, 2016. №4 (83), s.214-218.

8. Məmmədova N.İ. Tədris avadanlıqları və resursların inkişafı ilə bağlı araşdırma. Bakı: Slavyan Universitetinin Humanitar elmlərin öyrənilməsinin aktual problemləri (Ali məktəblərarası elmi-məqalələr məcmuəsi), 2016. № 4, s.289-295.

9. Məmmədova N.İ. Keyfiyyətli təhsil xidmətlərinin təqdim olunmasında müasir tədris avadanlıqları və resursların rolu. Bakı: Qızlar Universitetinin Elmi əsərləri, 2016. № 4(28), s.89-95.

10. Məmmədova N.İ., Xəlilov V.C. Virtual ünsiyyət texnologiyalarında yaşanan dəyişmə və inkişafın məktəb-valideyn əməkdaşlığına təsiri. Məktəb-valideyn əlaqələrinin pedaqoji əməkdaşlıq əsasında yenidən qurulması məsələləri. Metodik vəsait, Bakı: Mütərcim, 2016. s.54-67.

11. Мамедова Н.И. Рол современного учебного оборудования и электронных ресурсов в когнитивном развитии учащихся. Балтийский гуманитарный журнал. Россия, г. Калининград, Типография «Полиар Плюс». 2016. том 5, №4(17), стр.261-263.

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