INTERNATIONAL MULTIDISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805

eISSN :2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 11 (2024)

SIGN LANGUAGE DEVELOPMENT

Muhammadjonova Dilafruz Farkhodjanovna

Teacher of the Department of Special Pedagogy of KSPI E-mail: muhammadjonovadilafruz01@gmail.com

Annotation: This article presents the stages of development of sign language, its progress, news in this field. In addition, an algorithm designed to recognize the typewriter alphabet of uzbek sign language is highlighted. The proposed algorithm uses the YOLO (You Only Look Once) object recognition algorithm, which is based on the Wrapped Neural Network (CNN) architecture.

Keywords: speech, sign language, child with hearing defect, typewriter, algorithm, intensity, communication, dissemination.

The use of sign language as the main means of communication originated fifty thousand years ago and is of great importance in human reasoning. For North American Indian tribes and Australians, silent communication was more comfortable in conditions of war and hunting; At the same time, gestures are used as a weapon of communication and as a component of religious ceremonies. The gesture system was applied to the various tribal groups of the Indians as a means of interpersonal communication in single, general councils, and trade transactions. He possessed his own grammar, fully satisfying the needs of his interlocutors. Gestures were often referred to by the speaker, with which the speaker expressed his opinion, and made logical points1 . Gestures are often also used in different areas of art, they express human emotions and moods, evoking different situations, emotions.

There is an independent gesture system in transport, army, sports and other areas. For example, driver signal signals, instructions from regulators at control posts; there is a set of gesture-commands to control the ranks; Participants in all types of sports have understandable gestures from international judges, regardless of their nationality. In addition to these relatively narrow communicative systems, there are sufficiently universal communication systems in terms of purpose and structural complexity. In particular, the deaf sign language system has the most complex structure within the various sign communication systems. A number of studies have been conducted on the perception and evaluation of deaf sign language. Sign language has a wide range of specific tools that express various lexical, morphological, and syntactic meanings. Gesture is a sign with a complex structure as the basic semantic unit of speech. The presence of a degree of gesture structure (phonologically comparable) in sign speech has been proved. This means that gesture speech and sign language have different linguistic structures. Gesture speech does not have its own grammar (it beats a verbal sentence), but it does have different lexical tools for expressing verbal meanings. Speaking sign language, or rather - all national sign language - is not a never-ending one, but a sufficiently complex and specific system of communication. This is evidenced by the data of linguistic studies carried out in the 70-80s of the last century in many countries of America and Europe (V. Stokoe, E. Clima, W. Bellugi) 18 . This means that at the present time the idea that sign speech is a linguistic system, which was first accepted by many experts (unfortunately some scientists in our country have not changed their minds), has been proven wrong by science. However, the fact that most people do not understand sign language is a major obstacle to finding a sufficient place in society. It is no exaggeration to say that one of the most important tasks of modern linguistics is to effectively translate sign language to people who do not understand this language through recordings. Rapidly developing artificial intelligence technologies and computer vision algorithms make it possible to convert sign language into text recording or audio information in real time.

INTERNATIONAL MULTIDISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805 eISSN :2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 11 (2024)

This article describes an algorithm for recognizing the dactyl alphabet of Uzbek Sign Language (OIT). In the development of the proposed algorithm, the object recognition algorithm YOLO (You Only Look Once), built on the architecture of a wrapped neural network (CNN), was used. There are more than 300 different sign languages in the world, and most of them are fully recognized as natural languages. There is also International Sign Language (ISL), which is used by deaf and hard-of-hearing people in different countries at international events and communication among the deaf. American Sign Language (AIT), Chinese Sign Language (HIT), British Sign Language (BIT), Russian Sign Languages (RIT) can be cited as common sign languages. RIT is used on the territory of Uzbekistan and other countries of the former Soviet Union. Initial research shows that the sign language used in Kyrgyzstan, Tajikistan, and Uzbekistan is not much different from the RIT used in the Russian Federation. However, there are also some differences based on the local cultural context. For example, the letters "D" and "J" are represented by characters different from the Russian alphabet, while the letters "O", "G", "Q" do not occur in the Russian dactyl alphabet because they are used only in Uzbek. Also, letters in the Russian typewriter alphabet, such as "Ш", "Ъ", "E", "Ë", "Ц", are not present in the Uzbek typewriter alphabet based on the Latin script. Figure 1 shows the Uzbek and Russian typescript alphabets. Typewriter alphabets of Russian and Latin script are currently used in the Republic.

Paragraph 5 of the Resolution of the President of the Republic of Uzbekistan "On additional measures for the development of the Uzbek sign language and braille alphabet" stipulates that until January 1, 2024, the development of the scientific foundations of Uzbekistan, based on the best foreign experience, the typewriter alphabet based on the Latin script, as well as the organization of competitions for the allocation of grants for research projects related to these works.

Based on the above-mentioned solution, it is aimed to develop an algorithm designed to recognize the typewriter alphabet in Latin script. A peculiar complexity of it is that since the letters of the alphabet are Latin, its symbol is derived from the characters of the Russian typewriter alphabet. This creates a number of complexities when translating sign language into text. That is, the sign language message described in the video will need to be translated into Latin text. The solution to this issue would be somewhat easier if this message could be converted into text in krill script. This disambiguation page lists articles associated with the title "Disambiguation". Figure 1. Uzbek and Russian typewriter alphabets. Literature review. Currently, many developed countries have developed software systems for sign language recognition. In countries such as the United States, Canada, China, and India, many achievements have been made in solving this issue. In recent years, algorithms based on deep learning have been seen as an important tool in improving the accuracy and speed of sign language recognition. In particular, the use of wrapped neural network architectures differs from other methods in terms of efficiency. The paper proposes a method for recognizing letter and numeric data based on the architecture of the YOLO model.

The authors used the MU hand-image set and the Okkhor Nama image set to evaluate the algorithm's effectiveness, achieving 98.9% and 97.6% accuracy, respectively. The study proposes a Generative Competing Neural Network (GANGenerative adversarial network) model, in which a hierarchical approach to gesture recognition is proposed. The proposed model includes two wrapped layers to describe continuous data, a hidden space representing a compressed view of incoming data, and layers that recognize its data (HAN). The authors used the CSL (Chinese Sign Language) and SLR (Sign language recognition) image database to evaluate the algorithm's effectiveness and achieved an average accuracy of 83% for both sets. The article proposes a neural network model with two introductory layers, in which the sign language sign image and

INTERNATIONAL MULTIDISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805 eISSN :2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 11 (2024)

special points of the hand representing this sign are trained as input to the model. In the initial processing phase, if you perform actions such as graving on the gesture image, reducing its dimensions, and defining borders, the coordinates where these points are located will be determined to determine special points of the hand. These two layers are merged before the fully linked layer and a pointer is classified as the output layer. This method achieved 96.24% accuracy in the image model and 96.29% in the special point model, while by combining the two methods, it recorded 98.98% accuracy. In addition to the above-mentioned methods and algorithms, many algorithms based on deep learning have been developed, but no such software method or algorithm has been developed for the Uzbek language. Putting the issue to rest. In this article, an algorithm for recognition of the dactyl alphabet of Uzbek Sign Language is proposed, and a transfer-learning approach was used to develop the algorithm, for which the YOLO architecture was selected. To train the model, a set of images consisting of characters from the Uzbek typewriter alphabet based on the Latin script was generated. We know that the development of artificial neural network models is carried out by training a large data set into the model. In turn, a set of requirements is imposed on the kit intended to train the model. The collection should distribute the educational samples in each class as evenly as possible, have a sufficient number of samples belonging to one class and reflect them in different forms (background, recourse, brightness, occlusion, etc.), and the same size of the samples. As we know from world experience, the first step in sign language recognition is the development of an algorithm designed to recognize the characters in the alphabet of this language. Each spoken language has letters and features that distinguish it from other languages, as well as the same letters and corresponding sign marks.

For example, based on the Latin script, the Uzbek dactyl alphabet also contains letters that are identical and different from the English ones. YOLO architecture was selected to construct the proposed model for the recognition of the typewriter alphabet of Uzbek Sign Language. The process of developing this architecture involves three stages (Figure 2). At the first stage, the characteristic features of the incoming image coming from the source are distinguished. It also performs a series of convolutions and consolidation operations to collect hierarchical features at different scales through the CNN model. At the second stage, a particular object is characterized, based on the features selected in the previous stage. At the third stage, the class to which the identified object belongs is classified. In our example, the objects identified at this stage are classified as what sign in sign language they represent. Figure 2. YOLO architecture. The structure of the proposed sign language letter recognition algorithm is shown in Figure 3. To teach the data to the model, a set of images consisting of images of the Uzbek typewriter alphabet based on the Latin script was generated. In the resulting set, the data is divided into 29 classes, which represent the 29 letters in the alphabet. Each class in the set has 13 for teaching and 3 for testing.

In conclusion, the theoretical aspects of the future surdopedagogical model of the development of sign speech will achieve the integrity of the pedagogical system in the conditions of its effective implementation. The essence of the model of developing sign language in students through the model of development in the education system, including extracurricular independent work, the formation of a democratic way of life of the educational institution, the establishment of a system of public control in students, developing all spheres of life of the educational institution and providing for the use of an active approach in education, practice-oriented interactive teaching methods will be related to understanding as such.

REFERENCES:

SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805 eISSN :2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 11 (2024)

1. Maxsus pedagogika (darslik). R.M.Roʻlatova, L.Sh.Nurmuxammedova, D.B.Yakubjanova, Z.N.Mamarajabova, Sh.M.Amirsaidova, A.D.Sultonova. - T.: "Fan va texnologiya" nashriyoti. 2014. - 520 b

2. Maxsus psixologiya L.R.Muminova, Z.N.Mamarajabova, D.B.Yakubjanova, Sh.M.Amirsaidova - T.: "Fan va texnologiya" nashriyoti. 2014. - 520 b

3. Muhammadjonova, Dilafruz. "Eshitishida nuqsoni bo'lgan bolalarning sezgi va idrok xususiyatlarining o'ziga xosligi." Science promotion (2023).

4. Muhammadjonova, Dilafruz. "ISSUES OF EFFECTIVE ORGANIZATION OF TEACHING WEAK HEARING CHILDREN TO WRITE." Science promotion (2023).

5. Muhammadjonova, Dilafruz. "SPEECH DEVELOPMENT OF DEAF CHILDREN." GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ) (2023). 6. Muhtorova, M. B., and Islomova Zahrohon. "O 'ZBEKISTONDA BOLA HUQUQLARINI HIMOYA QILISHNING ILMIY-NAZARIY ASOSLARI." INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION 3.25 (2024): 130-137.

7. Muxtorova, M. B., and Toshkentbayeva Nafosat. "O'ZBEKISTON RESPUBLIKASIDA BOLA HUQUQLARI VA ERKINLIKLARINING QONUNIY KAFOLATLARI." INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION 3.25 (2024): 124-129.

"MAXSUS 8. Muhtorova, Maftuna, and Gulmira Avazxonova. TA'LIM MUASSASALARIDA BOLA HUQUQLARI VA ERKINLIKLARINI TA'MINLASHNING AMALDAGI XOLATI." INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION 3.25 (2024): 92-97.

9. Muxtorova, M. B., and Muhammadjonov Shoxrux. "O 'ZBEKISTONDA BOLA HUQUQLARINI HIMOYA QILISH ASOSLARI." INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION 3.25 (2024): 87-91.

10. Raxmonovna, Kabirova Zarnigor. "DISGRAFIYADA OLIB BORILADIGAN KORREKSION ISHLAR." INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION 3.25 (2024): 98-103.

11. Rakhmonjonovna, Kabirova Zarnigor, Babayeva Azizabonu Hamidjonovna, and Ibrokhimova Sarvinoz Anvarjonovna. "TEACHING SPEECH FORMATION TO PRESCHOOL-AGE DYSARTIC CHILDREN." American Journal of Pedagogical and Educational Research 19 (2023): 52-55.

12. Rakhmonjonovna, Kabirova Zarnigor, Havodullayev Murodjon, and Ibrokhimova Sarvinoz Anvarjonovna. "ORIGIN OF DYSLALIA AND WAYS OF ITS ELIMINATION." American Journal of Pedagogical and Educational Research 19 (2023): 48-51.

13. Rakhmonjonovna, Kabirova Zarnigor, and Babayeva Azizabonu Hamidjonovna. "USE OF WORD FORMATION MODELS IN DYSARTHRIC CHILDREN." American Journal of Pedagogical and Educational Research 19 (2023): 61-64.

14. Murodjon, Khovodillayev, and Kabirova Zarnigor Rakhmonjonovna. "TECHNOLOGIES OF SPEECH FORMATION IN MENTALLY DEAD CHILDREN 9-13 YEARS OLD." American Journal of Pedagogical and Educational Research 19 (2023): 56-60.

15. Daughter, Turgunbayeva Zulkhumor Ibrahimjon. "CAUSES OF HEARING DEFECTS AND DESCRIPTION." Galaxy International Journal of Interdisciplinary Research 11.11 (2023): 653-656.

16. Ibragimovna, Turgunboyeva Zulkhumor. "DEVELOPMENTAL CHARACTERISTICS OF SPEAKING SKILLS OF HEARING-IMPAIRED STUDENTS." Science Promotion 1.2 (2023): 131-138.

SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805

eISSN :2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 11 (2024)

17. Turgunbayeva, Zulkhumor, and Saminakhan Odiljonova. "HEARING AID WORKING PRINCIPLE AND HEARING AID BASIC STRUCTURES." Theoretical aspects in the formation of pedagogical sciences 3.2 (2024): 146-151.

18. Turgunboyeva, Zulkhumor, and Nigora Bekmirzayeva. "IMPROVEMENT OF THE METHODOLOGICAL BASIS OF PROFESSIONAL DIRECTION OF CHILDREN WITH HEARING DEFECTS." Solution of social problems in management and economy 3.1 (2024): 202-207.

19. Nigina, Abdunazarova, and Yolchieva Dilfuza. "TECHNOLOGY FOR THE DEVELOPMENT OF SPEECH LOGIC IN NATIVE LANGUAGE LESSONS WITH STUDENTS OF SPECIAL INSTITUTIONS." Galaxy International Journal of Interdisciplinary Research 11.12 (2023): 1086-1090.

20. Feruza, Tursunova, and Qosimjonova Xurshida. "THE NEED TO EDUCATE STUDENTS BASED ON ANTHROPOCENTRIC APPROACH IN THE PROCESS OF INCLUSIVE EDUCATION." Miasto Przyszłości 48 (2024): 1520-1523.

21. Azimjon oʻg, Oppoqxoʻjayev Xojixuja, and Muxammadjonov Shohruhbek Shuxratbek oʻgʻli. "INKLYUZIV TA'LIMNING HUQUQIY-ME'YORIY ASOSLARI." Science Promotion 1.1 (2023): 50-57.

22. Oppoqxo'jayev, Xojixuja, and Qunduzabibi Yusupova. "MAXSUS PEDAGOGIKA FANLARINI O'QITISHDA INNOVATSION TEXNOLOGIYALARGA ASOSLANGAN AMALIY MASHG 'ULOTLARINI LOYIHALASH." Development and innovations in science 2.5 (2023): 25-31.

23. Turgunovna, Yuldoshova Dilbar, and Oppoqxoʻjayev Xojixuja Azimjon oʻg. "Pedagogical Mechanism Of Preparing Future Teachers For Professional Competence Formation." Onomázein 62 (2023): December (2023): 2186-2191.

24. Azimjon oʻg, Oppoqxoʻjayev Xojixuja. "INCLUSIVE EDUCATIONAL STRUCTURE AS A SOCIAL PHENOMENON." (2023).

25. Muhtorova, M. B., and Islomova Zahrohon. "O 'ZBEKISTONDA BOLA HUQUQLARINI HIMOYA QILISHNING ILMIY-NAZARIY ASOSLARI." INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION 3.25 (2024): 130-137.

26. Muxtorova, M. B., and Toshkentbayeva Nafosat. "O'ZBEKISTON RESPUBLIKASIDA BOLA HUQUQLARI VA ERKINLIKLARINING QONUNIY KAFOLATLARI." INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION 3.25 (2024): 124-129.

27. "MAXSUS Muhtorova, Maftuna, and Gulmira Avazxonova. TA'LIM MUASSASALARIDA BOLA HUQUQLARI VA ERKINLIKLARINI TA'MINLASHNING INNOVATIVE DEVELOPMENTS AMALDAGI XOLATI." AND RESEARCH IN EDUCATION 3.25 (2024): 92-97.

28. Muxtorova, M. B., and Muhammadjonov Shoxrux. "O 'ZBEKISTONDA BOLA HUQUQLARINI HIMOYA QILISH ASOSLARI." INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION 3.25 (2024): 87-91.

29. Islomjon, Haydarov, and Odilova Rushanabonu. "ORAL SPEECH AND ITS DEVELOPMENT FEATURES." Open Access Repository 9.11 (2023): 206-209.

30. Islomjon, Haydarov, and Odiljonova Saminakhan. "DIFFERENTIATION OF SENTENCES IN SCHOOL FOR HEARING IMPAIRED CHILDREN THE CONTENT AND ORDER OF THE WORK CARRIED OUT ON." Galaxy International Interdisciplinary Research Journal 11.11 (2023): 1071-1075.

31. Islamjan, Haydarov. "FORMATION OF ENVIRONMENTAL COMPETENCE OF HEARING-IMPAIRED STUDENTS IN EXTRACURRICULAR ACTIVITIES IN SCIENCE." Galaxy International Interdisciplinary Research Journal 11.11 (2023): 536-540.

SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805 eISSN :2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 11 (2024)

32. Islomjon, Haydarov. "In this article, the importance of excursions in specialized educational institutions for students with hearing impairments and ways to shape their knowledge of Natural Science through excursions. Information is provided about the corrective-pedagogical o." Onomázein hosts unpublished articles derived from scientific research 1963 (1958).

33. Qizi, Xonbabayeva Madinabonu Asqarjon. "Methods of Pedagogical-Psychological Correction of Future Logic Therapists with Special School Children." American Journal of Public Diplomacy and International Studies (2993-2157) 1 (2023): 37-40.

34. Qizi, Xonbabayeva Madinabonu Asqarjon. "eshitishida nuqsoni boʻlgan bolalarning ruhiy rivojlanishi qonuniyatlari." Confrencea 12.12 (2023): 61-69.

35. QIZI, Xonbabayeva Madinabonu Asqarjon. "stages of development of teacher professional competence." (2023).

36. QIZI, Xonbabayeva Madinabonu Asqarjon. "essential characteristics of education and psychological competence and formation of future logic therapists." galaxy international interdisciplinary research journal (GIIRJ) (2023).

37. Qizi, Xonbabayeva Madinabonu Asqarjon. "kognitiv jarayonlarning rivojlanish xususiyatlari." Confrencea 12.12 (2023): 53-60.

38. Muhammadjonova, Dilafruz. "Eshitishida nuqsoni bo'lgan bolalarning sezgi va idrok xususiyatlarining o'ziga xosligi." Science promotion (2023).

39. Muhammadjonova, Dilafruz. "ISSUES OF EFFECTIVE ORGANIZATION OF TEACHING WEAK HEARING CHILDREN TO WRITE." Science promotion (2023).

40. Muhammadjonova, Dilafruz. "SPEECH DEVELOPMENT OF DEAF CHILDREN." GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ) (2023).

41. Daughter, Turgunbayeva Zulkhumor Ibrahimjon. "CAUSES OF HEARING DEFECTS AND DESCRIPTION." Galaxy International Journal of Interdisciplinary Research 11.11 (2023): 653-656.

42. Ibragimovna, Turgunboyeva Zulkhumor. "DEVELOPMENTAL CHARACTERISTICS OF SPEAKING SKILLS OF HEARING-IMPAIRED STUDENTS." Science Promotion 1.2 (2023): 131-138.

43. Turgunbayeva, Zulkhumor, and Saminakhan Odiljonova. "HEARING AID WORKING PRINCIPLE AND HEARING AID BASIC STRUCTURES." Theoretical aspects in the formation of pedagogical sciences 3.2 (2024): 146-151.

44. Turgunboyeva, Zulkhumor, and Nigora Bekmirzayeva. "IMPROVEMENT OF THE METHODOLOGICAL BASIS OF PROFESSIONAL DIRECTION OF CHILDREN WITH HEARING DEFECTS." Solution of social problems in management and economy 3.1 (2024): 202-207.

45. Nigina, Abdunazarova, and Yolchieva Dilfuza. "TECHNOLOGY FOR THE DEVELOPMENT OF SPEECH LOGIC IN NATIVE LANGUAGE LESSONS WITH STUDENTS OF SPECIAL INSTITUTIONS." Galaxy International Journal of Interdisciplinary Research 11.12 (2023): 1086-1090.

46. Murodjon, Xovodillayev, D. Abdurazoqova, and Ortiqov Muhtorilla. "9-13 YOSHDAGI AQLI ZAIF BOLALARDA BOG'LANGAN NUTQNI SHAKLLANTIRISH ISHLAR TIZIMI." INTERNATIONAL SCIENTIFIC RESEARCH CONFERENCE. Vol. 2. No. 19. 2023.

47. Xovodillayev, M. X., and Nazorova Qizlarxon. "NUTQ NUQSONLARINI ANIQLASH VA BARTARAF ETISH ISHLARINI TASHKIL ETISH." INTERNATIONAL SCIENTIFIC RESEARCH CONFERENCE. Vol. 2. No. 19. 2023.

48. Xovodillayev, M. X., Qodirov Dilyor, and Xudoyberdiyev Javohir. "OG'IR INTELEKTUAL NUQSONGA EGA BOLALARNING PSIXOLOGIK-PEDAGOGIK

SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805

eISSN:2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 11 (2024)

XUSUSIYATLARI." INTERNATIONAL SCIENTIFIC RESEARCH CONFERENCE. Vol. 2. No. 19. 2023

49. Oppakhho'jayev, Son Of Khojikhuja Azimjon. "Technologies For Developing Inclusive Readiness Of Families Based On A Competent Approach." Asian Journal Of Multidimensional Research Issn: 2278-4853.

50. Azimjon oʻg, Oppoqxoʻjayev Xojixuja. "Inclusive Education System Progress of the Process." INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429 11.11 (2022): 199-206.

51. Shavkatjon's son, Nabiyev Ravshanjon. "SPECIAL EDUCATIONAL NEEDS OF CHILDREN WITH AUTISM." OBRAZOVANIE NAUKA I INNOVATSIONNYE IDEI V MIRE 36.4 (2024): 164-168.

52. Shavkatjon son , Nabiyev Ravshanjan . "PREPARATION OF CHILDREN WITH AUTISM SYNDROME FOR SCHOOL EDUCATION." OBRAZOVANIE NAUKA I INNOVATSIONNYE IDEI V MIRE 36.4 (2024): 159-163.

53. Shavkatjon son, Nabiyev Ravshanjan. "METHODS OF DEVELOPMENT OF THE SPEECH OF MENTALLY DISABLED STUDENTS." OBRAZOVANIE SCIENCE I INNOVATION IDEA V MIRE 36.5 (2024): 8-12.

54. Shavkatjon's son, Nabiyev Ravshanjon, and Ahmadaliyev Otabek Ravshanbek's son. "TECHNIQUES FOR WORKING WITH CHILDREN WITH AUTISM." OBRAZOVANIE SCIENCE I INNOVATION IDEA V MIRE 36.4 (2024): 146-150.

55. Shavkatjon's son, Nabiyev Ravshanjon. "PRESCHOOL OLIGOPHRENOPSYCHOLOGY AS A SCIENCE." OBRAZOVANIE NAUKA I INNOVATSIONNYE IDEI V MIRE 36.6 (2024): 156-161.

56. Shavkatjon son , Nabiyev Ravshanjan . "CHILDREN WITH DEFECTS IN THE LOCOMOTIVE SYSTEM." OBRAZOVANIE NAUKA I INNOVATSIONNYE IDEI V MIRE 36.6 (2024): 149-155.

