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CHRONOLOGICAL HIERARCHY OF UNITS OF MEASUREMENT

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Annotation: The evolution of units of measurement is a testament to the development of human civilization, reflecting advances in science, technology and trade. This article traces the chronological hierarchy of units of measurement, from ancient systems to modern standards. Starting with the first civilizations, such as Egyptians, Babylonians, Greeks, who built fundamental units based on body parts and everyday objects, we explore the transition to more sophisticated systems. Rome’s contributions to standardization and its medieval efforts to harmonise local units will be scrutinized. The story goes back to the scientific revolution, highlighting the development of a metric system in France during the 18th century, which was aimed at creating a universal and rational system of measurement. The article further explores the establishment of the International Exchange System (SI), which sought to unify global standards of measurement in the 20th century. Through this historic trip, the article emphasizes the importance of measuring systems in promoting scientific discovery, industrial development and international cooperation. The round table will also address modern challenges and ongoing efforts to improve and adapt standards of measurement in response to new scientific concepts and technological innovations.

Key words: Terminology, ancient measurement systems, chronological development, SI (International System of Units) units, evolution of measurements, standardization of measurements.

Annotatsiya: O‘lchov birliklari evolyutsiyasi insoniyat sivilizatsiyasi rivojiga guvohlik beradi, fan, texnika va savdo sohasidagi yutuqlarni aks ettiradi. Mazkur maqolada qadimgi tizimlardan tortib, hozirgi zamon andozalarigacha bo‘lgan o‘lchov birliklari xronologik iyerarxiyasi izdan chiqqan. Tana a’zolari va kundalik obyektlar asosida fundamental birliklarni barpo etgan misrliklar, bobilliklar, yunonlar kabi ilk sivilizatsiyalardan boshlab, yanada zo‘r tizimlarga o‘tishni tadqiq etamiz. Rimning standartlashtirishga qo‘shgan hissalari va mahalliy birliklarni uyg‘unlashtirish bo‘yicha o‘rta asrlardagi sa’y-harakatlari tekshiriladi. Hikoya ilmiy inqilobga borib taqaladi, 18-asr davomida Fransiyada metrik tizimning rivojlanishini yoritadi, bu esa o‘lchashning universal va ratsional tizimini yaratishga qaratilgan edi. Maqolada XX asrda global o‘lchov standartlarini birlashtirishga harakat qilgan Xalqaro birjalar tizimining (SI) tashkil etilishi haqida yana bir bor o‘rganiladi. Maqolada ushbu tarixiy safar orqali ilmiy kashfiyot, sanoat taraqqiyoti va xalqaro hamkorlikni yo‘lga qo‘yishda o‘lchash tizimlarining ahamiyati ta’kidlab o‘tilgan. Davra suhbatida zamonaviy qiyinchiliklar va yangi ilmiy tushunchalar va texnologik yangiliklarga javoban o‘lchov standartlarini takomillashtirish va moslashtirish bo‘yicha davom etayotgan sa’y-harakatlar ham bartaraf etiladi.

Kalit so‘zlar: Terminologiya, qadimgi o‘lchov tizimlari, xronologik rivojlanish, SI birliklari (Xalqaro birliklar tizimi), o‘lchov evolyutsiyasi, o‘lchovlarni standartlashtirish.

Аннотация: Эволюция единиц измерения является свидетельством развития человеческой цивилизации, отражая достижения в науке, технике и торговле. В данной статье

прослеживается хронологическая иерархия единиц измерения, от древних систем до современных стандартов. Начиная с первых цивилизаций, таких как египтяне, вавилоняне, греки, которые строили фундаментальные единицы на основе частей тела и предметов быта, мы исследуем переход к более сложным системам. Будет тщательно изучен вклад Рима в стандартизацию и его средневековые усилия по гармонизации местных единиц. История восходит к научной революции, освещая развитие метрической системы во Франции в 18 веке, которая была направлена на создание универсальной и рациональной системы измерения. Далее в статье рассматривается создание Международной системы обмена (СИ), которая стремилась унифицировать глобальные стандарты измерений в 20-м веке. В этой исторической поездке в статье подчеркивается важность измерительных систем для содействия научным открытиям, промышленному развитию и международному сотрудничеству. На круглом столе также будут рассмотрены современные вызовы и текущие усилия по совершенствованию и адаптации стандартов измерений в соответствии с новыми научными концепциями и технологическими инновациями.

Ключевые слова: Терминология, древние системы измерений, хронологическое развитие, единицы СИ (Международная система единиц), эволюция измерений, стандартизация измерений.

Introduction

Units of measurements are the foundation of human civilization and underpin all processes, from daily activities to scientific research and technological development. They allow us to calculate and communicate with the world around us with precision and consistency. However, modern measurement systems are long and complex, and have gone through various stages in different cultures and eras.

The concept of a chronological hierarchy of units of measurement seeks to trace this axis of development, illuminating how different periods and cultures have contributed to the systems we use today. Ancient civilizations such as the Egyptians, Babylonians, and Greeks founded modern ways of measuring length, volume, and weight.

As we are in the 21st century, the importance of accurate and standardized measurement continues to grow. New scientific discoveries and technological innovations require more accurate and flexible measurement systems. This article examines how the chronological hierarchy of units of measurement arose and its impact on various aspects of human development.

The **purpose** of this article is to review the chronological development of units of measurement throughout history. A study of the evolution of these units from ancient civilizations to the present. To achieve this goal, **the following tasks** have been defined:

- *historical research:* providing comprehensive historical information about the development and evolution of units of measurement in different civilizations and periods;

- *education on modern systems:* giving and receiving modern measurements such as measurement systems and the international system of units (SI);

- *development support:* show how it parallels and contributes to scientific, technological and industrial progress in measurement systems;

- *educational resource:* A report for those interested in the history and significance of units of measurement, and to serve as an educational resource that provides educational information to modern society.

Main Part

Sumerian and Egyptian systems. According to archaeological evidence, the Babylonians and Egyptians began measuring time at least 5,000 years ago, creating calendars to organize and coordinate public works and public events, to schedule transportation, and especially to regulate planting and harvesting periods. They based their calendar on three natural cycles: the solar day, marked by periods of light and dark as the Earth rotates on its axis; A lunar month that follows the phases of the Moon's rotation around the Earth; and the solar year, defined by the changing seasons as our planet revolves around the sun.

The Egyptians developed a civil calendar of 12 months of 30 days, with five days added to approximate the solar year. Each 10-day period was marked by the appearance of special star groups (constellations) called decans. As Sirius rose before sunrise, the 12 decans could be seen across the sky, which occurred around the Nile's most important annual flood. The cosmic significance the Egyptians placed on the 12 decans led them to develop a system in which each interval of darkness (and later, each interval of daylight) was divided into dozens of equal parts. These periods were called ephemeral hours because their length varied with the changing of the days and nights with the passing of the seasons. Summer hours were long, winter hours were short; only on the vernal and autumnal equinoxes were the hours of light and darkness equal. Adopted by the Greeks and then the Romans (who spread them throughout Europe), temporal clocks have been in use for over 2,500 years. [1]

[1] A Chronicle Of Timekeeping, URL https://www.scientificamerican.com/article/a-chronicle-of-timekeeping-2006-02/ 01.02.2006. internet manba

The concept of a lunar month based on the phases of the moon has been used by various ancient civilizations for thousands of years. The exact "invention" of the moon is difficult to pinpoint, as it appeared independently in different cultures as early humans observed and recorded the moon's regular cycles.

The lunar month, usually defined as the time when the moon completes a full cycle of phases (new moon to new moon), was integral to the calendars of many ancient societies.

• Sumerians and Babylonians: The lunar calendar was used in ancient Mesopotamia from 2000 BC or earlier.

• Egyptians: The lunar calendar was used before the solar calendar became dominant in 4236 BC.

• China: The traditional Chinese calendar, lunisolar, dates back to the Shan Dynasty (ca. 1600-1046 BC).

• Ibonic: The Ibonic calendar, also lunar-solar, dates back to biblical times, probably in the 1st millennium BC. [2]

The concept of a lunar month is based on the phase of the Moon's revolution around the Earth, which lasts about 29.5 days. These months are used to measure time according to the cycle of the moon in calendars such as the Islamic and Ibani calendars. Phases, including new moon, first quarter, full moon, and last quarter, provide a regular and visible way to divide time. [2]

Figure 1. The concept of a lunar month begins at an invisible New Moon and continues through all phases of the Moon until the next New Moon. [2]

The lunar month, URL **https://www.timeanddate.com/astronomy/moon/lunar-month.html , 1995-2024 internet manba** [2]

Classical Antiquity. Greek Innovations: The Greeks made significant contributions to the science of timekeeping, especially by developing more sophisticated water clocks known as **clepsydras.** These devices made it possible to measure hours more accurately, regardless of the season of the year.

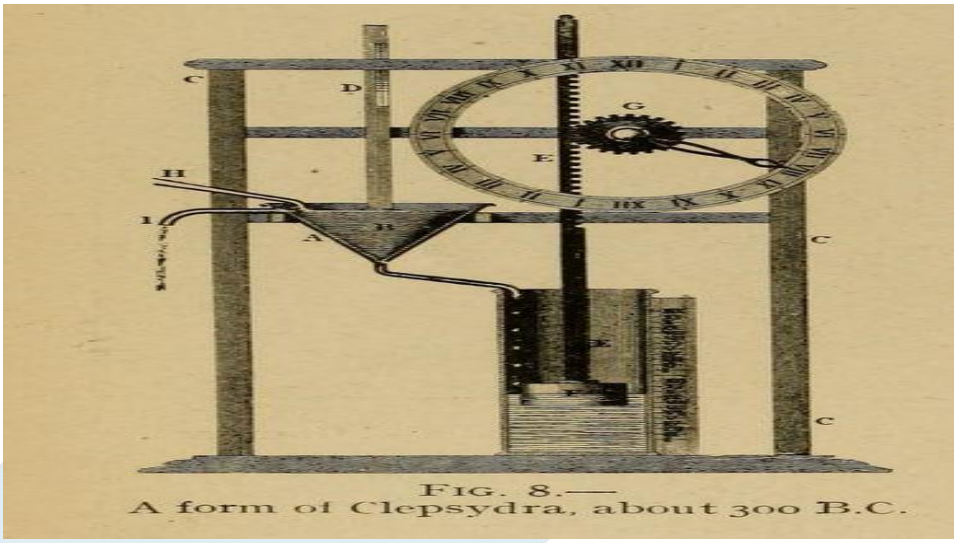

FIG. 8.—
A form of Clepsydra, about 300 B.C.

Figure 2. The process of how a clepsydra clock works [3]

[3] Часовая академия, URL https://watchacademy.ru/o-chasah/solnechnye-i-vodyanye-chasy-drevney-grecii, 2010-2024. Internet manba.

The Romans adopted and adapted earlier systems to create a more structured approach to timekeeping, including the Julian calendar introduced by Julius Caesar in 45 BC. The Julian calendar adjusted the length of the year to better align with the solar year. Structure: The Julian calendar has 365 days in a year and is divided into 12 months. An extra day (leap day) was added to February every four years to account for the one-quarter addition of a day in the solar year, making these years equal to 366 days.

Length of Months: Months are arranged in different lengths:

- January: 31 days;
- February: 28 days (29 in a leap year);
- March: 31 days;
- April: 30 days;
- May: 31 days;
- June: 30 days;
- July: 31 days;
- August: 31 days;
- September: 30 days;
- October: 31 days;
- November: 30 days;
- December: 31 days.

Leap Year Rule. The fourth year was marked as a leap year and an extra day was added to February. This adjustment was made to keep the calendar year in sync with the astronomical year.

Historical influence. The Julian calendar was a significant improvement over the earlier Roman calendar, which was based on the lunar system and was inaccurate with the seasons. A more accurate alignment of the Julian calendar with the solar year helped correct this shift. [4]

[4] Википедия свободная энциклопедия , URL https://ru.wikipedia.org/wiki/%D0%AE%D0%BB%D0%B8%D0%B0%D0%BD%D1%81%D0%BA%D0%B8%D0%B9_%D0%BA%D0%B0%D0%BB%D0%B5%D0%BD%D0%B4%D0%B0%D1%80%D1%8C, 9 мая 2024. Internet manba.

The Middle Ages and the Renaissance. Mechanical watches: the evolution of timekeeping with minutes and seconds.

The Renaissance was a time of significant scientific discovery and innovation, creating a need for more accurate and standardized measurements. The development of precision instruments and the revival of classical knowledge led to advances in fields such as astronomy, navigation, and engineering.

The mechanical watch was not invented by one person. Instead, it was the result of gradual development over several centuries with contributions from different cultures and inventors. The development of mechanical watches can be traced back to various ancient civilizations, but the earliest mechanical watches appeared in the Middle Ages and the Renaissance. It was the

invention of mechanical clocks in the 14th century that marked a significant leap in time measurement. Renaissance (16-17 centuries). The use of pendulums in clocks revolutionized the accuracy of timekeeping. In 1656, the German scientist Christian Huygens created the first known pendulum clock. [5]

[5] The invention of the mechanical clocks URL https://www.premierclocks.com/blogs/clock-blog/mechanical-clock , 01.15.2024

The complex history of time standardization. Today's world is very clearly divided into 24 efficient, well-ordered time zones that correspond to 24 hours in a day. If it's 2pm in Philadelphia, it's 11am in Los Angeles, 7pm in London, 8pm in Paris. Uzbekistan 1:00. Times are the same, but it wasn't always like that. Standardization did not appear until the late 19th century.

In her new book, Global Change 1870-1950, Vanessa Ogle, the Julie and Martin Franklin Associate Professor of History in the School of Arts and Sciences, chronicles the nearly century-long effort to standardize clocks around the world and the challenges proponents faced in establishing international standards. Ogle says the initial push for uniform time came in Europe and the United States in the late 19th century. Audiences saw a world that resembled 21st century globalization and spoke of time speeding up and distance becoming irrelevant in light of new means of communication and transportation such as steamships, railroads, and the telegraph.

Proponents of uniform time have also called for the adoption of the Gregorian calendar as a universal calendar to replace the many religious and cultural calendars used around the world.

Ogle says that convincing people to adopt the Gregorian calendar was more controversial than any talk of standardizing time. He said there was opposition from religious groups such as Adventist Christians, Muslims and Jews, who protested because the universal calendar canceled their Sabbath.

The calendar reform movement gained momentum in the 1930s and 1940s. Efforts to standardize time also failed - until World War II.

Ogle argues that the standardization and globalizing effects of World War II, the US occupation of East Asia and other parts of the world, and the advent of the jet age and the rise of military and commercial aviation ultimately led to the triumph of unity.

For the most part, the West got what it wanted. Standard time is internationally accepted based on Greenwich Mean Time (GMT). The east coast of the United States is at GMT -5, or five hours behind the Royal Observatory.

Advocates of standardized calendars have also had some success. Imperialism, colonialism and trade have caused many parts of the world to use the Gregorian calendar alongside their own cultural or religious calendars, Ogle said.

Once British India, now a thriving republic, five and a half hours away from Greenwich Mean Time, or GMT +5:30, still defies its former occupier.

"Everybody's time, you might say, is just a convention," says Ogle. "But it has very symbolic, charged qualities that make it little more than some technical convention." [6]

[6] The complex history of standardizing time URL https://penntoday.upenn.edu/2015-12-17/research/complex-history-standardizing-time, 15.01.2015. internet manba

Using modern units of measurement related to time

SECOND (lat. secunda divisio – second division) – unit of time measurement. s, sec b-n are defined. S. is equal to 1/86400 of a mean solar day: 1 sec = 1/60 min = hour. 20-a. In the 1930s, the uneven movement of the Earth around its axis was proven with the help of a quartz clock. On this basis, according to the recommendation of the International Astronomical Council, in 1960 The 11th International General Conference of Weights and Measures held in Paris in October adopted a new definition of the main unit of measurement of time - the ephemeris S. [1]

Historical Context: The idea of seconds was standardized in the 16th century with the development of precision mechanical clocks and became common during the Renaissance. [1]

[1] **Ўзбекистон Миллий Энциклопедияси , 7-жилд, 569-бет китоб манба**

MINUTE (Lat. minutus – small, small) – A unit of time not included in the SI unit system. Briefly min. b-n is defined. 1 min. = 60 s = 1/60 hours = 1/1440 days; 2) unit of measurement of a flat angle. One M. is equal to 1/60 degree. In writing, the sign (') placed on the right side of the number represents b-n; metric M. is equal to one ten-thousandth of a right angle, "°" is denoted b-n. [2]

Historical Context: Like seconds, minutes became standard with the development of mechanical watches. The term "minute" comes from the Latin "pars minuta prima" which means "the first small part". [2]

[2] **Ўзбекистон Миллий Энциклопедияси , 5-жилд, 687-бет китоб манба**

HOUR – 1) a time measurement unit not included in the international system of units, a time interval equal to 60 minutes or 3600 seconds (see Hour); 2) an instrument used to measure time. People have been dealing with time measurement since ancient times. They are the movements of the Sun, the Moon, etc. they noticed that events are repeated at certain times and used them to measure time. The rotation of the Earth around its axis - the day, the rotation of the Earth around the Sun - the year is the main criterion for measuring time. [3]

Historical Context: Dividing the day into 24 hours has its roots in the ancient Egyptian and Babylonian timekeeping systems. The 24-hour day was influenced by the Egyptians' use of a base 12 number system. [3]

[3] **Ўзбекистон Миллий Энциклопедияси , 7-жилд, 684-бет китоб манба**

DAY – a unit of time usually equal to 24 hours or 1440 minutes or 86400 seconds. This unit should be equivalent (for all practical purposes) to a mean solar day. But there is a small problem with creating this equation. The latter has its own scientific definition based on a certain frequency of radiation from cesium atoms and has nothing to do with the rotation of the Earth. The reason for the scientific definition of the latter is that the length of the average solar day is not constant from one year to the next. The Moon's gravity is slowly slowing the Earth's rotation, so that each day is slightly longer than the previous day, an average of 40 nanoseconds. This elongation adds one second to the length of the day every 60,000 years. In the first decades of the 21st century, the actual length of an average solar day is about 86,400,002 seconds. Therefore, the time kept by our best clocks runs slightly faster than the time kept by the Earth. To keep the clock and sun time in step (within 0.9 seconds), one second must be added at the end of the day for each second. This will happen on June 30 or December 31 at midnight Universal Time. Because the slowdown rate is erratic, the need for such seconds cannot be predicted months in advance. [8]

Historical Context: The concept of a 24-hour day dates back to ancient civilizations such as the Egyptians and Babylonians. The modern concept of a day as a complete rotation of the Earth has been refined over the centuries. [8]

[8] A dictionary of units of measurements https://www.ibiblio.org/units/dictD.html , 21.08.2001 , internet manba

WEEK – a traditional unit of time equal to seven days. The custom of a seven-day week with one day of rest and religious observance dates back more than 3,000 years to the ancient civilizations of the Middle East. The seven days originally had astrological significance; there is a day for each of the five visible planets and a day for the sun and moon. Christians and Muslims inherited the seven-day cycle from Judaism. The Romans got this idea from the Persians and used the week as early as the first century. When Emperor Constantine legalized Christianity in the Roman Empire in the early 4th century BC, the Christian version of the week, Sunday, became official throughout the empire as a day of religious observance. Since none of the Roman date units (month, quarter, and year) corresponded to whole number of weeks, this required for the first time that tables (we call them calendars!) be displayed as always. changing the relationship between days of the week and dates of the month. Link: The World Calendar Association promotes efforts to reform the calendar so that weeks and months are correlated. Link: Perpetual Calendar provides calendars for any month and year in the current (Gregorian) calendar. [9]

Historical Context: The seven-day week took root in ancient Near Eastern cultures, particularly Babylonian culture, and was later adopted by Jewish, Christian, and Islamic traditions. [9]

[9]A dictionary of units of measurements , https://www.ibiblio.org/units/dictW.html , 05.06.2005 , internet manba

MONTH – a period of time close to the period of the Moon's one rotation around the Earth; unit of measure. The following types are distinguished: 1) synodic O. – time between two identical phases of the moon (based on the O. calendar), 29 days 12 hours 44 min. 2.28 sec.; 2) sidereal O. – the elapsed time between two successive identical positions of the Moon in relation to the stars, 27 days 7 hours 43 minutes. 11.51 sec.; 3) tropic O. – the elapsed time between the moon's eclipses of the same astronomical longitudes, 27 days 7 hours 43 minutes. 4.68 sec.; 4) anomalistic O. – the time between two successive passes of the moon through perigee, 27 days 13 hours 18 minutes 33.16 seconds; 5) Ajdar O. – The time between two consecutive transits of the Moon over the ascending node, 27 days 5 hours 5 minutes. 35.81 sec. The Gregorian calendar divides a year into 12 months; in which O.s will consist of 28 (29), 30, 31 days. The calendar in the solar calendar (see Calendar) does not depend on O. Moon phases. The length of the O. calendar is also 28-31 days. [4]

Historical Context: The concept of moons came from observing the phases of the moon. Different cultures developed different lunar calendars, with the Gregorian calendar eventually becoming the most widely used. [4]

[4] **Ўзбекистон Миллий Энциклопедияси , 6-жилд, 473-бет китоб манба**

YEAR – a unit of time: approximately the time it takes for the Earth to make one complete revolution around the Sun. Scientists have long been interested in its continuity. Qad. In China and Egypt, Y. was considered more accurate. Greek scientist Hipparchus mil. av. In the 2nd year, Y. determined that "1/300 days is less than 365 1/4 days." This is different from the present (see Leap year). Now. Various Y. concepts are used in time. Mac, in the apparent motion of the Sun,

the elapsed period between its 2 consecutive times in the same position relative to the stars is called star Y.i (sideric Y.); its duration is 365.256360 average days. The period between the two successive passes of the sun over the vernal equinox is called the tropical Y., which is equal to 365.242196 average days. In addition, the anomalistic Y. is the period between the two consecutive transits of the Sun from the perihelion (365.259641 average days), the dragon Y. is the time when the Sun passes through one of the nodes of the Moon's orbit (ascending or descending) twice in a row the period between passing (346.620047 average days) and b. There are accounts of Y. Also, depending on the division of Y. into seasons, months and duration, Hijri-lunar, Hijri-solar Y. calculations, etc. available (see Calendar). [5]

Historical context: The year as a measure originated in agricultural societies, which needed to track the planting and harvesting seasons. The Julian and Gregorian calendars fixed the length of the year to better match the Earth's orbit. [5]

[5] **Ўзбекистон Миллий Энциклопедияси , 4-жилд, 349-бет китоб манба**

Decades, centuries and millennia

Decade: A period of 10 years. [10]

[10] Webster online dictionary , https://www.merriam-webster.com/dictionary/decade

Century: A period of 100 years. [11]

. [11] Webster online dictionary, https://www.merriam-webster.com/dictionary/century

Millennium: A period of 1,000 years. [12]

[12] Webster online dictionary, https://www.merriam-webster.com/dictionary/millennium

Historical context: These larger units of time are used to mark important periods in human history, helping to study and understand historical events and periods.

CONCLUSION

In summary, chronological units of measurement—from broad divisions of hours to finer increments of minutes and seconds—have evolved significantly over time. This evolution reflects humanity's growing precision in timekeeping and the technological advances that have made it possible. From ancient civilizations relying on rudimentary methods to the sophisticated mechanical clocks of the Renaissance, each era has contributed to our understanding and control of time. Today, these units are an integral part of our daily lives, highlighting the continuing importance of accurate time measurement in our world.

The chronological units of measurement we use today are the result of thousands of years of innovation and refinement. From ancient sundials to modern atomic clocks, each development has brought greater precision and consistency to the way time is measured, reflecting man's ongoing quest to understand and quantify the passage of time.

References:

1. Sobirova, M. (2020). Assimilation of human qualities during the process of working with text. International Scientific Journal "Theoretical & Applied Science" SOI: 1.1/TAS (http://t-science.org/arxiv DOI/2020/12-92.html DOI:10.15863/TAS Published: 18.12.2020.

2. Sobirova, M. (2020). The role of the family in the development of the integration process in science and education. "A Multidisciplinary Peer Reviewed Journal" (https://journalnx.com/papers/20151362-the-integration-process.pdf) impact faktorga ega bo‘lgan DOI raqamli jurnali. 2020 y. 18-19 uyun. – B. 1161-1166.

3.Jumakhanov, S., Jalolidinova, M., & Zoirjanov, S. (2022). NOTIONS ABOUT THE NATIONAL TRADITIONS OF THE PEOPLE OF THE OASIS AND THE VALLEY. Вестник магистратуры, (4-1 (127)), 16-22.

4. Jumakhanov, S., Jalolidinova, M., & Zoirjanov, S. (2022). Notions About the National Traditions of the People of the Oasis and the Valley. Texas Journal of Multidisciplinary Studies, 6, 260-266.

5.Ne’matullayev A.Educational technologies as a method MPACT FACTOR.

In volume 3, RJAI. Dec., 2022.

https://reserchjet.academiascience.org/index.php/rjai/article/view/636

6. Ne’matullayev A.Approaches and methods of language in teaching to EFL learners Ethiopian International Journal of Multidisciplinary Research 2024.Volume 11 https://www.eijmr.org/index.php/eijmr/article/view/1452

7. Dehqanova Guljahon Ahmadjonovna. (2024). THE IMPORTANCE AND ROLE OF LEXICAL COMPETENCE IN TEACHING FOREIGN LANGUAGES TO STUDENTS. Ethiopian International Journal of Multidisciplinary Research, 11(05), 16–23. Retrieved from https://www.eijmr.org/index.php/eijmr/article/view/1451

8.Tojiddinovna, N. X. (2024). LINGUO-COGNITIVE FEATURES OF PUZZLES IN ENGLISH AND UZBEK LANGUAGES. *Ta'lim innovatsiyasi va integratsiyasi*, *15*(3), 69-75.

9.Nishonova, X. T. (2024). BOSHLANG'ICH SINF INGLIZ TILI DARSLARIDA O'QUVCHILARNI LEKSIK KOMPETENSIYASINI KOMIKSLAR ORQALI RIVOJLANTIRISH. *Academic research in educational sciences*, *5*(CSPU Conference 1), 785-790.

10.Madaminova, M. S. Q. (2024). BUILDING FLUENCY AND COMPREHENSION: EFFECTIVE TECHNIQUES FOR READING INSTRUCTION. *Academic research in educational sciences*, *5*(CSPU Conference 1), 748-752.

11.Бобажонова.М.Т.-(2023) Функционально-семантическое поле направленности и кратности движения в русском и узбекском языках *Научный вестник НамГУ* 393-399

12.Бабажанова Мавжуда Тошпулотовна. (2024). ИЗУЧЕНИЕ КАТЕГОРИИ ВИДА РУССКОГО ГЛАГОЛА В КЛАССАХ С УЗБЕКСКИМ ЯЗЫКОМ ОБУЧЕНИЯ КАК ЛИНГВОМЕТОДИЧЕСКАЯ ПРОБЛЕМА . Ta’lim Innovatsiyasi Va Integratsiyasi, 16(3), 55–64. Retrieved from http://web-journal.ru/index.php/ilmiy/article/view/3547

13.Egamberdiyeva Shamsiya Mamajonovna.Bolalar folklorida beshik qo’shiqlari poetikasi. //O'zbekistonda fanlararo innovatsiyalar va ilmiy tadqiqotlar jurnali.– 2023. – Т. 2. – №. 17. – С. 61-67.

14.Egamberdiyeva Shamsiya Mamajonovna. S. O ‘zbek va turk allalarida ota obrazining qiyosiy talqinlari. //Konferensiyalar| Conferences. – 2024. – Т. 1. – №. 4. – С. 561-564.

15.Xabibillayev, Nodirbek. "MUMTOZ ADABIYOTNI TARG'IB ETISHDA ADABIY MOSLASHTIRISHNING AHAMIYATI ("LISON UT-TAYR" NING MOSLASHTIRILGAN MATNI MISOLIDA)." Ta'lim innovatsiyasi va integratsiyasi 16.3 (2024): 65-71.

16.Xabibillayev, Nodirbek. ""SAB'AI SAYYOR" ASARIDAGI AYRIM OBRAZLAR TAVSIFI." TADQIQOTLAR 32.2 (2024): 57-61