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The Properties of A Full–Fledged Reading Ability (Correctness, Consciousness, Expressiveness, Fluency) and the Approach of Improvement

Madaminova Samidabonu Umidovna

Student of the Department of Primary Education Urgench State University
Republic of Uzbekistan Urgench

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Abstract: In this article, you will be able to consider such topical topics as what is the "reading skill", what stages are divided into . What mistakes students make when reading, how to correctly correct mistakes without interrupting the reader. Reading as a basic element. Formation of readers ' interests. Reading skills are correctness, fluency, consciousness, expressiveness. The stages of reading formation are analytical, synthetic, and automation.

Keywords: reading skill, technical and semantic stage, reasons for erroneous reading, literate reader, reading as a basic element, formation of reader interests, correctness, fluency, consciousness, expressiveness. Analytical stage, synthetic stage, automation stage.

INTRODUCTION

Primary school is a special stage in a child's life. It is associated with the formation of the basics of the student's ability to learn and the ability to organize their activities. And it is the reading skills that will provide the younger student with the opportunity to independently acquire new knowledge, and in the future will create the basis for self-study and self-education at the subsequent stages of training.

The reading skill is a complex phenomenon. It consists of two sides technical and semantic :

Technical stage :

➢ reading method,

➢ reading pace,

➢ correctness of reading

➢ expressiveness.

➢ And semantic:

➢ understanding the content and meaning of what is being read.

It is customary to characterize the reading skill by naming its four qualities: correctness, fluency, expressiveness and consciousness.

Correctness is defined as smooth reading without distortions affecting the meaning of what is being read. The child should not allow:

➢ substitutions

➢ passes

➢ permutations

➢ additions

➢ distortion

➢ repetitions of letters(sounds), syllables and words

➢ mistakes when placing stress in words.

The reason for the erroneous reading of primary school students (as in readers with an unformed reading skill) is that they do not have a relationship between the perception, pronunciation and comprehension of the content of the read. At this stage, understanding the meaning of a word in the structure of a phrase or sentence is ahead of its utterance, i.e. reading is carried out by a semantic guess. For a novice reader, a semantic guess often becomes the cause of incorrect perception, and then the utterance of a word.

Children are more likely to distort (replace) those words whose meaning they do not understand (i.e., a weak relationship between perception and comprehension).

In order to prevent such errors, it is advisable to:

✓ find out before reading the lexical meaning of words, without understanding the meaning of which the perception of the text will be difficult;

✓ preliminary post-syllabic reading of words that have a complex syllabic or morphemic composition;

* creating a classroom environment for careful reading of the text, clear formulation of tasks and questions

✓ preliminary reading of the text to yourself;

✓ systematic control of the teacher over the students ' reading;

✓ methodically correct correction of the error, depending on its nature.

Errors are corrected as follows

✓ the teacher corrects errors in the end of words himself, without interrupting the student's reading;

✓ errors that distort the meaning of the sentence are corrected by re-reading or asking a question to the read;

✓ mistakes that did not distort the meaning, the teacher notes after reading;

✓ other students are involved in correcting errors related to violations of orthoepic norms.

The teacher notices and fixes all the mistakes of the student, but interrupts the reader only in case of distortion that interferes with the understanding of the text.

Therefore, teaching children to read correctly, fluently, consciously, expressively is one of the main tasks of primary education. And this task is extremely relevant, since reading plays a huge role in the education, upbringing and development of a child. In primary school, it is necessary to lay the foundations for the formation of a competent reader.

A literate reader is a person who has a persistent habit of reading, a mental and spiritual need for it as a means of knowing the world and self-knowledge is formed. This is a person who knows the technique of reading, the techniques of reading comprehension, knows books and knows how to choose them independently. The importance of the reading process, from a scientific point of view, is great. One of the indicators of the overall level of development of a child's cognitive activity is the successful mastery of the reading skill. Difficulties in the process of learning to read speak about individual problems of the development of a particular mental process (attention, memory, thinking, speech). The results of the research show that the problem of forming interest in reading among younger schoolchildren remains unresolved in full, both in

theoretical and methodological terms. Whether reading will become a means of enriching the child's personal and social experience, as well as a means of his self-knowledge and development, whether he will form not just an interest, but a need to read books, depends on the learning conditions aimed at forming a personality and the foundations of reading culture. In the conditions of modernization of primary schools and the modern system of teaching reading and literary education to children of primary school age, it is assumed that "the obligation and necessity of the student's own reading and learning activities, in which the student becomes the subject of both the educational process and the reading process," Everything in our society is changing, the structure of children's free time has changed: today, audiovisual media occupy an increasingly prominent place in it. Television, computerization do not contribute to the motivation of reading fiction. Changing the goals of modern education required new technologies for teaching younger schoolchildren. A special urgency in connection with the general crisis of education has received a social request for teaching reading.

Reading is a basic element of human inclusion in modern civilization. Thus, the reading lesson is given a dominant role in the educational process, it should be focused on solving such tasks as the formation (improvement) of the skills of conscious, fluent, correct, expressive reading; as speech, emotional, moral and creative development.

The formation of readers ' interests is an important scientific and pedagogical problem. Its relevance is due to the exceptional, steadily increasing role of speech in human life, which serves as a universal means of communication, a powerful channel for intellectual, in a broad sense, spiritual development of the individual, a necessary condition for social activity of every person. Reading is a rather complex, individual process.

Each reader responds to the book with some special side of his personality, one in accordance with his individual character and life experience, when reading one book, a feeling especially flares up, the other has a mind, rationality suppresses and pushes away the emotional — volitional side of the personality. The requirements imposed on the child at the initial stage of literary education are mainly aimed at the knowledge, skills and abilities of the child, and not at his individual development. Therefore, it is necessary to take into account in the educational activities for the formation of

interest in the reading process and the peculiarities of readers of primary school age:- primary school students react first of all to the text - emotionally. And those childhood experiences associated with the text are of great value for primary school. A modern school sets itself the task of emotional development of children, but it is not easy to solve it. After all, to do this, you need to have a certain methodology, know the specific methodology of the lesson, the criteria for evaluating the child's reading development during the training period. -another feature of readers of primary school age is the identification of the artistic world and the real one. It is not by chance that this period in the development of the reader is called the age of"naive realism". This is expressed in the attitude to the character as a living, real one; in the manifestation of credulity to his image.— it should be noted that younger schoolchildren have a sensitivity to the word and to artistic details. Children sometimes react to such psychological subtleties that adults sometimes do not notice.- younger schoolchildren are characterized by the" presence effect", which means the child's ability to live in an image.— the last feature of the younger reader is the lack of reaction to the art form. In the process of reading, children primarily see the characters, the plot, individual events, but neither punctuation marks, stanzas, epithets. The child does not notice the division into paragraphs, which means that he passes by without understanding, which cannot be understood. Thus, these features of perception of younger schoolchildren are the support for the teacher in the process of developing their interest in the reading process. In the lesson, the teacher needs to show children that reading is a communication, a dialogue between the reader and the author. But this communication is not direct, but communication through the text created by the author. This is how the influence of the book on the reading child occurs. It is sometimes very difficult to single out the main result of the lesson: what is more important- the understanding of the author's position or the child's personal experiences from what he has read. Most likely, these two sides of the perception of the book are equivalent. Only one side (literary perception) obeys the laws of literature, and the other side (personal perception) - the laws of the individual development of the child. There are four qualities of the reading skill: correctness, fluency, consciousness, expressiveness.

Correctness is defined as smooth reading without distortions affecting the meaning of what is being read. Long-term observations on the formation of reading skills in children allow us to identify several groups of typical mistakes that children make when reading:- omissions of letters, syllables, words and even lines;- rearrangement of reading units (letters, syllables, words);- distortion of the sound-letter composition:- inserting arbitrary elements into reading units — - replacing some reading units with others. The reasons for such errors are the imperfection of visual perception or the underdevelopment of the articulatory apparatus. However, the so-called "guess reading"can also cause distortions. This phenomenon is based on such a human property as anticipation — the ability to predict the meaning of a text that has not yet been read by the meaning and style that is already known from the previous passage read. a guess appears in the reader with the acquisition of reading experience and is, therefore, a sign of his progress in mastering the reading skill. At the same time, the teacher should remember that the textual guess of an experienced reader rarely leads to errors that distort the meaning of what is being read, and the subjective guess of an inexperienced child often entails such errors that prevent him from understanding what is being read.

Fluency is the speed of reading that assumes and provides a conscious perception of what is being read. Thus, fluency cannot be an end in itself, but it is fluency that becomes the determining factor for other reading qualities. The standards of fluency are indicated in the reading program by the years of study, but the main reference point for the teacher should be the oral speech of the child. The objective benchmark of fluency is the speed of speech of a TV or radio announcer reading the news, it is about 120-130 words per minute. Fluency depends on the so-called reading field and the duration of stops that the reader allows during the reading process. The reading field (or reading angle) is a piece of text that the reader's eye grasps in one step, followed by a stop (fixation). During this stop, awareness of what is captured by the gaze occurs, i.e., the perceived is fixed and its comprehension is carried out. An experienced reader makes from 3 to 5 stops on a line of unfamiliar text, and the segments of the text that are grasped by his eyes in one step are uniform. The reading field of an inexperienced reader is very small, sometimes it is equal to one letter, so he makes many stops on the line and the segments of the perceived text are not the same for him. They depend on whether the words and phrases that are being read are familiar. Repetitions in the reading of an inexperienced reader are also associated with the comprehension of what was

captured in one step: if he failed to keep the perceived segment in his memory, he has to go back to the already voiced text again in order to realize what he has read. Now it becomes clear that by training visual perception, the teacher works not only on the correctness, but also on the fluency of reading. Awareness of reading is the understanding of the author's intention, the awareness of artistic means that help to realize this idea, and the understanding of one's own attitude to what is read.

Consciousness in a general form can be defined as reading comprehension. However, in the methodology, this term is used in two meanings:1) in relation to mastering the process of reading itself (reading technique);2) in relation to reading in a broader sense (T. G. Ramzayeva).When they talk about consciousness in the first meaning, they mean how consciously the child performs the necessary operations that make up the voicing of printed signs: he finds vowels, correlates them with syllables-merges, sees consonants outside merges and realizes to which syllable-merge they should be lamented. Interest in reading arises when the reader is fluent in conscious reading and he has developed educational and cognitive motives for reading. Interest in reading arises when the reader is fluent in conscious reading and he has developed educational and cognitive motives for reading. The condition for mastering reading activity is knowledge of reading methods, methods of semantic text processing, possession of certain skills and abilities that should not develop spontaneously. I believe that one of the options for improving the quality of reading in primary school is the purposeful management of reading training. To form reading as an educational skill, it is necessary to keep this circumstance in mind. It is also important to take into account the peculiarities of children's cognitive activity. Children of 6-7 years have not yet developed logical thinking, it is clearly effective, requires support for practical actions with various subjects and their substitutes-models. Then, gradually, thinking acquires a visual-figurative character, and, finally, logical abstract thinking arises. These stages of the development of cognitive activity of a younger student leave an imprint on the nature of learning.

Expressiveness is the ability to convey to listeners the main idea of a work and their own attitude to it by means of oral speech. All these qualities are interrelated and mutually dependent. The preparation of the reader should be based on the simultaneous work on all four qualities of the reading skill. This approach is

implemented already during the period of literacy training. It is even more important to keep such a system of work in mind in the lesson when reading literary texts. The modern methodology understands the reading skill as an automated skill for voicing a printed text, which implies awareness of the idea of the perceived work and the development of one's own attitude to what is being read.In turn, such reading activity involves the ability to think about the text before reading, during reading and after reading. It is this "thoughtful reading", based on a perfect reading skill, that becomes a means of introducing the child to the cultural tradition, immersion in the world of literature, and the development of his personality. At the same time, it is important to remember that the reading skill is the key to successful learning both in primary and secondary schools, as well as a reliable means of orientation in the powerful flow of information that a modern person has to face. In methodological science, there are three stages of the formation of reading skills: analytical, synthetic and automation stage.

The analytical stage is characterized by the fact that all three components of the reading process in the reader's activity require separate efforts from the child to perform specific operations:- to see a vowel letter, - to correlate it with a syllable-merge, - to think where it is necessary to wail the letters outside of the merge, - to voice each graphic syllable seen, pronounce smoothly to recognize the word and understand it. Reading by syllables is a sign that the child is at the very first stage of skill formation — analytical. It is usually considered that the analytical stage corresponds to the period of literacy training. However, the teacher should remember that each child has its own pace of development in general and in mastering the reading skill in particular.

The synthetic stage assumes that all three components of reading are synthesized, i.e. perception, utterance and comprehension of what is being read occur simultaneously. At this stage, the child begins to read in whole words. However, the main sign of the reader's transition to this stage is the presence of intonation when reading. It is important that the child not only comprehends individual units of the text, but correlates them with the integral content of what is being read. Intonation appears when reading, provided that the reader keeps in mind the general meaning of what is

being read. This usually happens in the second year of primary school.

The automation stage is described as the stage at which the reading technique is brought to automatism and is not realized by the reader. His intellectual efforts are aimed at understanding the content of the read and its form: the idea of the work, its composition, artistic means, etc.the child's desire to read about himself is characteristic of the automation stage. The main sign that children have reached the level of automatic reading is their direct emotional reaction to the self-read work, their desire to share the primary reader's impressions without additional questions from the teacher, the desire to discuss what they have read.The path — from the analytical stage to the automation stage - can be passed by a child within the framework of primary school, provided that the teacher provides a certain mode of work in the classroom;1) reading exercises should be daily;2) the selection of texts for reading should not be random, but should be made taking into account the psychological characteristics of children and literary features of texts;3) the teacher should use an appropriate system for correcting mistakes made during reading;4) the teacher should conduct systematic work to prevent erroneous reading; 5) training in reading to oneself should be specially organized, which involves several stages: reading in a whisper, silent articulation of what is being read, " quiet reading" (in terms of internal speech), actually reading to oneself. The child goes through all three stages of the formation of reading skills at his own individual pace, and these stages continue for about three to four years. At the first stage, each element of the letter is tracked. At the first stage, parents often say: he knows the letters, he does not want to read. He doesn't want to, he can't yet! Only by the age of 9-10, the mechanisms of arbitrary regulation of activity and organization of attention are formed. After all, in order to focus, in order to differentiate, you need not to be distracted. You need to concentrate your attention. The formation of children's reading skills serves as the foundation of all subsequent education. The formed reading skill includes at least two main components:a) reading technique (correct and fast perception and voicing of words)b) understanding the text (extracting its meaning, content).It is well known that both of these components are closely interrelated and rely on each other.. Improving the reading technique makes it easier to understand what is being read, and easy-to-understand text is perceived better and more accurately. At the same time, at the first stages of the formation of the reading skill, more importance is attached to its technique, at the subsequent stages-to the understanding of the text. In parallel with the development of fluent reading skills, the skills of perception and comprehension of the meaning of what is read are formed. Understanding the content of what is read consists of understanding what is said in the text and how it is said about it. At the same time, it is important to take into account that the expansion of the range of ideas of the younger student about reality should go from the child himself, his immediate environment and environment to more distant phenomena. The modern methodology considers the tasks of education and upbringing in unity. The means of education are the subject of reading, its ideological content, the artistic embodiment of this content. The reading methodology pays special attention to the methods of forming skills of independence in working with the text and the book. Research conducted in recent years has shown that rapid reading activates thinking processes and is one of the means of improving the educational process for a variety of learning levels, from elementary to high school. The book by V. N. Zaitsev provides recommendations for the development of fluent reading, which can be used by every teacher in literary reading lessons. 1. The important thing is not the duration, but the frequency of training exercises Human memory is arranged in such a way that it is not remembered what is constantly in front of your eyes, but what flashes: that is, that is not. This is what creates irritation and is remembered. Therefore, if we want to help children master some skills and bring them to automatism, to the level of skill, it is necessary to conduct small exercises with them every day at certain intervals of time. 2.Five minutes of reading every day. At the beginning of each lesson, children open a book and read for 5-6 minutes in the buzzing reading mode.3. Buzzing reading. This is when all the students read at the same time in a low voice, each with his own speed, someone is faster, and someone is slower.4. Reading before going to bed .This view gives good results. The last events of the day are recorded by emotional memory, and those hours when a person sleeps, he is under their impression. 5. Gentle reading mode (if the child does not like to read)The child reads a few lines and then gets a short rest.6. Multiple readings. For one minute, the children read the text in a low voice, after which they note which word they managed to finish reading. Then follows the repeated reading of the same

passage, the student again notes to which word he has read and compares it with the first result. Increasing the pace of reading causes positive emotions in students, they want to read again.7. The method of stimulating students. At the end of the lesson, self-measurement of reading is performed for one minute in a low voice, counting and writing in a notebook.8. Reading-sprint. At maximum speed, reading "to myself", find answers to the questions asked, there is an acquaintance with the work on an explanatory dictionary, there is an explanation of difficult words. The main technique that ensures the development of reading skills is to repeatedly refer to the text, re-reading it each time with a new task. The help of parents in teaching children is important. In conversations, at parent meetings, at open lessons for parents, I convince them that reading should become a daily habit of the child, it is necessary to create a situation of interest for others listening to his reading. Parents should show interest in the content of the text read by the child, should be extremely restrained, patient, condescending and friendly to the child. During the study on the formation of expressive, conscious and fluent reading skills, the assumptions were confirmed that the development of reading skills will be effective if you select the text and understand what you read, i.e. create a "success situation", conduct exercises on the expressiveness of reading in the system, starting with the simplest and gradually complicating them. Rapid reading activates thinking processes and is one of the means of improving the educational process for a variety of learning levels. Children began to read with interest, fluency and meaningfulness of reading appeared, academic performance increased. This can be seen by the results of the reading test, and in extracurricular activities in which children and parents take part.

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Architectural Ceramics of Ancient Samarkand

Khasanova Khafiza Bakhriddinovna, Imamov Mukhiddin Rustamovich
[1]Senior Teacher of the "Interior and Landscape Design" ,
[2]Independent Researcher of the "Theory and History of Architecture",
[1.2]Department of Samarkand State Architectural and Civil Engineering Institute, Uzbekistan

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Abstract The article provides information about the types, applications and manufacture of tile ornaments i.e. architectural ceramics in the architectural monuments of ancient Samarkand, which attracted the attention of the world.

Keywords: tile, cut tile, architectural ceramics, arabesque, group, drum.

INTRODUCTION

Samarkand is one of the oldest cities in the world, which is the capital of the ancient state of Sogdiana, and it is 2.5 thousand years old. In the XIV century, Samarkand became the capital of Amir Temur's empire. The great ruler gathered talented architects, craftsmen, and artists from all corners of his vast state and ordered them to build new buildings. To decorate buildings, masters used ceramic tiles created in craft workshops - majolica (tiles) and mosaic (cut tile).The composition of the tiles used to cover buildings in Samarkand, Bukhara and Khorezm is unique. Each of the ancient cities had their own schools of art, developed their own majolica compositions, which modern restorers have studied for their full composition and properties, developed for the repair of architectural monuments, and now, but as a result, tile patterns made in the modern era fade in a few years, while tiles in the ancient cities retain their bright and rich color, although they are over 600 years old.

Methods and materials: Architectural exterior decorations are mostly bricks made of tile or rivets, and patterns carved into stone, depending on the material used for interior decorations, tile or plaster, plaster, wood, stone carving or painting can be painted on the wall plaster. Depending on these characteristics, architectural ornaments can be divided into several distinct types, namely brick and wood carvings, murals, stone carvings, mukarnas (stalactite ornament), and kundal and kundal ornaments [5].

In architecture, a variety of tiles are architectural ceramics in buildings that enhance the artistry of the building and prolong the life of the building by protecting it from external influences. Decorating buildings with patterns has long enriched the world of human thought, so in architecture, the buildings decoration is given special attention.

When we look at extant architectural monuments, architectural ceramics and the art of decoration have constantly evolved in different ways.Architectural art flourished during the reign of Amir Temur. During this period, the decoration includes a variety of colors and patterns.The words of the scriptures were written in certain parts of the building, usually by masters who had acquired the art of calligraphy. In the art of decorating the facades of buildings and interiors, attention is paid to the exact interdependence of geometric structures that determine the overall harmony of architectural forms [11].

Figure 1. Majolica.
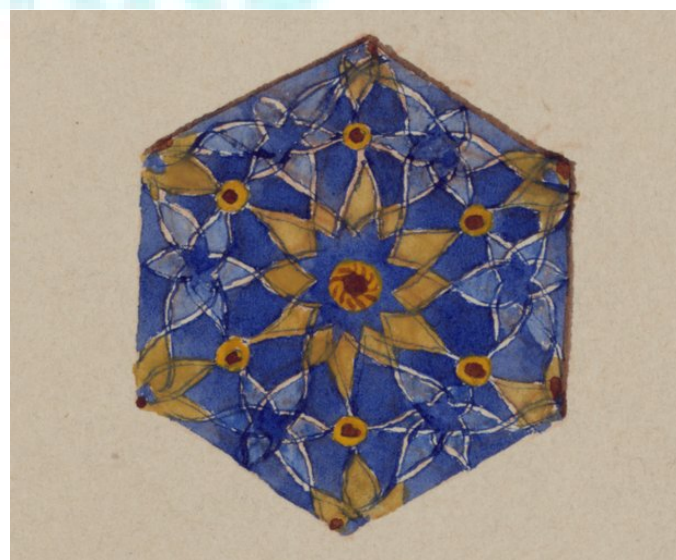
Majolica is the common name for products made from fired colored clay. The tiles are molded from colored clay, glazed, painted and only then fired in the oven. As a result, the clay and paint form a vibrant ceramic work. As an art, majolica was known in ancient times in Egypt and other Eastern countries, where colored tiles were often used to decorate walls.

Products made of ceramic-clay mixtures, the art of pottery. The ceramic-clay mass is made in the style that is still preserved in some places [3].

In this style, the fertile layer of soil is removed and then the natural continental soil is loosened and watered. Several times softened with a hoe.After periodic stirring to ensure that the soil is free of natural salts, the water that has come off the surface of the sediment sludge is drained and mixed again with clean water. In winter, dirt is collected, softened and frozen to keep the moisture content even. It was thought that a longer processing time (freezing, rinsing, turning) of the batch was more necessary for good product quality.This is true: softening increases the plasticity of the molded clay, ensuring durability and good preservation of the product. Removing salts from the soil ensures that baked goods won't be salty and reduces product moisture. In the past, when pottery was dried before baking, large amounts of straw were sometimes added to the molded mass to reduce the shrinkage of the mass.In the manufacture of molded architectural clay, pottery is often added to its composition in the form of plant stems (carcass), horse manure and wool to

prevent cracking.Sometimes thin embossed clays are mixed with reed wool [3].

To decorate the surface of ceramic products and protect them from external influences, products are covered with glaze and slipware.Items are painted with ceramic paints.In such cases, the ceramic material becomes majolica. Artistic ceramic pattern (tiles) of glossy majolica color tiles. The color scheme of the ceramic tiles of the ancient buildings of Uzbekistan has all shades of gold and blue. Religious buildings are traditionally decorated with blue domes and artistic completeness, trying to bring them closer to the sky and filled with floral ornaments.

One chapter of the booklet describes the creative work, beautification, and construction that took place in different parts of Movarounnahr during Amir Temur's reign.The author tells an interesting story about the wide streets, huge palaces and gardens built in Samarkand, the center of Amir Temur's state. According to the historian, Samarkand was called "arus al-avasim" ("bride of the world's capitals") or "al-Madiyhataz-zarqa" ("Blue City") during the reign of Amir Temur, for example, all the monumental buildings in the city were covered with blue, which was declared the official color at that time. [12]

Exterior architectural ornaments of the XIV-XV centuries are in various arabesque, girih (strapwork) or "madokhil" and "devoniy" style patterns, indoor vinegar ornaments are mainly in lojuvard (purple) and turquoise patterns, and calligraphy ornaments are in "suls" style. Such colorful compositions were widely used in the mausoleums of Shodimulk, Amir Khussein, Amirzoda, Shirinbeka aqa at the Shahizinda crossroads in Samarkand…,

…The height of the inscription on the roof of Temur's mosque in Samarkand was about one and a half meters, and, according to Babur, it could be read from a distance of 2.5 kilometers.[5]

Pattern of structural tiles made of mosaic pebbles, glass, ceramics, fragments of marble and other fine-grained materials.The simultaneous use of traditional and decorative tile patterns and marble carvings form a holistic art. The peculiarity of Arabic letters by their flexibility and relief simultaneously served not only an educational but also an aesthetic function.The mosaic was obtained by laying horizontally stacked ceramic bricks with a unique pattern. An integral part of the

mosaic decoration is a collection of floral and plant patterns as well as blue and white tiles.

Along with patterns and calligraphy, frescoes are found on the monuments of Shirinbek aqa, Bibikhanum and Tuman aqa, built during the reign of Amir Temur.The buildings built during Tamerlane's reign were dominated by blue and gold. The walls and ceiling, even the ceilings, are decorated with patterns.In particular, Samarkand patterns are distinguished by the frequent use of flowers, leaves and stems[3].

Most of the facade walls of the buildings were decorated with tiles by ancient architects. The technology of creating such a mosaic of ceramic tiles is very complex. Painted clay tiles are cut into pieces, each piece is manually given the desired shape and color, baked and assembled into a colorful pattern. They are even shaped, assembled, and baked over a fire. Imagine, construction with such sophisticated technology took only a few years, for example, the Bibikhanum mosque was built in 5 years.

Figure 2.Bibikhanum mosque.
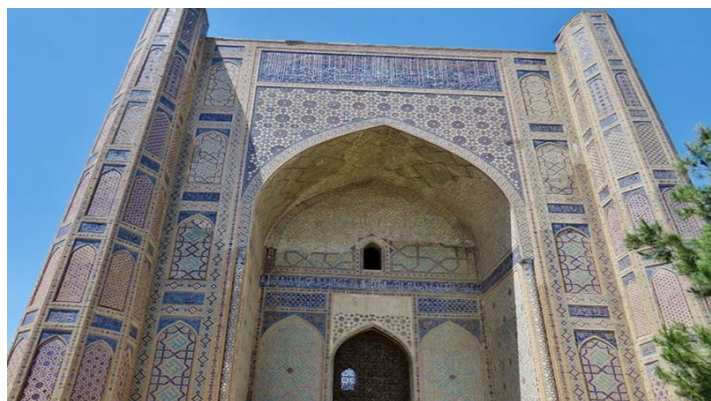
The building is decorated from top to bottom with glazed mosaics and majolica: domes, dome drums, front walls, side walls.

Figure 3.The dome of the Bibikhanum monument is decorated with majolica tiles.
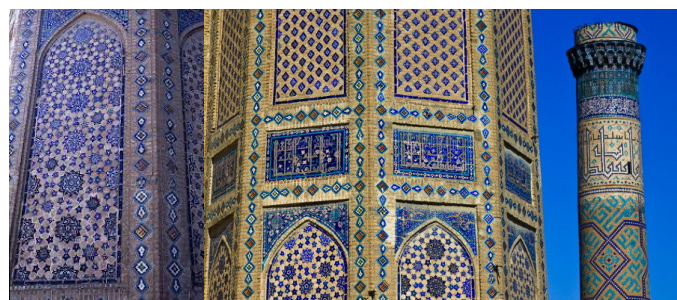
Figure 3. There is an inscription in Arabic on the dome drum of the mosque. The letter is made of glazed brick, but written in a certain "handwriting" - calligraphy in the Arabic style.

Figure 5.Calligraphic mosaic (cut tile) patterns on the dome tanbur of the Bibikhanum monument.
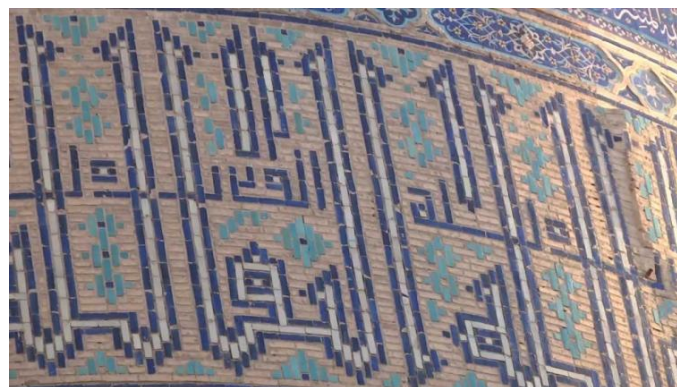
When we look at Bibikhanum's mosaic, we see how many little pieces of ornamentation were skillfully assembled and used.

Figure 5.A patterned mosaic of painted tiles.

The most intricate and beautiful patterns are based on tiles and stone carvings.

Figure 6.Painted and scratched majolica.

Conclusion: Today, these and other architectural objects are always in need of repair with a serious approach to future delivery and maintenance.We need to do research in science to achieve success in repairing tiles based on natural conditions.

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Planning of Primary School Education in Nigeria: Problems and Way Forward

Hayab Fortune Josiah[1], Ogunode Niyi Jacob[2]
[1]forhayab@yahoo.com, [2]Ogunodejacob@gmail.com

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Abstract Primary school education in Nigeria is design to give the post-nursery education for children aged 6-11. The primary school education had been described as the foundational education that laid the foundation for other educational system. The primary school education is beset with many problems. Poor planning is one of the major problem facing the primary school education in Nigeria. This article discusses the problems facing the planning of primary school education in Nigeria. The article identified;inadequate planning fund, shortage of professional planners with specialization in primary school planning, shortage of data, corruption, political instability, poor capacity development of planners, policies instability, inadequate planning tools and political influence as the problems facing the planning of primary schools education in Nigeria. In order to solve these problems, this article offers the following recommendations: adequate funding of planning of public primary schools, employment of professional planners, provision of materials, generation of current educational data, political stability, policy stability and corruption should be fought in the ministries and agencies of education.

Keywords: Professional, Public, Primary, Planning, Problems

INTRODUCTION

The National Policy on Education (2013) defined a primary school as "Education given in an institution for children" normally aged 6-11. This is the level that prepares pupils for Secondary Education. It is necessary that we inculcate basic skills into learners as specified in the objectives. The National Policy on Education (2013) stated the objectives of primary education are to: inculcate permanent literacy and numeracy and the ability to communicate effectively; laying of a sound basis for scientific and reflective thinking; ensure citizenship education as a basis for effective participation in and contribution to the life of the society; build character and moral training and the development of sound attitudes; develop in the child the ability to adapt to his changing environment; give the child opportunity for developing manipulative skills that will enable him to function effectively in the society within the limits of his capacity and finally; provide basic tools for further educational advancement including preparation for trades and crafts of the locality.

Ogunode (2021) submitted that the challenges facing administration of public primary schools in Nigeria include: inadequate funding, inadequate professional teachers, inadequate infrastructural facilities, and inadequate data to plan, corruption, weak administrators, ambiguous administrative roles and insecurity challenges. According to Asodike, &Ikpitibo,(undated), and Egwu (2009), some challenges facing primary education in Nigeria include the huge disparity between expected school enrolment and the actual enrolment figure. This leads to difficulties in accurately planning and allocating human, material and financial resources adequate to the various primary schools in the country. Poor management of information to gather accurate data, recording and retrieval of data leads to conflicting statistics about the number of enrolled pupils and new applicants in the system. This means that these vital information are not readily available when needed, thereby creating a vacuum for policy makers, stakeholders and researchers to carry out their functions efficiently.

Asodike, &Ikpitibo,(undated), Omotayo, Iheberene and Maduewesi (2008), also indicated that poor implementation strategy, management and lack of assurance as responsible factors that contributed to the failure of the UBE to attain its goals since its inception

over 10 years ago. Other predicaments include financial problems in terms of misappropriation and embezzlement of funds, and financial crimes of all sorts being perpetuated by those in authority. As a result, there is an absence of adequate financial resources to implement programmes and policies that will promote this level of education. Also incompetence by some teachers and head-teachers leads to poor quality assurance, delivery and supervision in the system. Other challenges include educational wastage in form of truancy, high dropout rate, attrition, and repetition. These problems are associated with poor planning of primary school in Nigeria. Whenever there is a failure of effective planning in educational programme, the result effects are shortage of both human and materials resources which will affect the implementation processes of the programme. When educational programme and system are not well planned, the implication poor planning is poor implementation. The entire educational system in Nigeria started on a poor planning foundation and this is while the entire educational system is where it is today because of poor planning, including the primary school education. Moja (2000) observed that planning, supervision and monitoring mechanisms for the entire education system have been very weak. In view of this submission, this article will discuss the problem facing planning of primary school in Nigeria.

Concept of Educational Planning

Many researchers have forwarded many definitions of educational planning. Akpan (2000) defined educational planning involve a systematic and scientific set of decisions for future action to achieve set educational goals and objectives through effective use of scarce resources. It provides the tool for coordinating and controlling the direction of the educational system so that educational objectives can be realized. It is a process of identifying and classifying educational needs of a nation and the direction education should take and the strategies for implementing decisions concerning educational development. Noun (2007) viewed educational planning as the consideration of unforeseen obstacles and making provision for possible ways of overcoming them. This implies that educational planning calls for a constant evaluation and

modification. If necessary of the related programmes until the expected goals are achieved. For example, if you plan to operate a Nursery and Primary School, it is your duty to get it started, and until pupils graduate from the school, and the school continue to sustain it and achieve its goals, planning, implementing and evaluation will continue. Akpan (2000) maintains that educational planning should reflect the state of development of a nation including the needs and readiness to execute the planned objectives. Thus, educational planning must take into consideration the population growth of children of school age in relation to access to education, educational opportunities and the demand for education. Beeby cited in Okwori (2011) states that educational planning exercises foresight in determining the policy, priorities and cost of educational system having due regards for economic and political realities for the system potentials, for growth and for the needs of the country and of the pupils served by the system. Noun (2007) sees educational planning is the application of a rational and systematic analysis of the process of educational development to make education more effective in responding to the need and the goals of the students and the society.

According to Noun (2012) the coverage of educational planning includes:

(i) Finance: - Educational planning is interested in the judicious use of funds allocated to education. It plans for revenue, handles costing and budgeting in education.

(ii) Personnel: - The adequacy in quantity and quality, training, the specialization, the trend in growth overtime make up the part of education planning coverage.

(iii) Physical Resources: - The provision in quantity and quality of facilities, their utilization, their distribution and the general plant planning is within the ambit of educational planning.

(iv) Programmes and Services: - The organization, the patterns of activities and development overtime.

(v) Aims and Objectives:- The formulation, the expectations and aspirations, the expected outputs are parts of educational planning interests.

(vi) Alternative Decisions: - The preparation, which enables policy makers to make rational choices is an integral part of educational planning coverage. Ogunode, Gregory & Abubakar, (2020) also disclosed that educational planning covers the sub-component of the educational system like manpower planning, school plant planning, infrastructural facilities planning, academic planning, lesson planning, financial planning for schools, etc.

Ogunode, Gregory & Abubakar, (2020) observed that there are many factors that determine the effectiveness of educational planning and some factors include; the attitude of the political office holder toward educational planning, the funds available for planning of education, the planning tools available, the number of educational professional planner, the level of capacity development for educational planners and political stability. Educational planning covers planning of the early child education, basic education, junior secondary education, senior secondary education and the higher education. Education administrators also plan for special education, gender education, mass education, adult education and science education, etc.

Concept of Primary School Planning

Planning of primary school entails the act of outlining the objectives and programme of primary school and strategically identifying the means of realizing the set objectives and goals. Planning of primary school implies the processes of defining the future programmes, policies and objectives and systematically outlines the various resources that will realize the programmes, policies and objectives of the primary school within a time frame. The objectives of planning of primary school educational are to achieve the aims and objectives of primary education. Planning of primary school education is a key to effective implementation of primary school education in Nigeria. The effective implementation of primary school education depends on effective planning. Primary school education must be given maximum planning in order to realize its objectives. Failure to plan systematically is the beginning of implementation problems.

The importance of planning primary school education include:

a. to ensure smooth implementation of the plan;

b. to reduce educational wastage;

c. to ensure effective allocation of resources;

d. to ensure delivery of quality of primary school education.

e. to ensure adequate provision of manpower and infrastructural facilities

Problems facing Planning of Primary school in Nigeria

The primary school education faces many planning problems. These problems include: inadequate planning fund, shortage of professional planners with specialization in primary school planning, shortage of data, corruption; political instability, poor capacity development of planners, policies instability, inadequate planning tools and political influence.

Inadequate Planning Fund

Inadequate planning fund is a very big problem facing the planning of primary school education in Nigeria. The allocation for planning of primary school education in Nigeria is inadequate. It has been observed that the general budgetary allocation for the administration of primary school in Nigeria is inadequate. It is below the 26% UNESCO recommendation for educational administration for the developing countries like Nigeria. Supervision, monitoring and planning sub-sector of education gets their allocation from the general allocation for the entire educational sector which have been described by Ogunode (2020) as inadequate for implementing primary school programme and policies. The poor funding of primary school education in Nigeria is affecting the supervision, monitoring and evaluation and planning of the primary school education. For Noun (2007), another related problem that is encountered in the process of educational planning in Nigeria is that of economic constraints. Adequate allocation of resources is necessary for a successful implementation of educational programmes. However, due to political consideration and the high rate of inflation, educational programmes in the country have

been unrealistic in relation to resources. The planner underestimates the cost of such programme and continues to overestimate the anticipated revenue with which to execute the plans. This situation had been worsened by the worldwide economic recession.

Shortage of Professional Planners with Specialization in Primary School

Shortage of professional planners with specialization in primary school planning is another problem facing the planning of primary school education in Nigeria. The number of educational planners graduating in the Nigerian higher institutions with specialization in the primary school education is limited and is affecting the planning of primary school education in the country. Noun (2007) observed that lack of sufficiently well trained personnel in the planning units of the

Ministries of Education is another problem. These units require people with the ability to carry out project development in the educational service in order to realize the goals set by the planners. The units in the Ministries therefore lack specialist such as educational planners, statisticians, programmers, and analyst, who could effectively develop and ensure successful execution of plans. This is partly as a result of the rigidity of the educational system which is not responding adequately to the need to place people who are trained in educational planning in the appropriate position. The wrong notion that anyone who has served in the Ministry of Education for a long period could automatically occupy such planning Units in the Ministries where there are directors of planning as people who just rose through the ranks with no cognate experience in the skill of planning. In addition, the few available specialists who are employed in the planning divisions of education sometimes opt for the private sector as a result of the poor conditions ofservice offered in the Ministry. According to Adeyemi and Oguntimehin (2000), there are not enough experts in Nigeria on educational planning. There are small units in the ministries of education which are responsible for educational planning. These units are often staffed with educational officers who rose from the rank. Almost all of them have no formal training in educational planning and statistics. They can rarely use the information gathered to interpret the educational

situation of the country for proper planning of educational reform to improve educational quality.

Inadequate of Data

Inadequate data is another big problem facing the planning of primary school education in Nigeria. British (2014) observed that access to reliable and complete information on education in Nigeria has for a long time proved difficult. The development of a national database for education statistics has been slow and various data generating agencies (including the Federal Ministry of Education, Universal Basic Education Commission, National Population Commission and National Bureau of Statistics) often used different sample designs, methods of data collection, analysis and reporting, different modes of disaggregation and definitions of indicators. The absence of rudimentary data at school and local level in many areas is often viewed as a crisis, inhibiting the development of effective education planning, monitoring, programming and policy-making. Educational data for planning education in Nigeria are statistics of schools (number, size, location, available facilities and equipment), staff and teacher statistics (number, sex, age, teaching subject, qualification, position or grade), pupil statistics (number, sex, age, level and grade), finance statistics (income, capital expenditure, recurrent expenditure), (Akinwumiju, 1995; Raji, 2016), stock statistics (enrolment by age and level), flow statistics (promotion rate, repetition rate, drop-out rate, transition rate, admission rate) has as its basic source, school records like the admission/withdrawal register, attendance register, log book, salary/financial records, inspection record, report book, duty roaster etc, although it is usually compiled by education authorities like the Ministry of Education for planning. The process of educational planning in Nigeria is also hampered by the critical problem of inadequate statistical data. For any meaningful planning to be carried out, statistic is very crucial. However, so reliable census has been conducted in country (Noun 2009).

Corruption

Corruption in the ministries and department of education is another problem facing the planning of primary school education in Nigeria. Corruption has

penetrated the Nigerian educational institutions. Funds released for the programme like planning, supervision, monitoring and evaluation and projects have been looted or mismanaged by some officers or administrative within the ministries and department of education. Corruption has penetrated the ministry of education. Funds made available for planning have been diverted by officers working in the various agencies and department handling planning of education. Corruption is one of the biggest challenges preventing the effective planning of education in Nigeria. Ogunode, (2021) and Gbenu, (2012) observed that high level of corruption and wastage of resources in which the limited fund made available is diverted into personal purses and sometimes used for projects not budgeted for. Transparency International says 66 percent of the money Nigerian governments allocate to education is stolen by corrupt officials. Premium times, (2020)reports that corruption is commonplace in education systems across the Economic Community of West African States (ECOWAS). "This affects education access, quality, inclusion and learning outcomes with devastating consequences, not only for national economic growth but also for the life chances of children, their families and communities," the report said. The report highlighted "Resource misallocation, corrupt procurement, exchange of sex for grades, examination malpractices, fake qualifications, teacher absenteeism, and corrupt recruitment practices" as the various corruption risks and challenges facing education systems in all the countries.

Political Instability

Political instability is another problem facing the planning of primary school in Nigeria. The problem of politics also includes administrative instability. Most times, what is obtainable is that new administration comes in with another style of decision-making and therefore, already formulated plans as well as those in the formulation process are disrupted or discontinued. Political instability is a very serious problem facing the development of planning of primary school education in Nigeria. There is a high level of political instability in the political system of the local government in Nigeria. Majorities of state conduct their local government election every two years, which

is directly affecting the planning of primary school education. At the primary school education, micro-planning is done and the political instability is affecting the programme micro-planning. Ogunode (2021) argued that political instability is another problem preventing effective planning of education in Nigeria. The Nigerian political structure and system is designed for change of government on every four. The changes in government affect planning processes because different political party have their different agenda and programmes. Ololube, (2013) & Ogunode (2021) observed that the existing political arrangement has influenced the control over educational planning in Nigeria. Political instability has had its toll on educational programmes. Planning process started by one administration is brutally interrupted by the next, and the differences between federal and state government education policies are quite challenging. Noun (2007) observed that political instability in the country also disrupts planning and the implementation of educational programmes. For instance, the constitutional crisis of 1953, the military coup d'état of 1966, 1976, 1983 and 1985, coupled with the protracted Civil War of 1967-70, have all disrupted the process of planning and the continuity of educational plans in Nigeria. As a result of such a political crisis, some plans that have reached advance stages were abandoned while others were hurriedly introduced. The impact of these unsettle political conditions was felt in three major ways.

Poor Capacity Development of Planners

Poor capacity development programme of educational planners presently working in the local education authority departments is affecting the planning of primary school education. Many educational planners since employed in the services of the local education authority as planning officers have attended none capacity development programme to improve their planning knowledge and skills. According to Fabunmi (2004) "most of the planning officers are not trained in educational planning. Most of them studied disciplines in humanities, thus, they are not suitable for the task they are performing. How can a specialist in history be asked to plan education.

Inadequate Planning Tools

Inadequate planning tools are another problem facing the planning of primary school education in Nigeria. The majorities of local education authority departments handling the micro-planning of the primary school education do not have adequate planning materials. Many educational planners working in the department of a primary school in local education authority do not have planning tools to work with. Noun (2007) submitted that another important constraint of educational planning in Nigeria has to do with inadequate planning tools. Such as calculating machines, computers and other materials and facilities that are essential for effective planning. It is equally important to note that educational planners in the country are not adequately consulted before policies that are related to education are planned. There is the tendency for them to develop programmes on policies that are not clear to them or that may be difficult for them to justify.

Political Influence

Political influence is another challenge facing the planning of primary school education in Nigeria. It is one of the factor preventing the development of educational planning in the aspects of primary schools in Nigeria. Political office holders and politician influence planning programme to favour their interest and political agenda. Noun (2007) observed that the process of educational planning in Nigeria faces a lot of constraints. One of such is the political constraints. Educational Planning is based on the ideology and the policies of the government. Sometimes, such policies are made without giving adequate consideration to their implications. As a result, the planner is often requested to plan base on policies, which might be difficult or too expensive to implement under the prevailing circumstances and the available resources. To this effect planners often prepare unrealistic plans or face a situation whereby his plans are rejected by the approving body.

Way Forward

The following were put forward as recommendation to solve the problems identified in the paper:

1. The government should ensure educational data are generated constantly in the country to make planning easy for educational planners.

2. The government should increase funding of the entire educational sector and allocate more funds to planning agencies and departments in the country;

3. The government should motivate educational planners and provide for their working tools like calculating machines, planning software and computers in their offices to aid effective educational planning in the country.

4. The government should employ more professional planners and deploy them to the ministries, departments and agencies that need more hands in planning activities;

5. The government should monitor funds released for planning programme in all the ministries, department and agencies to avoid been diverted to private hands by officials in the ministries.

6. The government should develop a model that allows participation of all political actors in the country to participate in policy formulation and project planning so that the exit of one political party from office will not stop the implementation of the plan already done.

7. The politicians and political actors in the government should allow the educational planners to do their work professionally and should avoid to influence their planning document to favour more allocation to their constituencies.

8. The government should ensure educational planners working in the ministries, agencies and department of education should be trained constantly to boost their planning capacity. Training on forecasting, projection and planning methods should be emphasized.

Conclusion

In conclusion, this article discussed the concept of primary school education, educational planning, planning of primary school education. The paper established that planning of primary school education is key to effective implementation of primary school education in Nigeria. The paper identified;inadequate planning fund, shortage of professional planners with specialization in primary school planning, shortage of data, corruption, political instability, poor capacity

development of planners, policies instability, inadequate planning tools and political influence as the problems facing the planning of primary schools education in Nigeria. In order to solve these problems, the paper recommended that: adequate funding of planning of public primary schools, employment of professional planners, provision of materials, generation of current educational data, political stability, policy stability and corruption should be fought in the ministries and agencies of education.

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Role and Importance of Ergonomics in Providing Safety of Work

Kurbonov R.U, Normurodov A.R

Teachers of the department "Technology of construction production and its organization"
of the Samarkand State Architectural and Construction Institute

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Abstract: The article examines the analysis of one of the current problems - the causes and consequences of the occurrence of factors that have a negative impact on the health of workers employed in the production process, an idea of the methods and means of ensuring safety and the efficiency of work is given.

Keywords: Ergonomics, safety, optimization, Occupational safety standards system, "man-machine-environment", technology, anthropometric indicators.

INTRODUCTION

Activity is a human-specific type of behaviour that aims to improve and modify the environment around us for the better. Labor is the highest form of activity. Labor can be described as the process of expending human labor power by linking the tools of labor with an object and transforming it into a useful output in an intentional and expedient manner (product). The main function of labor as a system is the production of consumer values. Therefore, any work is essentially productive work. But labor also has other functions related to preparation and organization, organization and optimization, process efficiency, storage and production, environmental protection. Thus, labor is a multifunctional system. This system is the subject of ergonomic research.

In any work, a person carries a muscular, mental and nervous load. But as production develops, labor conditions, the role and place of man in the labor process change, and with them the evolution and physiology of labor change. It is quite obvious that in the design, implementation and operation of systems "man-machine-environment" should take into account the real capabilities of the person who is to work in the system. An ergonomist must clearly understand the amount of permissible physical, intellectual, emotional costs that will be required to work with a specific technical system, and in accordance with this, adjust the actions of its creators: development engineer, designer, technologist.

Work safety is one of the main goals of ergonomics. In accordance with labor law, labor protection is guaranteed by a set of legal norms that establish a system of measures directly aimed at ensuring healthy and safe working conditions. The safety management system includes safety and industrial sanitation services in all sectors of the national economy. Supervision and control over compliance with the rules on labor protection is carried out by specially authorized state bodies: State Municipal Technical Supervision, State Energy Supervision, State Sanitary Inspection and others. In addition to them, this work is carried out by trade unions and the technical labor inspectorate under their jurisdiction. The supervision and control service relies on scientifically grounded, experience-tested technical requirements, which, of course, ensure the safety of workers.

In the process of development of production, the conditions, nature and content of human labor change significantly. On the one hand, wider opportunities open up for facilitating labor, freeing a person from performing monotonous, laborious manual operations. On the other hand, the rapid growth of energy, speed and other parameters of technology, an increase in the level of automation of technological processes (especially with incomplete or incomplete automation) lead to the emergence of new factors that adversely affect the human body. These include limitation of general mobility, uneven muscle load and increased labor intensity, due to the monotony of the actions performed with high requirements for the level of mental activity of a person. The negative impact of new features of the nature of labor is often aggravated by the presence of harmful factors in the working environment - intense noise, vibration, unfavorable microclimate, dust, toxic substances, etc. significant moral and material losses, the more significant, the more complex the technique and the more diverse the relationship of a person with it. Therefore, the achievements of technological progress associated with the intensive re-equipment of production, the creation of new and improvement of old technological processes and equipment, the widespread introduction of complex mechanization and automation into industry can be successfully implemented only with a sufficiently complete account of the nature of the increasingly complex connections between man and machine.

This makes it necessary to fully take into account the capabilities of a person, his physiological, anthropometric, psychological and other properties both when designing tools of labor and when designing labor activity as a whole. The trends in the development of modern production are such that the main design difficulties are probably related to the search for ways and means of optimal interaction between man and technology. In recent years, the distribution of the causes of accidents in industry has changed. So, among the causes of severe accidents, 22% are caused by violations of the technological process by workers themselves, 19% - by gross violation of safety rules for victims, 16% - by poor organization of the workplace, 7% - by equipment malfunction and 4.3% - by poor training. Subjective causes of injuries in industry (human errors) began to dominate over objective ones (equipment malfunctions). The activity of a human operator has become so complex that it is in its organization and execution that the main causes of dangerous errors leading to injury have been concentrated. In many cases, the actions of a human operator are dangerous due to the impossibility of their correct and timely execution, due to the fact that the human factor was not taken into account in the design of technical devices.

The emergence of complex types of labor activity, especially in recent years, requiring a quick reaction, perception and other mental processes, led to the study of the psychological characteristics of labor. Human activity in the "Man - Machine Environment" system is the same subject of study and design as its technical part. The ergonomist should take into account:

➢ the ability of human mental processes to receive, process information and make the right decision in the specific conditions of the functioning of the system "man-machine-environment";

➢ the mental properties and characteristics of the operator, manifested in a tendency to more or less risky behavior;

➢ their ability to work in states of fatigue, emotional stress, mental tension, monotony, etc.

Materials and Methods

Ergonomics studies the problems of optimal distribution and coordination of functions between a person and a machine, designs the process of human activity, justifies optimal requirements for the means and conditions of activity and develops methods for taking them into account when creating and operating equipment controlled and maintained by a person.

The ergonomic assessment of the "man - machine-environment" system can be carried out by a differentiated method, in which separate ergonomic indicators are used, or by a complex method, in which one generalized ergonomic indicator is determined. The system is evaluated by a differentiated method using group indicators determined one by one for each of the ergonomics sections. Each of the group indicators combines a group of single ones.

There are five groups of ergonomic indicators that form the composition of ergonomics:

➢ anthropometric;

➢ hygienic;

➢ physiological;

➢ psychophysiological;

➢ psychological.

➢ The main goal of ergonomics is focused on:

➢ efficiency of the "man-machine-environment" system;

➢ work safety of the "man-machine-environment" system;

➢ creating conditions that ensure the development of the personality of the human operator.

The composition and structure of ergonomics consists of an anthropometric indicator, which regulates the correspondence of the machine to the size and shape of the working person's body, the distribution of his body weight, the mobility of body parts and other parameters. However, the information given in anthropometric reference books can serve only for the first, rough estimates of the dimensions of the designed product. Moreover, when designing a product, it is unacceptable to use anthropometric data from other countries due to their significant difference. The hygienic indicator characterizes the hygienic conditions of human life and working capacity during its interaction with the "man-machine-environment" system. It involves creating normal meteorological microclimate conditions in the workplace and limiting the impact of harmful environmental factors (light level, ventilation, humidity, dust, temperature, radiation, toxicity, noise and vibration, etc.). Exceeding the permissible limits for these indicators can threaten the life and health of a human operator, cause "difficult" mental states that reduce his performance. It is known, for example, that the optimal ambient temperature for human work is 18°C; when the temperature rises to 25°C, physical fatigue begins and signs of deterioration of the mental state appear (irritability,

tension, etc.); at Z0°C, mental activity worsens, reactions slow down, errors occur; the temperature is about 50°With the operator can transfer within one hour. [4] Ergonomists distinguish comfortable, relatively uncomfortable, extreme and ultra-extreme external working environments at the operator's workplace.

A comfortable environment ensures optimal dynamics of the operator's performance, good health and preservation of his health. A relatively uncomfortable environment, acting for a certain period of time, ensures a given efficiency and preservation of health, but causes unpleasant subjective sensations and functional changes in the human operator that do not go beyond the norm. Extreme working environment causes a decrease in human performance and causes functional changes that go beyond the norm, but do not lead to pathological disorders. A super-extreme environment leads to the appearance of pathological changes in the human body and (or) to the inability to perform work.

Physiological and psychophysiological indicators characterize those ergonomic requirements that determine the correspondence of the "man-machine-environment" system to power, speed, energy, visual, auditory, tactile, olfactory capabilities and human characteristics. At the same time, in the design process, it is necessary to clearly represent the age, sex, psychological and other characteristics of the operators of a particular system "human-machine-environment". On the basis of numerous experimental data, for example, the ergonomic requirements of Interstate standard 21829-88 "Coding of visual information" were formulated, according to which the minimum permissible brightness of color signs should be 10 cd / m2, the recommended value is 170 cd / m2, the optimal angular value of a color mark, etc.

The ergonomic requirements of Interstate standard 21752-86 "Control handwheels and steering wheels" follow from the experimentally established maximum arm forces at various angles of bend at the elbow. For example, with the extended right hand, the operator can pull the handle with a force of up to 22 kg, push from himself-up to 20 kg, squeeze up - up to 5.5 kg, pull down-up to 7 kg, and etc. During the design process, it is necessary to clearly represent the age, gender, psychological and other characteristics of the operators of a particular "man-machine-environment" system. So, with age, sensitivity to light sharply decreases: the need for illumination in a person of 30 years of age is twice, in a 40-year-old three times, and in a 50-year-old six times more than in a 10-year-old. It follows that if a 30-year-old operator has enough illumination of 1000 lk for the most accurate

perception of details, then a 50-year-old needs about 2000 lk to create similar conditions. [6] A psychological indicator that reflects the machine's compliance with the capabilities and features of perception, memory, thinking, psychomotor skills, fixed and newly formed skills of a working person, the degree and nature of group interaction, the mediation of interpersonal relations, the content of joint management activities of the "man - machine-environment"system.

The analysis of many operator errors that lead to stops or accidents of the "man - machine-environment" system shows that 50% of them are based on an underestimation of the psychological group indicator, 22% - psychophysiological, 6% - physiological,19% - hygienic and 3% - anthropometric. This determines the prevailing volume of psychological research in the process of ergonomic study and evaluation of industrial products and their great influence on the composition and structure of ergonomics.

Ergonomic requirements are provided for by relevant regulatory documents, most often standards. Standardization is the best way to effectively implement the results of ergonomic research into production practice, which ensures the breadth and scale of such implementation. The standards have the force of law, and this guarantees that ergonomic requirements must be taken into account when designing buildings, equipment and technological processes.

Standardization in the field of ergonomics is organically connected with the System of Occupational Safety Standards (SOSS). Currently, more than 250 standards of this system have been put into effect. Many of them contain the requirements of ergonomics. Examples are Interstate standard 12.2 009-80, Interstate standard 12.2 031-78, Interstate standard 12.2 046-80, which include requirements for controls and information display tools for metalworking machines, woodworking, printing equipment, as well as equipment for the textile and light industry, foundry production, etc.

Results

It should be noted that ergonomics finds in standardization an effective means of managing the design and creation of equipment and the conditions for its functioning, so that they ensure high efficiency of human activity and at the same time contribute to its comprehensive development, provide comfort and safety, preserve its health and efficiency.

Ergonomics, exploring the relationship between the components of the human-machine system, serves not only

to increase the productivity, reliability and efficiency of technology, but also contributes to achieving the necessary social results - preserving people's health and personal development in the process of work, increasing the content, efficiency and quality of human activity wherever a person has to come into contact with technology. In other words, ergonomics plays an important and increasing role in ensuring occupational safety by creating convenient and reliable equipment in operation.

As mentioned above, ergonomics is not only influenced by the sciences associated with it, but it has already begun to influence them in the field of theory, methods and practice. The most pronounced influence of ergonomics on those sections of related sciences that relate to human labor activity and mainly to their applied aspects. In this sense, ergonomics is related to the scientific organization of labor, which implements ergonomic requirements in the current production.

Conclusion

The optimal use of technical means by a person in line with their purpose is determined by a sensible combination of human capabilities and machine characteristics, as well as the corresponding distribution of functions within the system. The application of ergonomics data and the completion of the researcher's tasks in the design, creation, and operation of various types of technical systems and machines contribute to the achievement of high production efficiency and the creation of safe conditions for human activity. Ergonomic research and the implementation of their results in various areas of industrial production, construction, transport, energy, agriculture can achieve a tangible socio-economic effect, lead to a significant increase in labor productivity and improve the quality of

industrial products at relatively low costs. At the same time, taking into account the human factor turns from a one-time resource into a permanent and significant reserve for increasing the efficiency of social production.

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Integrating Artificial Intelligence in Information Warfare

Dr. Taha Shabbir
(tahashabbir51@gmail.com)
Assistant Professor FUUAST, Karachi

Saeed Memon
(memonsaeed1983@gmail.com)
MPhil Student ASCE, Karachi

Dr. Sabir Ahmed
(drsabir@greenwich.edu.pk)
Assistant Professor, Greenwich University, Karachi

Bilal Sheikh
(mbs.techy@gmail.com)
PhD Scholar, Edith Cowan University, Australia

Dr. Kehkashan Naz
(kehkashan.naz@fuuast.edu.pk)
Assistant Professor & Incharge FUUAST, Karachi

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ABSTRACT

Little advancement in science and technology offer as much promise for humanity's future as the collection of computer science-enabled skills referred to as artificial intelligence (AI). AI has the potential to improve the health and well-being of people, communities, and nations, as well as to help in the achievement of the United Nations' Sustainable Development Goals (SDGs) agenda for 2030. However, like with previous breakthrough breakthroughs, AI applications have the potential to undermine international peace and security, particularly when integrated into the tools and systems of state military. In recognition of this, UN Secretary-General António Guterres' disarmament agenda, Securing Our Common Future, emphasizes the importance for UN member states to gain a better understanding of the nature and implications of emerging technologies with potential military applications, as well as the importance of maintaining human control over weapon systems. He underlines the growing importance of conversation between governments, civic society, and the commercial sector as a supplement to current intergovernmental mechanisms. This is especially true for AI, which, as an enabling technology, is expected to be incorporated into a wide range of military applications yet is now being researched primarily for non-military, predominantly civilian, uses. Nothing has been accomplished from the perspective of a developed country such as Pakistan. If data's use as a foundation for reporting and storytelling grows, it is critical to find responses to concerns about the use or misuse of data, the skills needed to do so, data journalism platforms and instruments, and potential newsroom changes. This research aims to answer the concerns from Pakistan's perspective. Additionally, it addresses the intellectual turns that Big Data and data journalism take in collecting, processing, explaining, interpreting, and representing reality.

Keywords: Robots; Big Data; Digital Media; Fifth Generation Warfare; Bots, Investigation.

1. INTRODUCTION

Since the conclusion of World War II, the character of war has changed dramatically. Battle boundaries have grown more blurred; an assault might come from terrorists dressed as civilians, from drones that are imperceptible to the naked eye, or from ballistic missiles fired 500 miles away. To account for the increasing lethality of conflict, maintaining an active duty army requires a significant expenditure. The cost of enlisting a soldier is $15,000; the annual cost of treating one wounded US soldier is around $2 million (Bilmes, 2014). Our objective is to explore if it is feasible to lower these human expenses by deploying computational agents and artificial intelligence (AI).

Robots capable of comprehending their environment and coping with novelty in an open world may be a realistic answer. AI will reign supreme in the next great conflict! The winner will be determined by robots that are faster, stronger, and more precise. However, such battles may be unavoidably and unprecedentedly destructive, maybe to the point of global technological catastrophe. Such powerful technology, however, should not fall into the hands of the immoral or evil.

Since World War II, robots (or other types of intelligent agents) have been used in combat. Numerous early robots (such as the US's 'Aphrodite' drones or the Soviet Union's tele-tanks) were either useless or limited to specialized missions. The use of robots in military operations began in the 1990s, when the Central Intelligence Agency began using the MQB-1 Predator drone (CIA). Rather of commanding drones carefully through close-up radio signals, drones "may be commanded remotely from any command center to fill intelligence gaps" (Gotera, 2003). Although

significant progress has been made in making robots intelligent, autonomous robots continue to "lack the flexibility to respond correctly in unexpected circumstances" (Nitsch, 2013). If autonomous robots are utilized in the battlefield, troops' duties will increase, not decrease. Soldiers will be expected to undertake routine military activities and to make use of robotic assets as required by the mission (Barnes et al., 2009).

According to studies, adding a second robotic duty to a soldier's inventory degrades their effectiveness in the battlefield. Chen and Joyner (Chen et al., 2009) performed a simulated experiment to determine if gunners could maintain local security while operating a semi-autonomous unmanned ground vehicle (UGV). According to the findings, "a gunner's target identification performance dropped dramatically when he or she was required to monitor, control, or tele-operate a UGV simultaneously with the gunnery task" (Barnes et al., 2009). The researchers assessed participants' abilities to detect equipment and individuals while driving an unmanned ground vehicle. The researchers conducted their studies on a 1/35 size model of an Iraqi metropolis. Similarly, the findings suggested that "adding an extra semiautonomous robot did not provide any benefit to participants." It exacerbated their issues in certain cases".

These kind of research demonstrate that context awareness (in the military, referred to as situational awareness —SA—) is critical for intelligent computational entities. Contextualizing an agent, on the other hand, is significantly more difficult than automating a manual or repetitive operation. One of the most difficult aspects of building validated and verified SA is identifying unknown things. Frequently, military operatives detected an improvised explosive device (or other

form of risk) only on the basis of a visual inspection. Operators depend on their prior experiences to detect tiny indicators such as uneven soil texture or the absence of a vehicle. If an agent can aid troops in recognizing risks using contextual data in a similar manner, robotic agents will be significantly more successful on the battlefield. We give soldier factors believed to be conflict contextual factors, including paralinguistic, demographic, visual, and physiological factors.

1.1 Artificial Intelligence Trends in Media

In Latin, the term 'data' means 'giving' in the context of truth. A definition of anything that can be registered, examined, and remembered is referred to. It is possible to count something countable as details. Anything processed by a machine is knowledge. In a general sense, every set of numbers collected on a spreadsheet is 'information.' If it is massive in length, large in velocity, diverse in Scope, and reflects veracity, a data collection will be known as 'big data.' There are fresh frontiers of possibilities to grasp, evaluate, perceive, and reflect the truth at the core of the four Vs. Big data is more about discovering a trend in the course of behavior, challenges, incidents, and other societal structures at its heart. It's about seeking ties, relations with the individuals around us, and connections with people's conduct and effects. It is a reality regarding the actions of people regardless of their views. It's about the behavior of clients, workers, and opportunities for a new venture. Big data can come from items such as mobile phone location data or credit card punch and things people write on Facebook, check on Google, or update on Twitter. So, it's gradually more about people's actual actions. Scientists may say an incredible lot about an individual by examining the results. They

will tell if the person can pay back bank loans, get some injury, or participate in illegal behavior. They can do this because their social history primarily determines their feelings, attitudes, and behavior. Suppose one element of the actions of a person is known. In that case, the others may be expected by observing and contrasting the participant in their social contacts to the individuals. And in the surrounding social fabric, individuals are so enmeshed that it defines the types of actions they believe are natural and what habits they can absorb from each other. Big data informs us of the ties that cause these incidents. Big data offers us the ability to learn how these human and computer processes function and reliable. Our forms of life and communicating, making choices, and experiencing truth are updated with the advent of information and communication technology. By incorporating a quantitative layer to it, the fundamental element of life is altered, and big data is more about seeing and knowing interactions inside and between pieces of data. It involves utilizing data to create insightful insights into challenges, incidents, and the course of action. The way we perceive and organize culture has been changed. From industry and science to healthcare, economy, schooling, finance, arts, and every part of the culture, the field of big data shakes things up. There is a revolution in the dynamics of companies, the economy, and culture. Big data is always chaotic, ranges inconsistency, and is spread globally through myriad servers.

Accuracy allows data to be carefully selected. Numbers will talk for themselves with enough details. Correctly interpreted data can help make sense and forecast the outbreak of pandemics, environmental disasters, or the likelihood of terrorist acts. Therefore, they can help avoid the spread of illnesses, the loss of resources, and the

loss of life. In the era of datafication, we exist. The capacity to document knowledge is the highlighted area between modern civilizations and advanced societies. The volume of data stored is growing four times faster than the global economy. Facebook knows our likes now, and Amazon will propose the best books, Google can rank the most popular websites, Linkedin determines who we know. More than 4.2 billion people globally use the Internet; Google currently processes an average of 3.9 billion requests every day; Snapchat users upload 602,672 images; users view 5,102,222 YouTube videos; 498,222 messages are shared on Twitter; Instagram users post 51,022 photos every minute; 1.7 billion people are posted on Facebook every day.
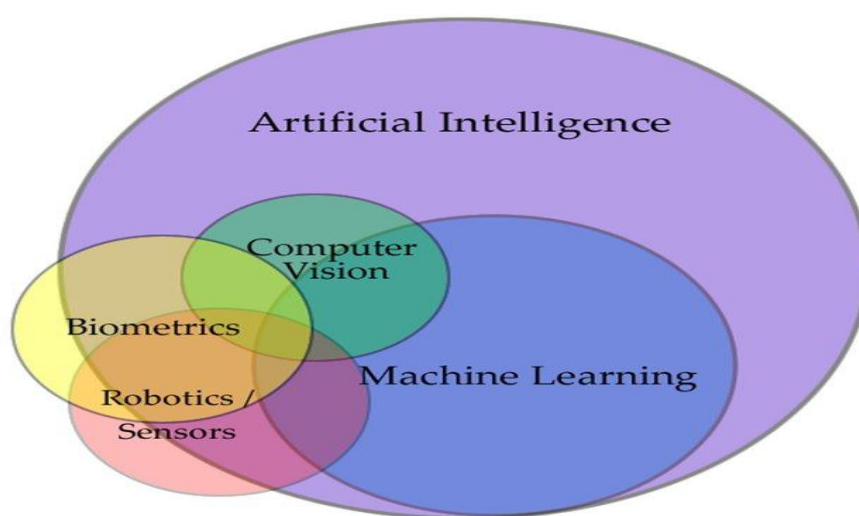
Fig-01: Emerging Tech with AI

1.2 Methodological Framework:

This study is a systematic overview of the literature, and is a rather rigid method of meta-analysis A systematic literature review should aim to "gain perspectives, crucial reflections, prospective study directions, and research questions" and should "contribute to the development of research paths and questions by offering a basis on which to draw on prior findings". Additionally, systematic literature reviews serve as a foundation and rationale for new study, as well as offer the "context for developing research synthesis" for more advanced fields of research. Systematic evaluations use a 'replicable, scientific, and open method [...] with the objective of minimizing prejudice'. Though they are founded on a 'positivist, quantitative, form-oriented content analysis approach for evaluating literature,' they often make extensive use of hermeneutic and interpretive approaches, especially when generating perspective and critique. In this sense, the object of criticism is to "oppose the predominance of taken-for-granted aims, concepts, philosophies, and discourses."\

2. SCOPE OF ARTIFICIAL INTELLIGENCE

One of the primary determinants of a state's international standing is its military might. Military capacity, as defined by the United States

Department of Defense, is "the capacity to accomplish a specific combat goal (win a war or battle, destroy a target set)." Structure, modernization, preparedness, and sustainability all contribute to military capacity. Modernization is primarily determined by technological sophistication, weapon systems, and equipment. A conventional conflict reminiscent of the Second World War is gradually sinking into obscurity and disappearing into cyberspace. According to studies, cyber assaults on private businesses and government entities have become a routine occurrence. According to academics, artificial intelligence (AI) and advanced automated systems will become an integral part of future military engagements. The majority of contemporary AI algorithms, for example, AI algorithms for natural language processing, need a vast quantity of data. They can function more effectively, efficiently, and effectively, but they cannot do so without access to enormous databases. The availability of large data sets and the rising computational capacity of computers have facilitated the growth of this discipline of inquiry. Nowadays, interest in neural networks continues to grow, as evidenced by an analysis of recent scientific publications on a variety of topics—development of ITS (Intelligent Transportation Systems), prediction and evaluation of atmospheric phenomena, and the ability to distinguish between information tweets (containing relevant facts) and non-information tweets (containing rumors or non-detailed information). AI algorithms may be employed in the military sector for a variety of purposes, including voice recognition systems and object identification and identification.

Meanwhile, data journalism is about combining data-driven perspectives with modern data richness and computational techniques. By diligent use of algorithms, calculation, and quantification, the insight is obtained. The data journalism method includes access to or creation of organized data sets, utilizing the data sets for story analysis, addressing the source of data/data in a written article, supplying readers with raw data along with the story. This means finding out how to get the details, comprehend them, and find the plot. However, there is a big difference between 'evidence' and 'plot.' A source of knowledge is data itself. A journalist must go through a procedure to collect details, typically first sweeping up messy formats, structuring and organizing the data into a readable structure until it can be visualized. The story is an immersive mode of communication in which data is placed into a sense that can be interpreted, recalled, shared, and told to others. To say tales, data reporters use massive libraries, infographics, data analysis, and virtual visualization. It is about uncovering the facts through the mining of knowledge that the public does not have enough resources and expertise to do itself, challenge it, analyze it, make sense of it and discuss it with the viewer. Data journalism is about searching for everything about a news subject that is categorizable, quantifiable, and comparative. It may also be interpreted as the media's effort to adjust and react to developments in our content climate, including increasingly immersive, multi-dimensional storytelling, empowering viewers to discover the sources behind the news, and engaging in the story production and appraisal phase. We live in a world steered by data. All about the human operation is knowledge, including toilets. The most critical data is accessible from banks, telecommunications providers, drug companies, marketers, insurance companies, and national security agencies. Tectonic developments are taking place with the exponential growth in technology in facilities such as personal recommendations, password-free

identification certification, private and public transit services, wellness, and so on. We leave digital traces each time we send a post, make a call, or complete a transaction. Surveillance, biometrics, automation, data are creeping, or customer behavior is profiling present news monitoring with possibilities and obstacles. Data will be used to give more in-depth perspectives about what is going on around us and how it might affect us. Data will allow journalists with the insight and data they need to make sense of the significant problems of the day by asking viewers what has occurred. It will give us unparalleled Scope to consider our culture and enrich the way we live and operate if the data is used wisely and correctly. Data can strengthen a complicated narrative; it can enable journalism to speak the truth to authority. Data will help tell stories in more convincing and creative ways, coupled with conventional reporting methods, and provide actionable knowledge to people. A data journalist may allow his or her viewers to make sense of the government's policies, whether useful or struggling

3. LITERATURE REVIEW AND HISTORICAL BACKGROUND

In media, the news is a 19th-century innovation. A crucial inquiry into the past and models of journalistic practices shows that two values are guided by epistemological journalism: the "story" ideal and the "information" ideal. The idea of saying the "story" is embedded in the narrative form and individual expertise, contextual. The theory of presenting "information" is focused on mathematical evidence, details, statistical research, associations, and trends that are quantitative. A revolution in the view of media, from qualitative to quantitative, has been taking place since the middle of the 20th century. Media is, from a qualitative standpoint, explanatory and interpretative. It tries to clarify the universe instead of weighing it. As human beings are programmed to look for explanations, the origin of the world's challenges and occurrences is found. It first constructs theories to pursue the facts or hits the truth, then gathers specific knowledge to explain it. It deals mainly with terms. Via evaluation and contact with individuals, journalists go to the field to collect knowledge. They log what they learn and then examine and interpret it to illustrate how the universe functions. Traditional media has traditionally been developed around two textual and visual components. In the meantime, computer availability has made it possible to leverage vast volumes of data to open the door to new forms of thinking and discovering the planet. The promises that we trusted in are moving. A change occurs from a world driven by theories to a world driven by evidence—the universe shifts from cause to correlation. However, the use of data in telling tales is not new but is the extension of the ancient pursuit of the human race to quantify, document, and evaluate the environment. Computer-supported news (CAR) is currently what we now term computer journalism. In journalism, the usage of computers goes back to the 1950s. To forecast the presidential race results, the US media company CBS first used Automobile in 1952. It was the first structured and comprehensive method to gathering and processing data utilizing machines to report news stories.

Many journalists have studied public information collections utilizing scientific techniques since the 1960s. Philip Meyer invented the Automobile and the application of social and behavioural science analysis methodology to journalism. Donald Barlett, James Steele, Adrian Holovaty, and Oren Etzioni are the other Automobile pioneers. The word precision journalism was invented to

characterize this method of news collection in the early 1970s. In the nineties of the last century, systematic analysis in data journalism started primarily in the USA. To explain the phenomena, researchers have invented several words. The words include data journalism, data-driven journalism, machine-assisted news, journalism in databases, organized journalism, computer journalism, journalism in databases, etc. Both comments have relatively comparable professional and epistemological origins, sharing stories in quantitative and technological type. Journalism's quantitative modes aim to uncover trends and associations in the data with fresh and invaluable perspectives. The insights offer certainty as to what, not why. The encounters do not inform us precisely that this is going on, but they advise that it is going on. The origin of a phenomenon does not necessarily need to be known; therefore, we should let knowledge speak for itself.

4. DISCUSSION

The increased use of unmanned aerial vehicles (UAVs) – more generally referred to as drones – in both military and commercial contexts has sparked a heated discussion over whether to outright prohibit what some refer to as 'killer robots' (e.g. Future of Life Institute, 2015; Human Rights Watch, 2013; Human Rights Watch and International Human Rights Clinic, 2016). These robots, which might be in the air, on the ground, or in and under water, are theoretically equipped with 'artificial intelligence' (AI) that enables them to carry out tasks autonomously. The argument, which spans several dimensions and stakeholders, centers on whether artificially intelligent computers should be permitted to carry out such military tasks, particularly when human life is at risk. Given the complexities of the subject, a functional definition of artificial intelligence is required. There is no universally accepted definition of AI, even among computer scientists and engineers, but a broad definition is that it is the capacity of a computer system to execute activities traditionally associated with human intellect, such as visual perception, voice recognition, and decision-making. However, this definition is intrinsically simplistic, since the meaning of intelligent behavior is equally debatable. By this definition, a home thermostat is arguably intelligent since it is capable of sensing and adjusting the temperature. This is in stark contrast to artificial intelligence, in which a UAV picks and engages targets without significant human control, as is often assumed for autonomous weaponry.

Recent years have seen a surge in data journalism, with many journalists and news organisations seeing it as a means to improve the systemic, reliable, and trustworthy nature of journalism. This is especially critical in light of the concurrent decline in interest in journalism and media agencies, public attacks on journalists and news organisations, and increased adoption of the concept of objective plurality. Following highly publicized successes by data journalists such as Nate Silver and the launch of data-driven ventures by prominent news organizations such as The New York Times and The Washington Post, as well as digital-native outlets such as Vox, data journalism gained considerable discursive currency and reputational authority – but some of the euphoria has been dampened by highly publicized failures. Nonetheless, news companies continue to invest in (and demand talent for) data journalism, rendering it a rare field of innovation in a sector beleaguered by economic difficulties and attracting academic interest to its epistemological consequences. Though there has been an increase in scholarship on data journalism in recent years, the majority of literature is based

on ethnographic case studies and interviews with data journalists. These works shed light on how data journalism is conceptualized and implemented, but only give a glimpse into the outputs of data journalism. This perspective is critical for determining whether data journalism lives up to the potential celebrated by many academics and professionals, and, more specifically, whether it promotes the journalistic concept of openness and the immersive affordances of online journalism. Indeed,

accountability and engagement – or, more precisely, the understanding of them by increased interactivity – has been praised as potential alternatives to the decline of confidence in news media. Additionally, it is unknown whether data journalism has been more complex than its counterparts, and thus capable of exerting a greater influence on journalism's practice and goods, by dealing with more contextual fields and transcending niches.
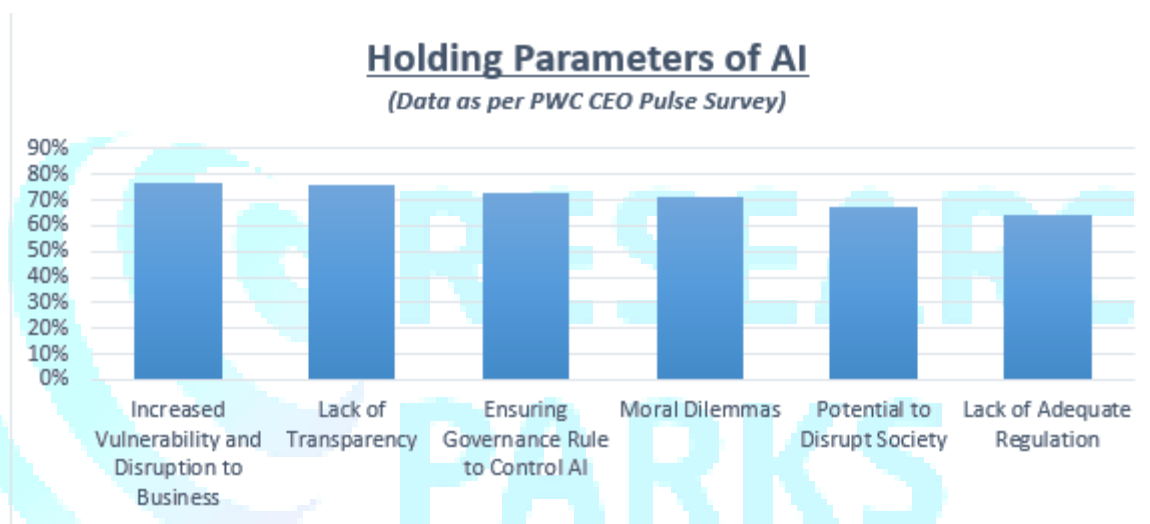
Fig-02: Parameters of AI

Furthermore, scholars have argued that data journalism can undermine long-term confidence and undermine the social contract of journalism by growing reliance on centralized sources through data subsidies. If data journalism's ability as a leap forward and a bulwark against eroding confidence is to be fully realized, its manifestations must be carefully studied. Numerous researchers have recently examined data journalism material, but the majority of their study has centered on submissions to award programs, which reflect ideal-types rather than the

day-to-day work people are subjected to on a daily basis. As a result, scholarly comprehension of what is referred to as "general data journalism" remains minimal, especially in the United States. This article fills the void in the literature by analyzing the characteristics of more common, everyday data journalism provided by The New York Times and The Washington Post in the first half of 2017. It analyzes over 150 data journalism papers for story characteristics related to the principles of transparency, interactivity, diversity, and content provenance. In general, it concludes

that contemporary data journalism is neither straightforward nor collaborative, though it is more complex than its nearest counterpart and perhaps more open to institutional channels and intelligence subsidies. As such, it has a long way to go until it can match the hope and idealization that mark the data turn in journalism in general.

As a consequence of the extensive conversation that ensued, three key topics highlighted for further learning and interaction among member states and other stakeholders were recognized: –

   a) *Possible Hazards of Military Uses of AI:* While there are clearly risks associated with military applications of AI, it is critical not to be too alarmist in addressing these potential threats.
   b) *Possible Advantages of AI in Military Uses:* There is a need to study the potential beneficial applications of AI in the military sector in more detail and to build state-level and multilateral mechanisms for securely capturing these benefits.
   c) *Potential for International Governance of Military Applications of AI:* These emerging technologies present significant challenges for international governance, and stakeholders' primary task will be to devise constructs that balance the trade-offs between innovation, capturing the positive effects of AI, and mitigating or eliminating the risks of military AI.

Skills Required for Artificial Intelligence

The abilities needed by employers to excel are evolving. The primary skill required for reporting today is making sense of big data, mostly unstructured data. In the growing quantity of digital information globally, a data journalist must be able to curate, check, interpret and synthesize the data set, have meaning, transparency, and locate the truth. It does not substitute traditional journalistic skills; however, it takes new skills to find, understand, and evaluate, visualize, and program data. Journalists today need an overlapping collection of competencies taken from multiple areas. They should have experience and information of social sciences' mathematical techniques, GIS mapping software, statistics, and graphic design simulation arts, and a variety of computer scientists' talents that have their work requirements and promotion tracks: web creation, general-purpose computing, database management, device engineering, data mining (even, cryptography). So, today's journalist is a full kit of a statistician, a software engineer, a storyteller, and an infographic artist. Data is so easily accessible and so strategically relevant that information is the terrifying thing to derive insight from it. Overall, since gold may be mined, a goldmine is not worth much. Today, the secret to technical excellence in media is competence in information technology, computer analysis, analytics, and machine learning algorithms. A data journalist should be able to investigate news reports from datasets in making news, build a broader image by linking the datasets, look for trends in issues-events and behavior, examine data behind the stories, connect data to reports, contextualize stories, publish story datasets, and present graphic representation of knowledge in making news. Also, a data journalist should have the following skills: the ability to differentiate between 'data' and 'plot'; literacy in statistics and computation; the ability to recognize precisely how the quantification method works in society; the ability to mix technical and journalism skills; the ability to locate data to justify stories; the ability to find story suggestions by data analysis; the capacity to operate with complex datasets.
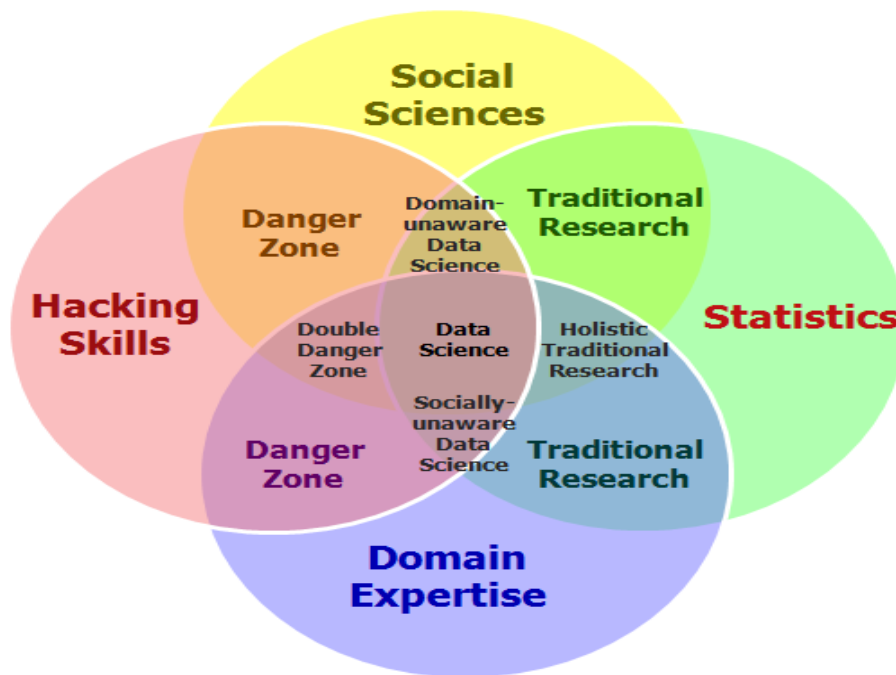
Fig-03: Integration of AI with other Fields

5. CONCLUSION

The submission's objective was to highlight the primary applications of artificial intelligence algorithms in the military sector, particularly in object identification, cybersecurity, robotics, and logistics, as well as to explore their influence on people's feeling of security. The article briefly presents well-known neural network methods in novel, unconventional applications. The authors want to emphasize the enormous popularity of neural networks, which is growing daily as a result of the capability of learning from large datasets. This is true for commercial, scientific, educational, and simply amusement purposes. The popularity of programs such as AIE demonstrates the critical nature of this branch of study. As research indicates, individuals continue to be fearful of the potential consequences of new technologies. This is reasonable, given the fact that even specialists disagree on the future and growth of artificial intelligence. As Prof. Stephen Hawking put it, "the development of strong AI will either be the finest or worst thing that humankind has ever experienced."

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Innovative Teaching Methods

Maxmudjanova Diana Kahramonovna.

1-st year student of Samarkand State Institute of Foreign Languages

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Abstract: Innovative teaching methods make it possible to form the experience of students' creative and innovative activities, which ultimately affects the competence of the future specialist. The essence of innovation in teaching, the innovative teaching methods themselves, in our opinion, is also determined by their dynamism and activity.

Keywords: modern technologies, innovations, methodology, creativity, creative interaction, ATM

Introduction

The traditional education system lags somewhat behind the needs of society. The concept of modern education has determined the goal of the teacher's professional activity - to form students' ability to successfully socialize in society, actively adapt to the labor market. The consequence of this is the development of innovative technologies in teaching. Innovative methods are characterized by a new style of organizing educational and cognitive activities of students. Modern teachers recognize that the technology of problem-based learning presents the maximum opportunities in the development of creative abilities and intellectual activity.

Innovations in education are called transformations and revolutions in the content of education, the forms and methods of teaching, in the teacher-student relationship and the use of information technologies for teaching, the introduction of new equipment in the organization of the educational process.

Innovative technologies make it possible to realize one of the main goals of teaching the Foreign language and literature, to provide an opportunity to move from studying a subject as a systemic and structural education to studying it as a means of communication and thinking, and transfer educational and cognitive activities to a productive and creative level.

The features of innovative learning are:

- working ahead, anticipating development;
- openess to the future;
- constant hesitation, in other words, the unevenness of the system, in particular the person himself;
- the focus on the personality, its development;
- mandatory presence of elements of creativity;
- partnership type of relationship : cooperation, co-creation, mutual assistance, etc.

Active teaching methods (ATM) are essentially interactive (from the English. Interaction-dynamic interaction), since they develop from methods of influence into methods of interaction between a teacher and a student. Activation of the student allows you to form your own active position, incl. in relation to knowledge and the process of cognition. And this is the way to the development and realization of personality.

In the lesson, promising methodological techniques should be used to develop the creative abilities of students, for example: clusters, insert (when studying theoretical material on their own), filling out tables, a two-part diary, reading with stops, joint search, cross-discussion, round table and also apply elements of TRIZ (technologies for solving inventive problems): lecture training, teaching with the help of audiovisual technical means, tests, project method and much more.

The use of design technology: will increase and deepen the interest of children; will develop their creative abilities through the formation of competence in the field of independent cognitive activity, initiation to reading, the development of curiosity, broadening the horizons).

Critical thinking will help schoolchildren acquire skills to work with a large amount of information, research skills (see a problem and outline ways to solve it) and communication skills.

The general scientific level of pedagogical methodology reflects the systemic and synergistic approaches. The category "pedagogical system" can be considered an illustration of the application of the systematic approach in pedagogical science. It is known that a static system of structures expresses the order and form of the interconnection of components. A dynamic system of functions has input and output components, respectively, input and output material, with a continuous or discrete process flow.

The pedagogical system is a set of interrelated structural components, united by the educational goal of personality development and functioning in a holistic pedagogical process. At least four components can be distinguished in the pedagogical system: teacher and student, educational content, material and technical base [6]. The pedagogical system gradually turns into a process in which, if the system is given a developmental goal and their components begin to interact.

The synergetic approach as a continuation of the systemic approach in pedagogy, characterized by the following provisions.

Each structural component of the pedagogical system (student, teacher, student group, etc.) is an open information system that exchanges energy and information with the environment . It is information that plays a key role in synergetics, unlike other sciences. Natural systems, social systems are purely informational, and they cannot exist without the exchange of information. Therefore, modern pedagogy relies on scientific methods of cognition and management of a complex object.

Principles of the synergetic approach:

➢ subjectivity of cognizing consciousness;

➢ the concept of complementarity:

➢ opposites for development go away not through a dialect, but due to mutual complementarity, a compromise that combines the features of opposites;

➢ the teacher's monologue gives way to dialogue, interaction, partnership focused on the freedom of a developing personality);

➢ openness of educational and educational information.

In modern society, one of the developing methods that arouses great interest from students is the use of Internet resources as an innovative approach to learning.

The idea of using the Internet in education is not new. Since the early 1990s, national and international computer networks have been widely used for educational purposes within the framework of various educational approaches. Both students and teachers were able to exchange information in a mode that does not depend on time and place. New digital technologies have freed the human mind for more creative tasks that contribute to personal development. This allows students to interact creatively with both classmates and the teachers.

The Internet allows you to organize a real, mobile information environment, in which you can not only draw information, but also solve many other communication tasks. Its use helps to increase the motivation of students, since in the case of using the Internet during the classroom and individual lessons, modern students get the opportunity to immerse themselves in their familiar information environment.

On the Internet, resources of various scales are used for educational purposes - from web pages with interesting educational materials (often test materials) to voluminous projects for full-fledged, from the point of view of compilers, distance learning.

➢ The teacher, using the Internet, can update the material of his own textbooks;

➢ find additional information;

➢ self-control;

➢ materials;

➢ post educational information;

➢ develop interactive training to apply various forms of control and provide feedback;

➢ make contacts between different members of the group; work with hypertext, audio and video files and blogs.

It is especially good to use Internet communication with students of universities of foreign countries when studying the classics of Russian literature, which develop great interest among foreign youth. This allows students to consider the meaning of the work from different angles. The Internet allows you to implement various techniques, provide methodological developments, diversify the educational process, make it more attractive, take into account the needs and interests of the subject of training, the level of his training, promptly and purposefully control the work of students, and effectively manage it.

Another unusual method for teachers is the study of material through music. Many scholars argue that Music is great for language learning. Words laid down on the rhythm are memorized faster. In addition, the song usually uses the same grammatical tense. Ask your student what music styles and bands they like and based on their interests, select songs.

Singing phrases from their favorite songs, your students will quietly learn new vocabulary and learn the necessary grammatical forms easier.

When designing activities and exercises, keep students' interests in mind and use them. For example, to practice reported speech, use dialogues from a popular TV series or movie. Don't forget about music and the possibility of using songs to practice grammar - my favorite activity is to take a misspelled English song and ask students to find it. You can also use content from Instagram (to describe images at the right time) or video blogs to diversify boring exercises.

Conclusion

In conclusion, we can say that the lesson should be interesting not only for students, but also for the teacher. In addition, in this article, we have analyzed many new, innovative ways of learning, when applied in practice, which both students and teachers will receive positive emotions and full experience.

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Innovative Marketing in a Competitive Economy

Musayeva Shoira Azimovna

Professor of Samarkand Institute of Economic and Service, Samarkand, Uzbekistan

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Abstract: This article discusses the introduction and widespread distribution of new products, services, technological processes are becoming the main factors in the growth of production, employment, investment, foreign trade turnover. It is here that the most significant reserves for improving product quality, saving labor and material costs, increasing labor productivity, improving the organization of production and increasing its efficiency are hidden. This predetermines the competitiveness of enterprises and their products in the domestic and world markets.

Keywords: Goods, enterprises, process, labor, growth, efficiency, innovation, implementation, technology

The innovative development of the economy is based on the process of creating, preparing, searching and implementing innovations, that is, ensuring the transformation of an idea into an innovation.

Innovation is a fundamentally new product or technology that is the end result of purposeful, risky innovative activity.

The innovation process is the process of consistently transforming an idea into a product through the stages of fundamental and applied research, research and development, marketing and other forms of creative activity.

The key criteria for the classification of innovations are the potential and the degree of novelty, reflecting the levels of technical and economic progress of society and determining business cycles.

Currently, enterprises are faced with the need to update the technological base of production, improve the quality of products, expand sales markets, which implies an active innovation policy and the introduction of marketing innovations at the enterprise.

The following features of innovative marketing are distinguished:

➢ the competitiveness of the future final product depends on the correct choice of the direction of research during the period of R&D on its development, since there is a significant period of time between the development and application of scientific and technical products, where the result can manifest itself in one or another future period;

➢ since the product of scientific and technical activity is the initial link of the final product, marketing of the first cannot be effective without studying the market of the second;

➢ marketing efforts should be aimed at studying the use value of an intellectual product, since it saves living and materialized labor in the sphere of material production;

➢ an intellectual product is subject to more rapid obsolescence. This determines the need to apply efforts to protect and preserve intellectual property rights, to ensure its patent part, which is undertaken in the process of marketing scientific and technical products;

➢ the created intellectual product, depending on its nature and focus, can be sold in different markets to different consumers, where the search for replication is one of the marketing tasks.

Creation, implementation and wide distribution of new products, services, technological processes are becoming the main factors in the growth of production, employment, investment, foreign trade turnover. It is here that the most significant reserves for improving product quality, saving labor and material costs, increasing labor productivity, improving the organization of production and increasing its efficiency are hidden. This predetermines the competitiveness of enterprises and their products in the domestic and world markets.

On the basis of combining the key provisions of the theory of innovation and the theory of competition, a

definition of innovative competitiveness is proposed, which means the creation of competitive advantages from the introduction of innovations into new forms of organization of production, labor, service and management, that is, the ability of business entities based on active innovation to compete with their rivals. Indispensable condition implementation marketin gproduct innovation is the need to change the pricing system. To solve this problem, it is advisable to use the economic concept "Pricedown - costdown", which is based on a progressive method of targeted strategic cost management (target costing). Target costing is especially relevant in the production of innovative products, when fundamentally new in quality and affordable products are released. If target costing is combined with elements of the "community" business model system, then enterprises wishing to sell their products will have a wide opportunity to communicate with buyers of their products online, taking into account the requirements for product quality, its price, advertising the product with the help of consumers.

The use of a target costing system leads to a decrease in time and money costs, because in traditional marketing systems, the cost and price of products are determined only at the last stage of the development of a new product, and if the price is higher than the market price, then the design process has to start from the beginning.

Thus, the concept of marketing considers the innovative potential in constant interaction with the external environment, which influences its formation, but itself changes under its influence. Consistency assumes that the innovative potential of the economy and its industries is the environment for the development of the enterprise's potential.

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The Importance of Orthophotoplans in Cadastre Work

A. R Asatov[1], J. J Pirimov[2], K. M. Muhamadov[3], S. O. Bobojonov[3], S. F. Axtamov[4]

[1]Senior Lecturer, [2]Doctoral Student, [3]2nd year student, [4]Master

[1,2,3,4] Bukhara branch of Tashkent Institute of Irrigation and Agricultural Mechanization Engineers

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Abstract This article is devoted to the creation of a scientific basis for the use of orthophotoplans and the use of geographic information systems (GAT) in the conduct of cadastral work.

Keywords: Cadastre, orthophotoplan, land resources, geographic information systems, database, agricultural lands, orthophoto

Today, special attention is paid to targeted scientific research aimed at developing effective technologies for the registration of cadastral objects, the design and construction of their digital maps, methods of geodetic and cartographic support of the cadastral sector on the basis of modern geographical information systems. In this regard, one of the pressing issues is the development of modern technologies for updating digital maps, including the improvement of methods for creating and updating orthoftoplans of cadastral works.

At a time of rapid development, great attention has been paid to the field of cadastre in our country, and a lot of scientific and practical work has been done. In particular, in accordance with the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 23, 2018 No 299 "On measures to further define the boundaries of administrative-territorial units, inventory of land resources and geobotanical research in pastures and hayfields." It is carried out by the Uzdaverloyikha Institute and its regional divisions on the basis of high-quality orthophotoplans with the help of satellite imagery and drones, with the involvement of important modern technologies.

Including

➢ delimitation of administrative-territorial units;

➢ inventory of all categories and types of land resources in the country

Due to the effectiveness of the inventory of land resources on the basis of orthophotoplans, it was necessary to hold this event today

Firstly. The demarcation of administrative-territorial units began in 1924 with the establishment of the Republic of Uzbekistan, and in 1938 the demarcation of regions and districts began. To date, demarcation has been linked to fixed elements, such as rivers, canals, roads, hills, ravines, and other topographic elements. If it is not possible to link the boundary to these elements, the boundary line is defined only on the basis of the boundary description of the area and maps larger than 1: 100,000. According to the Resolution of the Cabinet of Ministers No. 299 - electronic maps at scales of 1:10 000, 1:25 000, 1:50 000 and 1: 100 000 will be created with the boundaries of administrative-territorial units connected to the state coordinate system on the basis of space images. Most importantly, a separate coordinate catalog is created at the turning points of each administrative-territorial boundary.

Secondly. The inventory of land resources began at the same time as the demarcation of the administrative-territorial units, and as a result of the initial inventory, a land report was formed, which reflects all categories and types of land resources in the country.

Since then, there has been no simultaneous general census of all categories and types of land resources, only census of different types of land at different times**.**

Now, on the basis of the new order - all categories and types of land resources of the republic will be fully recorded on the basis of satellite images. At the end of the census, electronic maps of scales of 10,000, 25,000, 50,000 and 100,000 scales will be created, connected to the state coordinate system, which will integrate all categories and types of land resources.

Most importantly, in our country, as in developed countries, it is possible to conduct online land registration and create an information system for regular monitoring of the use of all types of land and illegal situations. [2]

This indicates the relevance of the topic.

Orthophotoplan is often seen as an important source of information for creating digital cards and plans. It can be used as a cartographic basis and raster in GIS to describe the results of land inventory.

An orthophotoplan is a topographic photoplan composed of orthophotos. In turn, an orthophoto is an orthophototransformation, ie a photograph of a place taken as a result of the transfer of a topographic aerial photograph from a central projection to an orthogonal projection. [3]

It should be noted that, firstly, the definition of orthophototransformation is less clear, and secondly, the term is somewhat outdated and less accurate when used in modern production. In short, orthophoto is not a real orthogonal projection of space objects and space. In orthogonal projection, only the surface is depicted (relief), and objects on the surface are not depicted.

Modern production does not use photographic (optical-mechanical) methods and tools, but uses digital (computer) technology, so it would be appropriate to replace the term "orthophoto transformation" with the term "orthotransformation"

Modern digital technologies make it possible to obtain true orthophoto, which is a real orthogonal projection of space and the location of objects in it. But producing real autophotos today is more expensive than making ordinary orthophotos. Due to this, such a product is rarely produced.

Orthophotoplans are widely used as a cartographic basis in land inventory because they are very fast to build, and are cheaper than producing maps and plans. Orthophotoplans are also used to create subsequent maps and plans, but they are limited to scales, i.e. 1:10 000, and on smaller scales their effectiveness is reduced. Objects on the ground, especially tall objects (buildings) are depicted with geometric error in orthogonal projection. [3]

Therefore, orthophotoplans and orthophotos are not suitable for compiling cadastral maps of the areas where buildings are built. Because the peripheral points of buildings in the contours of built-up areas must be correctly seen on cadastral maps, orthophotoplans and orthophotos do not have such features. It is very difficult to photograph such objects, to determine their basis on the image, they require special skills from the performer, and the contouring of objects has a certain degree of relativity.

In the cadastral survey of objects, the main focus is on the boundaries of land plots. Rarely do they cross obstacles and other similar places. In orthophotoplan, it is much more difficult to see the base of the barriers, where the barriers should not be confused with the upper part. Therefore, it is recommended to use the stereoscopic method of surveying when compiling cadastral maps of built lands..

In addition to orthophotoplans, orthophotoplans showing orthophotoplans are also issued, in which objects on the ground are presented with barcode cartographic images (e.g., settlement boundaries).

Orthophotoplans can be very effective when used to create 1:10,000 scale maps of population range areas. Because in such places the main object of survey is often plots of land without objects that rise above the ground. The use of orthophotoplans in workplaces where such surveys are conducted is much cheaper and more convenient than stereoscopic surveys.

Hence, just as with orthophotoplanic imaging, the result of stereoscopic imaging is a vector model of the contour of objects. For example, when working with the Intergraph software, this vector model is displayed as a graphic file in DGN (MicroStation) format. The graphic objects in this file and the contour representations of the object elements can be linked to the GIS MGE database table. In this connection, it helps to determine which object contour in the location is the graphic object data. It is also possible to interact with graphic objects with a table of object attributes and even a clear description of the object when vectoring an orthophotoplan or stereoscopic image. However, when using a topological model of digital card data, to do this, for example, during direct vectorization or stereoscopic imaging in GIS MGE,

not all connections must be established between graphic objects and all-terrain objects shown in the object table.

Today, a number of works are being carried out in our country to create orthophotoplans. In particular, according to the Department of Remote Sensing, Geodesy and Cartography of the Cadastre Agency, in 2018-2019, with the help of satellites KOMPSAT-3 and KOMPSAT-3A of the Republic of Korea, satellite images were taken covering the entire territory of the Republic and irrigated lands, as well as 1:10 000 5712 scales, as well as 3608 scales of 1:25 000 scales for the rest (mountain, foothill and desert), a total of 9320

Aerial photography was carried out in Kashkadarya, Tashkent, Khorezm regions and Tashkent city in order to register real estate and irrigated lands. Using aerial photographs, 6,724 orthophotoplans on a 1: 2,000 scale and 387 on a 1: 10,000 scale were created. In 2019, the Institute "Uzdaverloyiha" in accordance with the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 23, 2018 No 299 in 2018 in 16 districts of the Republic (Narpay, Kattakurgan, Koshrabat, Yukorichirchik, Kuyi Chirchik, Chinoz, Boka, Kibray, Zafarabad, Kagan, Vobkent, Mubarek, Guzar, Muzrabat, Nurata) In 2019 in 18 districts of the Republic (Kegeyli, Bulakbashi, Khojaabad, Karakul, Bukhara, Yangiabad, Zarbdor, Nishan, Karmana, Naryn, Samarkand, Qizirik, Havos, Sayhunabad, Akkurgan, Tashkent, Dangara , Koshkopir) land resources were recorded.

For the inventory of land resources, first of all, scaled orthophotoplans of each district were prepared, deciphering works were carried out and electronic digital maps of the regions were created and the areas of each contour were calculated, land types were set and unique numbers were given to the contours. An inventory of land resources was conducted on electronic digital maps created for each region. [2]

In order to continue this type of work more consistently, we consider it necessary to do the following:

- ➢ Scientific substantiation of the development and importance of modern methods and technologies in the creation of orthophotoplan cadastral works;
- ➢ Further improvement by creating a transparent and efficient system of land allocation.
- ➢ Aerial photography of all areas in order to ensure accurate accounting and updating of lands, the formation of a database.
- ➢ Ensuring accurate and complete formation of state cadastre data.
- ➢ Monitoring and development of orthophotons using aerospace and unmanned aerial vehicles;

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Transition from IPv4 to IPv6 Network in IoT Security Based Upon Transition Methods

Ms. Shilpa B. Sarvaiya[1], Dr. D. N. Satange[2]

[1]Department of Computer Science, Vidyabharati Mahavidyalaya, Amravati, Maharashtra, India
[2]Director, Student Development, S. G. B. A. University, Amravati, Maharashtra, India

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Abstract: While deployments of IPv6 networks have increased over recent years, especially in IoT Paradigm. Today there are two types of internet protocol versions that are currently working in the global internet to transfer data from one electronic device to another.IPv4 which consists of 32 bits long addresses and IPv6 which consists of 128bits long addresses which is more effective as it can handle billions of devices and can assign each device different IP address. This paper will present an overview of the main migration technologies that can be used to transition from an IPv4 network to an IPv6 network, this paper will also research on finding and comparing the effects of IPv6 transition methods such as Dual Stack, Tunneling and Network Address Translation-Protocol Translation will be compared on variant parameters to find the best performing transition method in IoT Network in terms of security.

Keywords: IoT (Internet of Things), IPv4 (Internet Protocol Version 4), IPv6 (Internet Protocol Version 6), Transition Methods, Dual Stack, Tunneling, NAT-PT.

1. Introduction:

In the modern area there are two types of internet protocol versions that are currently working in the global internet to transfer data from one electronic device to another. IP address are assigned to every device and every device has its unique address generated through binary values consists of 0 and 1. Today these two versions of Internet protocol are widely used to connect different networks to each other. IPv4 is the earlier version of IPv6. IPv4 consists of 32 bits long addresses and each unique address is assigned to each device so data can be transmitted to that specific address [1].

The new version of Internet Protocol was published in 1996 called IPv6 which consists of 128 long bits addresses. Due to large number of growths in electronic devices, an IPv4 address was not enough to cover all the devices. To resolve the issue IPv6 introduced which can handled billions of devices and more than that and assign each device different unique address that is IP address. IPv6 found out much better and efficient in addressing of devices, routing of networks, security of information and data, translation of network address also in support of configuration of protocol. Assign a unique IP address IoT devices establish a secure communication channel, their connection should be bootstrapped through the so-called device binding process and visualize sensor data, users can easily understand the physical environment and operate the devices [2].

A variety of transition methods are available to facilitate the migration to IPv6.These methods have been observed and compared with each other and the effects of these transition methods on IPv6 in IoT security. These transition strategies are observed and compared that are Dual-Stack, Tunneling and NAT-PT Each method or technique has its own pros and cons and each method performs its own strategy [3].

1.1. Importance of IPV6 Network in IoT Security:

The internet communications have evolved rapidly after the creation of IPv6 Internet Protocol version 6. The major difference of IPv6 is that it allows more unique addresses to create. There are five major reasons why IPv6 is more important and better option for the IoT network paradigm than IPv4 Internet Protocol version 4.

First and most important one is the security: Security is the most important feature used to secure the communication between the IoT devices from threats, virus, attacks, etc. IPv6 uses end-to-end encryption technology which can encrypt the data so it can be secured and cannot be hacked. IPv6 also supports more secure and safe name resolution than IPv4.

Second is the scalability: Ipv6 protocol provides the connections of devices in more scalable form. It provides large area of devices so they can connect together on a large scale communicating over a long distance as well [4].

Third is the connect ability: which means connecting billions of devices to each other and allow a networking protocol so they can transfer data to each other.IPv6 allows much more addresses than IPv4 so billions of devices can connect to each other.

Fourth is Internet Protocol version 6 uses multicasting: To transmit data packets from one destination to another means IPv6 supports multicasting of packets at one time in different destinations.

Fifth is IP Protocol version 6 providing Authentication: IP version 4 does not provide authentication whereas IP version 6 provides Authentication as well as Confidentiality, Integration, and Access control of each data packet [5].

The overall graph of the adoption of IPv6 by Internet users since late 2015 to 2025 is shown in figure 1.
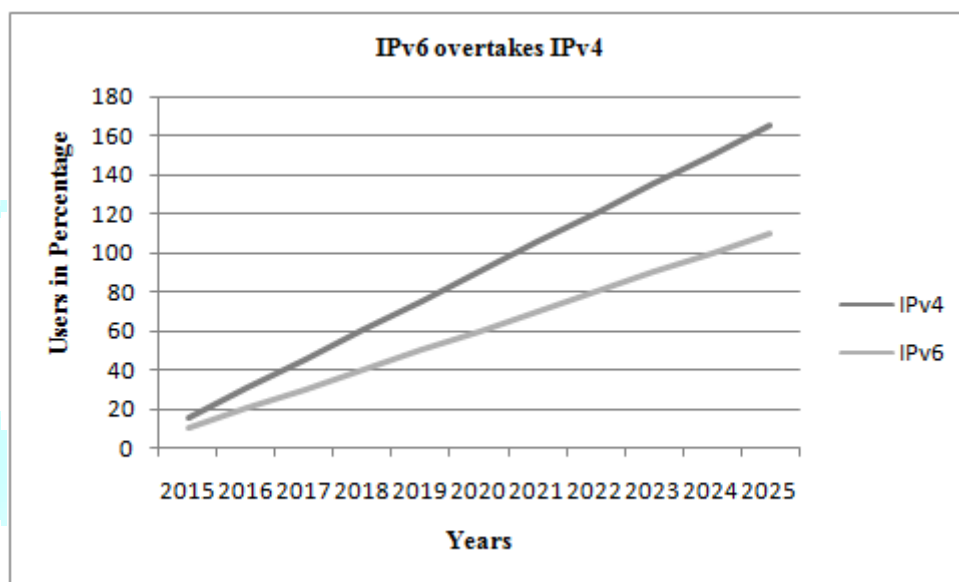
Figure 1: Growth from IPv6 to IPv4 Network

2. History:

In late 1960's there was a great need and demand of research centres and universities to develop a protocol or networking system to exchange data. To overcome this need ARPA (Advanced Research Project Agency) developed a net called ARPANET from 1972 it renamed DARPA from ARPANET [6].

In 1981 the ARPANET developed a transfer control protocol called IPv4 which was a huge success [7].

After 1990's IPv4 address space was getting full and at that time there was not enough addresses left to assign the new devices [8].

The new version of Internet Protocol was published in 1996 called IPv6 which consists of 128 long bits addresses. IPv6 found out much valuable and impressive as compared to IPv4 and it found out much better and efficient in addressing of devices, routing of networks, security of information and data, translation of network address and in support of configuration of protocol [9].

Still now these two versions are using. Both internet protocols have different configurations and are used in different environment. A census of the Internet's connected devices would readily number in the tens of billions of devices. If they all needed a globally unique permanent IP address, IPv6 would have been an imperative over a decade ago [10].

3.   Transition from IPV4 to IPV6 Network in IoT Security:

There is not complete transition from IPv4 to IPv6 because IPv6 is not backward compatible. However; there are three methods, which can convert IPv4 to IPv6.The methods that can convert IPv4 to IPv6 are described as below.

3.1.   Transition Methods:

One of the most important parts of implementing IPv6 is being able to gracefully transition from IPv4.The methods discussed in this paper can each be used as option when beginning an IPv6 deployment and should each be looked over for applicability depending on the specific requirements of an organization. There are three main methods that can be used when transitioning a network from IPv4 to IPv6 in IoT environment. These methods are 1) Dual-Stack, 2) Tunneling and 3) NAT-PT is explained in this section.
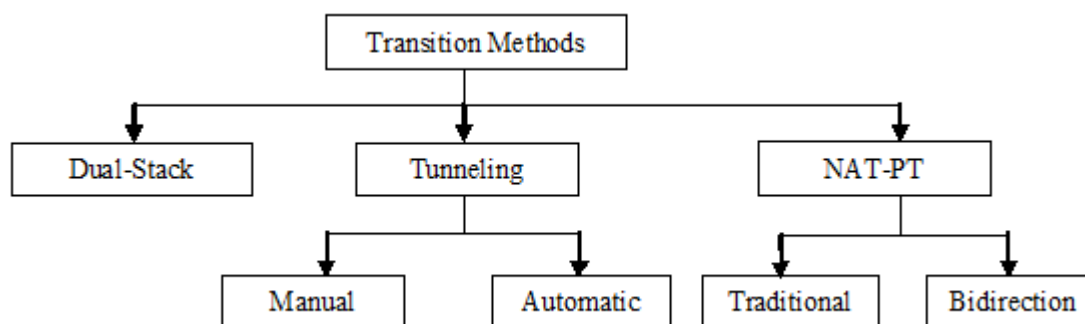

Figure 2: Types of Transition Methods

3.1.1.   Dual-Stack Method

Dual Stack can process both IPv4 and IPv6 traffic simultaneously. The increase of devices day by day, it seems we are running out of IP address in IPv4 for each format which seems a big issue. IPv6 is the solution which is a new IP address format. The ISPs (Internet Service Provider) task is to provide net connections to their customers which are IPv4-to-IPv4 or IPv6-to-IPv6 but because of Dual Stack, every network is configured on both IPv4 and IPv6 and data can follow or both protocols simultaneously. Dual Stack equipped with both of the stacks, it can disable any of the stack when required either IPv4 or IPv6 and also can run both at same time [11].

Dual Stack is a simple transition method or solution that supports both internet protocols. Dual Stack devices like PC, a router or a server and other IoT (internet of things) can support both IPv4 and IPv6. This transition method is effective because IPv4 is not compatible sometimes on IPv6 devices and vice versa. Dual Stack includes both protocols working parallel which can be applied on both end system to establish connection and flow [12].
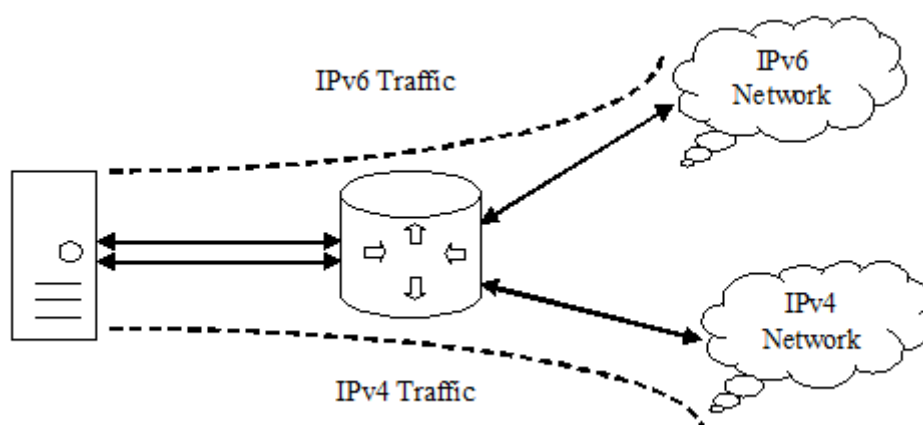
Figure 3: Dual Stack Router Connectivity

In the above figure 3, a server having IPv4 as well as IPv6 address configured for it can now speak with all the hosts on both the IPv4 as well as the IPv6 networks with the help of a Dual Stack Router. The dual Stack Router can communicate with both the networks. It provides a medium for the hosts to access a server without changing their respective IP versions.

3.1.2. Tunneling Method

For minimizing the transitions, all the routers on the way between the two IPv6 nodes do need to support IPv6.This method of transition is called Tunneling. Primarily IPv6 packets are placed inside IPv4 packets then the packets are routed through the IPv4 routers.

Tunneling is another transition method that provides a way or a tunnel to use IPv4 infrastructure to carry traffic of IPv6. This method uses routing infrastructure of one internet protocol to carry internet protocol traffic via channel also called tunnelling. Tunneling can be used as Router-to-Router or Host-to-Router or Host-Host or Router-to-Host. Most of the internet traffic is carried from one router or host to another via tunnels to migrate from IPv4 to IPv6 as the different devices uses different versions. IPv4 which is a 32-bit address can support around 4.3 billion devices where as IPv6 uses 128-bit address and support much more devices i.e. 2 times to 128 power [12].

The Tunneling method is also divided into two types of methods one is Manual Tunneling and another one is Automatic Tunneling are listed below.

Manual Tunneling: Tunnels which uses peer to peer topology and need manual configuration called manual IPv6 tunnel.

Automatic Tunneling: Tunneling uses the embedded address information of IPv4 in IPv6 packet then this type of tunnelling known as Automatic Tunneling.

In a scenario where different IP versions exist on intermediate path or transit networks, tunneling provides a better solution where user's data can pass through a non-supported IP version.
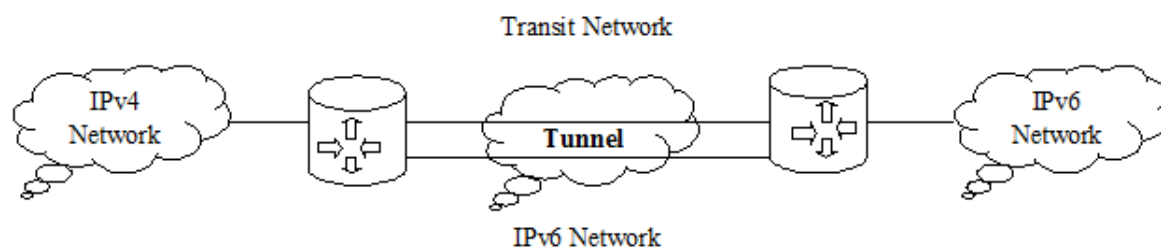

Figure 4: Tunneling Between Ipv6 over IPv4 Network

The above figure 4 depicts how remote IPv4 networks can communicate via a Tunnel, where the transit network was on IPv6.Vice versa is also possible where the transit network is on IPv6 and the remote sites that intend to communicate are on IPv4.

3.1.3. Network Address Translation-Protocol Translation (NAT-PT)

This is another important method of transition to IPv6 by means of a Network Address Translation-Protocol Translation (NAT-PT) enabled device. With the help of a NAT-PT device, actual can take happens between IPv4 and IPv6 packets and vice versa.

Network Address Translation (NAT) method facilitates communication between IPv4-only and IPv6-only network by translating two different IP address families. This method translates IPv6 from IPv4 and gives consistent Internet experience to the users by accessing contents over the Internet, which have Ipv4 services. NAT-PT is similar to the NAT system utilized in IPv4 that is frequently used for converting private (RFC 1918) IPv4 address to public IPv4 address and vice versa. It is used to convert IPv4 address to IPv6 address and vice versa. This method should be used only when there are no other techniques to allow IPv6-only devices to communicate with IPv4-only devices [13].
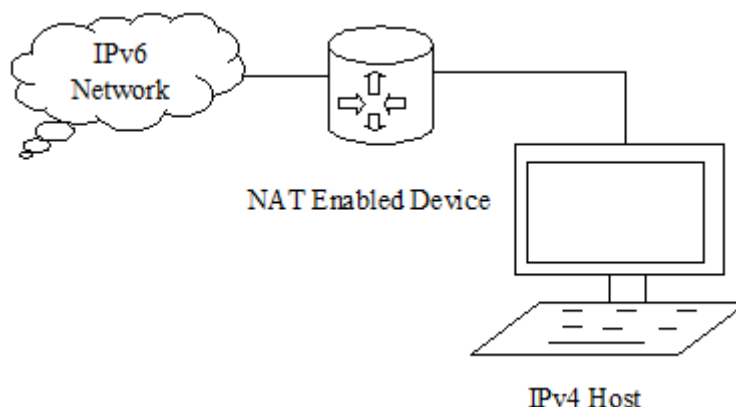
Figure 5: NAT-Protocol Translation Basic Operation

In the above figure 5, a host with IPv4 address sends a request to an IPv6 enabled server on Internet that does not understand IPv4 address. In this scenario, the NAT-PT device can help them communicate. When the IPv4 host sends a request packet to the IPv6 server, the NAT-PT device/router strips down the IPv4 packet, removes IPv4 header, and adds IPv6 header and passes it through the Internet. When a response from the IPv6 server comes for the IPv4 host, the router does vice versa.

In IPv6, there are two types of NAT-PT

Traditional: Traditional NAT-PT where sessions from IPv6 network are unidirectional. In this type, it allows hosts that are in IPv6 network to access the hosts that are in IPv4 network.

Bidirectional: In Bidirectional NAT-PT, sessions from both networks can be initiated i.e. from hosts in the IPv6 network as well as in the IPv4 network.

NAT-PT transition method main task is to migrate from IPv4 to IPv6 and also to provide connection bidirectional between IPv6 and IPv4.

4.   Comparison between Transition Methods of IPv6 over IPv4:

All three transition methods are observed, compared and the effect of transition methods in IoT security. All transition methods are useful in some way and all of them has pros and cons according to the system.Comparision has been observed and studied that is presented below [14, 15].

Table1: Comparative Analysis of Three Transition Methods

Parameters/Transition Methods	Dual-Stack	Tunneling	NAT-PT
Latency	Medium	Low	High
Throughput	Moderate	Highest	Lowest
Packet Loss	High	Low	High
Traffic	High	Low	Medium
Packet Delivery	Fast	Fast	Slow
Delay	Minimum	Minimum	Maximum
Security	Higher	Lowest	Average
Connectivity	Bidirectional	Bidirectional	Bidirectional
Transition Approach	Simplest	Complex	More Complex
Flexibility	Greatest	Moderate	Lowest
Cost	Low	High	Medium
Advantages	Easy to implement. Already supported in all Operating System and Devices.	Simple Deployment. No Additional Management.	Solve Network Issues. The Router is used as a Translation Communicator.

Drawbacks	Required additional Memory and CPU Power. Two Routing Tables.	Harder to troubleshooting and Network Management Vulnerable to security attacks	Complexity increases in IP addresses. Reduction in the overall value and utility of the network.
Limitations	Two firewalls sets of policies.	Have single points of failure.	Harder to control on a larger scale
Performance Analysis	Dual-Stack transition method shows better performance in the network compared to Tunneling in terms of Latency and Delay.	Better deliverables are produced in terms of Packet Delivery and Delay.	Rapid Deployment mechanism is convenient and easy to manage. However it has low flexibility.

5. Problems and Discussion:

It is most important that the transition from IPv4 to IPv6 is stable and Non-Interruptive to exiting services. The effect of IPv6 over IPv4 transition methods in IoT security includes the problems in the following majors' areas: Address Architecture, Connectivity, 3) High Availability, 4) Applications and 5) Network Management [16, 17].

1. **Address Architecture Problems:** IPv6 has much larger address space in comparison with IPv4. Due to the large IPv6 address space, special attention is needed when designing the IPv6 network since it differs from the fragmented and smaller IPv4 address design.

2. **Connectivity Problems:** While shifting the transition from IPv6 to IPv4 network to provide continuity of services to the users. The Dual-Stack is the natural approach but due to the depletion of IPv4 address, cost and up-gradation of the network to IPv6-only.

3. **High Availability**: High Availability is the major requirement for every service and network service. An application running on IPv6 may need to failover to IPv4 network due to network failure during transitioning.

4. **Applications Problems:** During the transition process, IPv4 and IPv6 applications will co-exist in the network. Regardless of what technology providers choose to use, services should be provided to the customers. Users should find out the best for the transition without affecting the services they provide.

5. **Network Management:** New technologies and methods may be introduced during the transition process. These new technologies and techniques require new operation models.

6. Conclusion:

In this paper, the three transition methods of the IPv4 to IPv6 transition have been discussed, deployed and compare. It has been found that these three methods have distinct advantages, drawback and features. The appropriate transition mechanism will be chosen for the network based on various parameters like the size of the network, the availability of the latest devices, the cost, and the security concern. If Latency, Throughput and Packet Loss are considered then Tunneling method is the best choice as compare to the Dual-Stack and NAT-PT. But the Tunneling method has vulnerable to security attacks, solved these security issues by IPSec (IP Security).So, our recommendation is to use Tunneling mode with IPSec for the transition purpose. The Dual-Stack remains more popular and practical with low cost in implementation and supported by wide range of devices. Transition Methods, like Tunneling and NAT-PT, are not optimally supported for the networks during a transition from IPv4 to IPv6.Thus; Dual-Stack seems the preferable method to begin adopting IPv6 with upgradable devices in order to securely manage the exiting IPv4 infrastructure. The deployment of IPv6 over IPv4 network is the best way for the growth of IoT's devices as well as also improvement in terms of their security.

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Transformation Processes in the Healthcare System of Uzbekistan (1917-1991)

Gavkhar Muminova

Department of World History, Faculty of Social Sciences, Karshi State University, Uzbekistan

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Abstract: The article concludes that the global environmental degradation, global warming, and climate change require great attention to the healthcare sector. Despite the fact that in recent years serious reforms have been undertaken in Uzbekistan in the field of healthcare, numerous measures have been taken to develop specialized medical care, protect mothers and children, and provide the population with medicines, there are still many problems that need to be addressed. On the territory of Uzbekistan in the Soviet period, measures were first taken to form a centralized health care system. This process proceeded in a very difficult historical situation, when political, social and economic problems worsened in the country.

Keywords: Uzbekistan, medical care, treatment, medical, sanitary and epidemiological, pharmaceutical, health education, health.

Modern trends in the world - the deterioration of the ecological situation, global warming, climate change, require more attention to the health sector. The World Health Organization (WHO) is doing a lot to protect the health of the population in various regions of the planet. An important place in its activities is occupied by cooperation with the governments of countries aimed at developing and strengthening health care programs, improving the environment, training medical personnel, protecting the health of mothers and children, and maintaining sanitary statistics. One of the main activities of WHO is research projects. On the initiative of this organization, in October 2012, in order to form a modern healthcare system, the global network EVIP Net was launched in the regions.

In recent years, Uzbekistan has been implementing serious reforms in the health sector, numerous measures have been taken to develop specialized medical care, protect mothers and children, provide the population with medicines, educate and develop a physically strong and spiritually healthy generation. At the same time, it must be admitted that there are still many problems in this area awaiting solution. These include the weak material and technical base of medical institutions, the lack of ambulance stations and pharmacies in rural family polyclinics, a lack of personnel, low qualifications of diagnostics and doctors, which necessitate the treatment of patients in clinics of foreign countries for large sums of money, obstacles to ways of developing the system of private medicine, insufficient development of the pharmaceutical industry, 74% of the population's demand for medicines is satisfied by imports. In this regard, the President of the Republic of Uzbekistan Sh.M. Mirziyoyevnoted that "Further improvement of public health protection, ensuring its satisfaction with the activities of the medical system is our most important task" [11]. In the Action Strategy for five priority areas of development of the Republic of Uzbekistan in 2017-2021 [10], special attention is paid to solving such important tasks as improving the quality of medical services to the population, strengthening the material and technical base of the industry, protecting mothers and children. The creation of modern medicine, where advanced world experience is widely used, requires coverage of the history of health care based on new methodological approaches and primary sources. This problem is relevant not only for historical science, but also for the development of the social sphere of modern society.

The study of the history of health care makes it possible to understand the causes of existing problems and find ways and means of solving them. Measures to form a centralized health care system in Uzbekistan were undertaken for the first time in the Soviet period. This process took place in a very difficult historical situation, when political, socio-economic problems worsened in the country, the population was in an extremely poor situation, the confrontation of the opposition-minded forces intensified, the people were starving and in poverty due to drought and other natural disasters.

Already in the first years of the formation of Soviet power in Turkestan, the process began, as in other

sectors, of the stateization of private healthcare institutions. On February 28, 1919, the Council of People's Commissars of the TASSR adopted a Decree on the nationalization of pharmacies, which in all cities of Turkestan began to pass into the hands of the state. In general, at the initial stage of Soviet rule, in particular, in 1922-1923, 53 medical institutions were built in the cities of Turkestan Syrdarya, Samarkand and cities of the Fergana region,

45 local hospitals, 81 paramedic points, 26 dental outpatient clinics.

After the national-territorial demarcation of Central Asia (1924-1925), with the formation of the Uzbek SSR, under the influence of a number of factors, socio-political processes intensified in the country. The amount of funds allocated to the medical industry has also partially increased. In 1927-1928. 14.4 million rubles were allocated, in 1932-1933 - 32.5 million rubles. If we distribute these funds per capita, then the following picture emerges: in 1927-1928. - 2 rubles 48 kopecks, in 1928-1929. 3 rubles 15 kopecks, in 1932-1933. - 5 rubles 16 kopecks.

Along with the improvement in the health care system in Uzbekistan, problems persisted. Insufficient degree of organization among the population of sanitary education, sanitary prophylaxis, medical activity, low standard of living of the population, material insecurity led to the spread of infectious and social diseases. In 1927, in the RSFSR, the prevalence of skin and venereal diseases was 92.0 per 10,000 people, in Ukraine - 48.5, Uzbekistan - 126.5. In addition, when in other republics this indicator decreased significantly, in Uzbekistan it remained unchanged. In 1930 in the RSFSR it was 65.0, in Ukraine - 33.5, Uzbekistan - 126.0.

During the Second World War, serious changes took place in the health care system, as in other spheres of society, and the activities of the sphere were rebuilt in a military fashion. The medical sphere of Uzbekistan, as well as throughout the country, served mainly the needs of the front. During the war years, the republic's health care system went through difficult tests, in particular, many qualified, experienced medical workers were mobilized to the front.

During the war years, medical institutions were evacuated from the western regions of the USSR to Uzbekistan, along with industrial enterprises. Due to the evacuated hospitals, the number of medical institutions, beds and medical workers has increased. If in 1941 there were 368 hospitals and 19498 beds in Uzbekistan, then by 1945 the number of hospitals reached 481 units, medical beds - 24848 units [12].

Typically, military hospitals were distributed to cities along the railways. Their activities were headed by the Deputy People's Commissar of Health of the Republic B.I. Berliner. Given the lack of specialized premises, the buildings of schools and institutes, clubs and theaters were given to hospitals. In December 1941, there were 96 evacuated hospitals in the republic with 31,700 beds [5].

Military hospitals were mainly located in the cities of Tashkent and Samarkand, each of them accommodated about 20 such medical institutions, in the Fergana Valley there were 16 of them. Academicians N.N. worked in the evacuated military hospitals. Anichkov, V.N. Osipov, V.I. Voyachik, Professor S.A. Novotelnikov, A.V. Lebedinsky, V.S. Dainikov,

V.M. Broderzon, S. Yu. Minkin, M.N. Entin, F.M. Volkler and others [1].

The post-war life of Uzbekistan is characterized by the further one-sided development of the country's economy - the strengthening of the cotton monopoly, with limited opportunities for the development of animal husbandry, reduction of areas for growing vegetables and fruits, as well as areas of vineyards and orchards. Despite the available opportunities, Uzbekistan occupied one of the last places among all the Union republics in terms of the amount of consumption of basic types of food per capita. Citizens living in Uzbekistan, in comparison with citizens of other republics, consumed two times less meat and meat products, milk and dairy products, as well as eggs. In rural areas of Uzbekistan, there was only 10 kg of meat per person per year [14]. In addition, problems were accumulating in the field of providing the population with clean drinking water, in establishing a sewerage system.

In the following decades, the tuberculosis incidence rate in Uzbekistan remained higher than in other Union republics. If in the 1980s the rate of infection with active tuberculosis in the Union was 50.2 per 10,000 population, then in Uzbekistan it was 55.6. In 1989, this indicator in the Union was 40.0, and in Uzbekistan - 50.3, and at that time tuberculosis was often found among children [13].

It should be noted that after the war the number of beds for mothers and children, consultations and medical

personnel increased significantly. If in 1946 there were 3193 beds in Uzbekistan for the treatment of children, then in 1955 their number was 5492 [8]. Most of the beds were in the city of Tashkent: during these years their number increased from 1550 to 1885. Accordingly, these indicators in the Kashkadarya region were 30 and 73, in the Surkhandarya region - 45 and 126, in Khorezm - 110 and 102, Karakalpakstan - 155 and 295 A somewhat different situation was observed in the opening of children's clinics. If in 1946 there were 223 children's consultations in Uzbekistan, then in 1956 their number reached only 232 [3].

From year to year, the birth rate in Uzbekistan increased - according to this indicator, the republic occupied one of the leading places in the Union. If in the second half of the 40s of the twentieth century. In Uzbekistan, the birth rate was in line with the average for the Union, then when the birth rate in the Union decreased in the mid-1960s, in Uzbekistan it increased significantly. For example, compared with the indicators of the Baltic republics, this indicator in Uzbekistan was higher

2-2.5 times. In 1975, the birth rate per 1000 people in Uzbekistan was 35.5, in Estonia - only 15.1. In 1989, Uzbekistan was in first place in terms of the birth rate: if in the country for every 1000 women the birth rate was 72.5, then in Uzbekistan it was 143.1 [9]. The high growth in the birth rate in Uzbekistan was due to a number of factors such as the slow development of health education, widespread promotion of privileges for large families, etc. [4].

Most of the mothers with many children throughout the country were in Uzbekistan. If in 1970 the number of mothers with seven or more children in the Union was 711 thousand [6], of which 187 thousand were from Uzbekistan [7].

At the same time, in terms of such an indicator as the mortality of newborns, the indicators for Uzbekistan were worse. If in 1987 the mortality rate in Lithuania was 11.3 per 1000 newborns, in Turkmenistan - 56.4, then in some regions of Uzbekistan it reached 60-70. This provision became the object of close attention of medical specialists, mistakes made were openly analyzed in the press. Researcher

A.A. Baranov explained this by the inappropriate distribution of material and technical resources and medical personnel across the regions [2]. For example, in terms of the number of obstetric-gynecological and children's beds, Uzbekistan lagged significantly compared to other republics.

It has been established that the healthcare sector did not stand apart from general historical processes. As the main and complex component of the social, political and economic system of a particular state, it was formed on the basis of the laws in force in society, and its development was closely related to the nature and pace of development of the national economy. The activities of the Soviet health care system, like the world industry as a whole, were implemented in three complex areas: sanitary and hygienic, epidemiological, and treatment-and-prophylactic. Particular attention was paid to the elimination of foci of the spread of infectious diseases.

Thanks to the preventive measures carried out by the Soviet government among the population, in some large cities of Uzbekistan, the mass incidence of infectious diseases was partially eliminated, and state sanitary and epidemiological control over the situation was established. Despite the insignificance of the allocated funds, they were used rationally and were aimed at improving the health of the population. However, in small towns and villages, the situation remained unchanged. In some regions, almost 90% of the population suffered from infectious and social diseases such as malaria, trachoma, tuberculosis.

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Gymnastic Exercises for Physical Preparation in Production Facilities

Xasanova Saboxat Ilhom qizi, Ma`murova Kamola Komiljon qizi,
Xolmaxmatov Boburjon Musurmon òǵli, Kenjayev Dilshod G'ayrat o'g'li

Uzbek state university of physical culture and sports

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Abstract: In the article, industrial enterprises carry out a constant stream of physical culture and sports, especially gymnastics exercise complexes 2-3 percent is an increase in performance at the same time to perform complex gymnastic exercises and physical training complexes about those moments.

Keywords: body, gymnastics, complex, instructor, dispatcher, exercise, factory.

After gaining independence, our country has created ample opportunities for the creation of manufacturing enterprises. As a result, many jobs have been created. There are different jobs in this plant and the workers here have different responsibilities. As a result, overwork and overwork in the process of work leads to a decrease in labor productivity. The introduction of gymnastic exercises aimed at physical education at enterprises is a vivid manifestation of the state's attention to the preservation and strengthening of the health of ordinary people working in this area.The use of gymnastic exercises aimed at physical education in industrial enterprises increases productivity by 2-3%. By means of gymnastic exercises aimed at physical education at industrial enterprises, the following tasks are solved: facilitates the entry of people into production activities; The body's ability to work at a stable pace improves; Promotes the health and physical development of people; forms such qualities as teamwork, cohesion, discipline.

The complex of gymnastic exercises aimed at physical training, performed at industrial enterprises, is formed depending on the type of profession. Classes are divided into 4 groups depending on mental or physical activity:

1. Nervousness, lack of physical activity, occupations with the same working movements, assemblers of small machines, assemblers of electric lamps,

punchers, seamstresses, on an assembly line, for example: watch factories, shoe factories;

2. Types of moderately loaded work (turning, planing, motor-harvesting), in which various actions related to physical and mental labor are performed ;

3. Various professions that require a lot of physical activity (molders, miners, construction workers);

4. Professions that require constant mental effort (accountants, dispatchers, doctors, engineers).

When it is impossible to organize training minutes for the entire shop in an organized way, or if some workers and employees cannot take a break from work for 5-7 minutes, you can take breaks for exercises consisting of 2-3 exercises. Those who do lighter work during the shift should do physical gymnastics exercises before work, and exercise breaks 1.5–2 hours before the end of the shift.

The scheme of the complex of physical exercises: Exercise 1 - for the head, 2-5 - exercises for the trunk and limbs, Exercise 6 - exercises for coordination of movements, Exercise 7 - the final exercise. Each exercise is repeated 4-8 times, depending on the training of the trainees. The set of exercises should also include exercises for muscle groups that are not involved in working movements and differ from them in characteristics, for example: sitting, those who work less, perform exercises that move all muscles; Specific measures are being developed to determine the training methodology for persons engaged in hard physical labor, taking into account the complex amplitude, active movements, and posture. A set of exercises for minutes of physical training can be composed as follows: Exercises for the 1st group of professions:

Stretching the waist and relaxing the shoulder girdle and muscles;

Exercises that relax the muscles of the arms;

Activities that relax other parts of the body;

Squats.

Exercises for the 2nd group of professions:

Stretching the waist and relaxing the shoulder girdle and muscles;

Exercises for bending, stretching, relaxation for the muscles of the trunk, arms, legs;

Shaking exercises that target more muscle groups in the body

Running, jumping, sitting, walking exercises;

Shaking movements to help relax the calf and calf muscles;

Hands, feet and other movements that relax other parts of the body;

Exercises for coordination of movements.

Exercises for groups of 3 professions:

Adjust your waist and take a deep breath to relax the muscles in your arms and shoulder girdle.

exercises for;

Exercises for bending, twisting, turning the body;

Sit, jump, run;

Exercises for the arm and shoulder girdle (thoracic-lumbar joints and chest).

increase cell motility);

Exercises for harmony of movements.

Exercises for 4 groups of professions:

Straightening exercises;

Exercises for the trunk, arms, legs;

Similar, but more intense exercise;

Sitting, running, jumping, then walking;

Exercises for the muscles of the trunk and arms;

Exercises to relax the muscles of the arms;

Exercises for coordination of movements.

The moment of physical training is of great importance for the vital activity of the body, for the rest of the nervous system. During activity, nerve cells are in a more agitated state. When work stops for a while, it recovers its strength. With the help of minutes of physical training, a high level of performance is achieved and physical qualities are developed. A minute of exercise is spent when the first signs of fatigue are felt. Because it causes fatigue. The control of movements decreases and the ability to work begins to decrease. Exercise takes 5-7 minutes. For those who are simultaneously doing the same work, it is helpful to take two breaks in physical education. Before starting physical gymnastics in the departments, it is necessary to create hygienic conditions that meet the requirements, then create a set of exercises and record it on tape, and train state instructors among employees to familiarize themselves with the content of the set of exercises. The introduction of exercises on a working day is formalized by order. When creating a set of exercises, you must observe the following:

1. Minutes of physical training should correspond to the tasks of the complex;

2. The selected exercises in each set are applied to the body of each of the practitioners.

   must have a side effect;

3. Exercises used in building complexes.

   must correspond to the conditions of study;

4. Exercises should be structured in such a way that the previous exercise is the next exercise.

   should facilitate successful completion;

5. Physical activity corresponds to the training of trainees.

need to

Classes are conducted by a methodologist (methodologist) or a public instructor (instructor). At the same time, he demonstrates complex exercises as a model, and also monitors the quality of the work of each employee, correcting mistakes without disrupting the rhythm of movements. When the exercises are broadcast on the radio, each worker should be

familiarized with the exercises in advance to perform the exercises correctly with music. Difficult exercises are changed every 3-4 weeks. Workers need to be introduced to the simplest methods of self-control: to feel the pulse, to be able to evaluate various sensations that arise after a certain period of training, sleep, appetite, fatigue, and control of the general condition. In conclusion, it should be noted that the performance of gymnastic exercises aimed at physical education is of great importance in increasing the productivity of employees working at industrial enterprises.

Literature

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