



ORIGINAL

## Problems and prospects of developing spelling skills in schoolchildren with visual impairments in Uzbekistan

### Problemas y perspectivas del desarrollo de las habilidades ortográficas en los escolares con discapacidad visual en Uzbekistán

Nozima Muratova<sup>1</sup> , Gulsanam Khasanova<sup>2</sup>  , Xurshid Toshov<sup>3</sup> , Ozod Kurbanov<sup>4</sup> 

<sup>1</sup>Vice-rector of scientific affairs and innovations, Journalism and mass communication university of Uzbekistan. Tashkent, 100123, Uzbekistan

<sup>2</sup>Head of foreign languages department, Journalism and mass communication university of Uzbekistan. Tashkent, 100123, Uzbekistan

<sup>3</sup>Department of philosophy and logic, National university of Uzbekistan. Tashkent, 100123, Uzbekistan

<sup>4</sup>Journalism and mass communication university of Uzbekistan. Tashkent, 100123, Uzbekistan

**Cite as:** Muratova N, Khasanova G, Toshov X, Kurbanov O. Problems and prospects of developing spelling skills in schoolchildren with visual impairments in Uzbekistan. *Salud, Ciencia y Tecnología - Serie de Conferencias*. 2024 ;3: 1219. <https://doi.org/10.56294/sctconf2024.1219>


**Submitted:** 12-03-2024

**Revised:** 02-07-2024

**Accepted:** 19-10-2024

**Published:** 20-10-2024

**Editor:** Prof. Dr. William Castillo-González 

**Corresponding author:** Gulsanam Khasanova 

#### ABSTRACT

This article addresses issues concerning the development of accurate word pronunciation skills in English among students with visual impairments in Uzbekistan. The challenges include a scarcity of Braille literature, discrepancies in word writing and pronunciation between Uzbek and English, confusion stemming from similarities and differences in the Braille-based English alphabet and the Latin-script Uzbek alphabet, as well as a lack of educational materials and the production of essential and supplementary educational literature. The complexities associated with these issues are examined, with particular focus on psychological obstacles faced by students in the same demographic when learning English. Additionally, practical recommendations for enhancing this field will be formulated based on empirical research findings. Special attention is also given to the needs of consumers requiring educational materials for this demographic, adherence to academic standards, and the promotion of a conducive learning environment for students with visual impairments studying English. In addition, the issue of ensuring communication between schoolchildren with visual disabilities and their teachers, as well as assistants aiding in lesson preparation for the same group of students, in creating child-specific dictionaries and educational literature, is being addressed. There is also a need to coordinate the efforts of both state and non-state organizations on international and local levels to support the development of dictionaries and educational materials for teaching English to visually impaired students in Uzbekistan, along with establishing a system for delivering them and the necessary educational equipment.

**Keywords:** Braille; Spelling; Specialized Boarding School; Special Printer; Visually Impaired Individual; Contact Book; Audio.

#### RESUMEN

Este artículo aborda cuestiones relativas al desarrollo de habilidades de pronunciación precisa de palabras en inglés entre alumnos con discapacidad visual de Uzbekistán. Los retos incluyen la escasez de literatura en Braille, las discrepancias en la escritura y pronunciación de palabras entre el uzbeko y el inglés, la confusión derivada de las similitudes y diferencias en el alfabeto inglés basado en Braille y el alfabeto uzbeko de escritura latina, así como la falta de materiales educativos y la producción de literatura educativa esencial

y complementaria. Se examinan las complejidades asociadas a estas cuestiones, prestando especial atención a los obstáculos psicológicos a los que se enfrentan los estudiantes del mismo grupo demográfico a la hora de aprender inglés. Además, se formularán recomendaciones prácticas para mejorar este campo basadas en los resultados de investigaciones empíricas. También se presta especial atención a las necesidades de los consumidores que requieren materiales educativos para este grupo demográfico, el cumplimiento de las normas académicas y la promoción de un entorno de aprendizaje propicio para los alumnos con discapacidad visual que estudian inglés. Además, se aborda la cuestión de garantizar la comunicación entre los escolares con discapacidad visual y sus profesores, así como los asistentes que ayudan en la preparación de las clases para el mismo grupo de alumnos, en la creación de diccionarios y literatura educativa específicos para niños. También es necesario coordinar los esfuerzos de las organizaciones estatales y no estatales a nivel internacional y local para apoyar el desarrollo de diccionarios y materiales educativos para la enseñanza del inglés a alumnos con discapacidad visual en Uzbekistán, junto con el establecimiento de un sistema de entrega de los mismos y del equipamiento educativo necesario.

Palabras clave: Braille; Ortografía; Internado especializado; Impresora especial; Persona con discapacidad visual; Libro de contactos; Audio.

## INTRODUCTION

The advancement of the education system holds significant importance in any modern society, particularly in Uzbek society. Providing comprehensive assistance to schoolchildren with visual disabilities and creating conducive environments for them to showcase their abilities are crucial aspects of the state's social policy. Teaching foreign languages to young individuals, supplying special schools with educational materials and dictionaries that adhere to global standards, and devising specialized language teaching methods for visually impaired students are all essential. Therefore, addressing the issue of teaching a foreign language to young people, especially those with visual impairments, necessitates a specific sociological analysis. Because young individuals, as an active social group, play a crucial role in embracing and implementing changes in society. Furthermore, a key social aspect in this context is the seamless and rapid integration of visually impaired youth into society. Therefore, a thorough examination of the challenges related to teaching a foreign language in specialized boarding schools like "Nurli Maskan" is a pressing issue within the education system.

In Uzbekistan, the teaching of foreign languages is a key focus of educational policy. To enhance the quality of education, attract skilled educators, and boost interest in learning foreign languages, decision № PD-5117 was issued by President Sh. Mirziyoev on May 19, 2021. This decision aims to elevate the promotion of foreign language learning in Uzbekistan to a higher standard.

Following this decision, numerous practical, theoretical, and methodological works are currently underway in the republic concerning the teaching of foreign languages, particularly English. It is important to highlight that there is a significant demand for specialized resources for individuals with visual impairments in the same vein, along with new and innovative ideas to facilitate their learning of the English language. Furthermore, paragraph 14 of decision PD-57 "On comprehensive support of persons with disabilities, assistance to their employment and additional measures to further increase their social activity" adopted on December 21, 2021, outlines the enhancement of education for individuals with visual impairments to elevate it to a higher standard, with specific objectives established to broaden the range of specialized resources.

It should be noted that in the English language, there are differences in the order of writing and reading words. To differentiate them, one must be able to read and pronounce words accurately. Consequently, students with visual impairments who primarily learn English through listening encounter challenges in forming written language. This is due to the lack of precise Braille resources and educational materials for reading. Currently, only two Braille English manuals are available for the visually impaired. In such circumstances, their language learning difficulties intensify. Therefore, the development of the "Spelling audio dictionary" audiobook, offering new opportunities for mastering the English language, can help alleviate this issue.

The printing of various dictionaries and educational literature in Uzbekistan can be attributed to the lack of experience in this field. Therefore, it is evident that "there is a significant need to explore the perspectives of consumers and experts regarding the creation, publication, and targeted distribution of such dictionaries."

## METHOD

According to the subject's level of study, all literature can be categorized into two groups: scientific-theoretical works and practical research materials.

In particular, Russian researchers Minina et al.<sup>(19)</sup> examined methods of teaching English specialized in medicine and humanities to visually impaired students, while Gritsishina et al.<sup>(11)</sup> analyzed ways to model life

situations and enhance spelling skills through game technologies.

Researchers from Dagestan State Pedagogical University, Malaev et al.<sup>(17)</sup>, focused on methodological aspects, emphasizing the importance of creating a supportive and corrective-developmental environment for children with visual disabilities. They highlighted the significance of using adaptive teaching methods in English education, incorporating information technology, and ensuring equal opportunities within special educational standards. The researchers emphasized that only through these approaches can every student requiring special education fully showcase their creative potential and abilities.

The team of authors from North-Eastern Federal University, named after M.K. Ammosov in Russia, including Nikolayev et al.<sup>(20)</sup>, have conducted a groundbreaking analysis of teaching foreign languages to students with visual disabilities, including those who are completely blind. They have examined the methodology and a new approach to teaching foreign languages for the first time. The results of their experimental study, which was successfully carried out among middle and high school students at a special boarding school for visually and hearing impaired children in the Republic of Sakha (Yakutia), as well as students at North-Eastern Federal University, involved testing a specially designed computer program called “Communicative English for Visually Impaired Students.” In their article titled “An Innovative Approach to Teaching Foreign Languages Based on Inclusive Education for Blind Students,” the co-authors have confirmed that this method can be effectively used for didactic purposes to study any subject within the framework of inclusive education for visually impaired individuals of various age groups.

Researcher H. Ridding from Uzbekistan State World Languages University examined the theoretical basis for enhancing listening comprehension skills in blind students using interactive methodologies. Drawing on various educational theories and practices, the researcher highlighted the importance of multisensory education, Universal Design for Learning (UDL), and the significance of assistive technologies in fostering an inclusive learning environment. Through an exploration of theoretical frameworks and empirical evidence, educators can acquire valuable insights for crafting effective instructional approaches that cater to the specific needs of visually impaired students. In the article titled “Theoretical Foundations of developing listening comprehension of blind students through interactive methods,” the author delved into the role of interactive methods in boosting the engagement of blind students, facilitating comprehension, and promoting academic achievement.

Another Russian researcher Y.Ivanova discussed the unique aspects, program, and methodology of teaching English to the blind and visually impaired, using Russia and the USA as examples.<sup>(5)</sup> He proposed that 15-year-old students in this category should undergo an audiolingual course to learn English through auditory methods, focusing on mastering the professional vocabulary of the language.

Vorobyeva et al.<sup>(21)</sup>, English teachers at K. Grot State Boarding School № 1 in St. Petersburg, highlight the individuality and cognitive abilities of blind and visually impaired students when teaching them, categorizing their characteristics in relation to foreign language lessons. The authors explored the topic of “Developing a variation model in general education for the implementation of FSES (in the context of a correctional boarding school)” using an experimental approach at the city level, aiming to find a personalized teaching approach for visually impaired students, specifically addressing the challenges of their adaptation to school.

A group of graduate students from Ulyanovsk State Technical University (Russia), Boshkov et al.<sup>(6)</sup> conducted a study on the impact of visual impairment on foreign language learning in a school in Ulyanovsk. The study showed that students with visual impairments have equal learning opportunities compared to their healthy peers. They successfully learned English using audio files, improved their speech, and enhanced their listening comprehension, writing, and reading skills through the Braille alphabet.

Doctor of Philology, Associate Professors A.Mikhailova and Y.Shilova researched methods and forms of creating an inclusive learning environment for visually impaired children in English classes. They proposed a lesson model based on audio-lingual and communicative teaching methods to engage students in English classes in an inclusive setting. Furthermore, they provided examples of assignments for both classroom and extracurricular activities using educational software to support visually impaired children and serve as a valuable resource for teachers.

Researchers from Southern Illinois University, Kapperman et al.<sup>(15)</sup>, elucidated technological procedures for enhancing the ability to perform tasks and written works in a foreign language for children who read in Braille. These procedures empower visually impaired learners to independently learn a foreign language without the aid of a teacher. As per the method outlined, if a computer provides foreign language audio lessons, a teacher is only necessary if the student has access to the appropriate technology and possesses the skills to utilize it.

Başaran et al.<sup>(4)</sup>, a professor at Turkey’s Dijle University, focuses on analyzing methods and materials for teaching English as a foreign language to blind and visually impaired students. Three English teachers for visually impaired students were interviewed, each conducting a forty-minute lesson. The challenges faced by teachers in teaching English to visually impaired students in the classroom, student assignment issues, and class control problems were discussed. The analysis of the interview data reveals a variety of errors, family issues, curriculum concerns, verbalism, teachers’ resource proficiency, and reliance on traditional grammar-

translation methods. This is attributed to the lack of professional training for teachers instructing visually impaired children in English. The participants consist of foreign language students in Turkey, highlighting the need for policymakers to review and enhance qualification programs for language teachers in blind schools. The author suggests implementing retraining courses for English as a Foreign Language (EFL) teachers to cater to students with special needs.

The research by Jana Hanzalkova, a researcher at Masaryk University (Czech Republic), is noteworthy. She explored methods of teaching English to visually impaired students using tactile materials, classroom equipment, and extracurricular activities such as touch, relief tactile graphics, audio materials, and electronic resources. The study aimed to enhance the effectiveness of online courses and included suggestions and recommendations.

The study used a standardised interview method. The interview questions were based on the aims and objectives of the study and were conducted in person.

A total of 7 respondents, foreign language teachers of special schools for the blind in Bukhara and Fergana, participated in the study. Of the respondents, 5 were women, 2 were men, of whom 1 was disabled, and the remaining 6 were non-disabled teachers. The average age of the respondents was 25-35 years.

Interviews on the formation of spelling skills of visually impaired students were conducted among English teachers working in specialised boarding schools “Nurli Maskan” in Bukhara and Fergana. Four teachers from Bukhara and three from Fergana took part in the interviews.

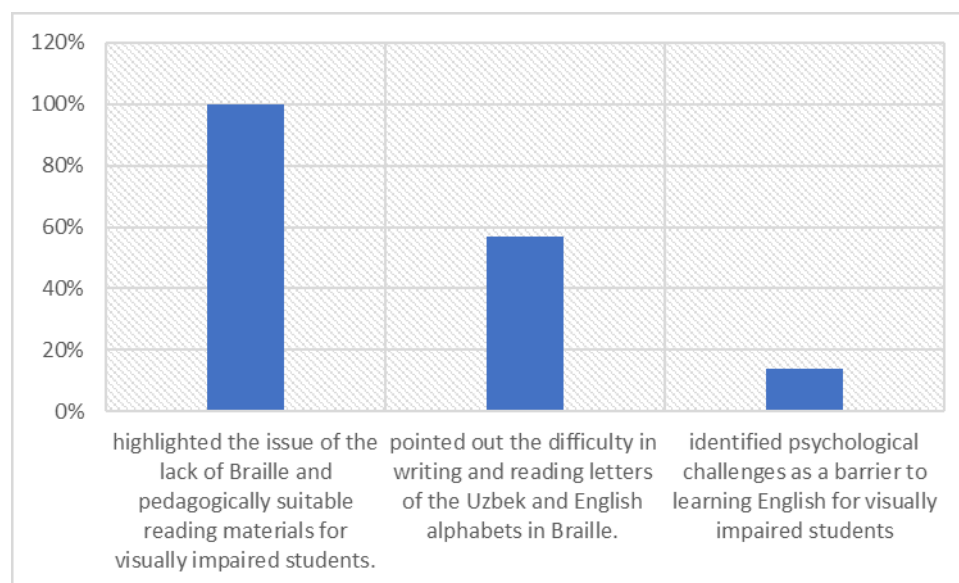
## RESULTS

The interviewees were asked only 15 questions related to the development of orthographic skills in visually impaired students. Each of the interviews was conducted individually.

Firstly, the respondents were asked: “In your personal experience, what are the most common problems you face when teaching English to visually impaired students?”

All respondents mentioned the problem of the lack of educational literature, not only specialised in pronunciation standards, but also general Braille and educational literature for visually impaired students. At the same time, the third, fifth, sixth and seventh respondents mentioned the problem of writing and reading letters of the Uzbek and English alphabets in Braille. For example, such cases as “(V) in the English Braille-based alphabet represents (O’), (y) in the Uzbek Braille-based alphabet, and (q) represents the letter (ch)” are of serious importance for the formation of writing and reading skills in English was shown to be one of the problems. In addition, all respondents noted problems with spelling and reading letters in English, and the fact that certain combinations of letters take a completely different form in pronunciation.

*In your personal experience, what are the most common challenges you face when teaching English to visually impaired students?*



**Figure 1.** Most common challenges faced in English teaching to visually impaired students

100 % highlighted the issue of the lack of Braille and pedagogically suitable reading materials for visually impaired students. 57 % pointed out the difficulty in writing and reading letters of the Uzbek and English



alphabets in Braille. 14 % identified psychological challenges as a barrier to learning English for visually impaired students.

The fourth participant mentioned that alongside these challenges, psychological issues pose obstacles to learning English for visually impaired students. He shared that many visually impaired students feel mastering English is unattainable due to the scarcity of literature. Consequently, they doubt their ability to utilize English in various domains such as education, research, tourism, and employment.

The study results indicate that the primary challenge lies in the absence of educational resources for teaching English to visually impaired students, particularly in spelling skills. The distinctions between writing and reading Uzbek and English letters in Braille rank as the secondary issue. Subsequently, differences in spelling and pronunciation of English letters, as well as challenges in transcribing English words, follow. These challenges are interconnected and must be addressed collectively, as unanimously agreed by the respondents. The solutions to these issues are interdependent and require a comprehensive approach for resolution.

How do you evaluate the availability of special educational literature and materials needed for teaching English to individuals with visual impairments in Uzbekistan? All respondents unanimously stated that this aspect is significantly lacking. They attributed this to their limited knowledge of educational resources beyond elementary school textbooks (grades 1-4). They noted a lack of awareness regarding educational materials like “English language lessons” and an “English-Uzbek dictionary in Braille”. Only two respondents mentioned being familiar with the book “English Language Lessons”, but admitted they had not used it.

It is important to note that in 2015, a specialized manual combining English and Uzbek languages was developed by the Republican Society of the Blind using grant funds provided by the public fund for supporting non-governmental non-profit organizations and other civil society institutions under the Oliy Majlis of the Republic of Uzbekistan. This manual covers fundamental English language skills such as “reading”, “writing”, “speaking”, and “listening”. The listening section of the manual is available in audio format, while the reading section is provided in Braille and enlarged print for the visually impaired. Additionally, materials in Word format are included to facilitate the use of a speech synthesizer. The manual consists of 12 lessons encompassing grammar rules, exercises for practice, texts to enhance reading comprehension and vocabulary acquisition, and dialogues to improve conversational skills. It is recommended to utilize all components of the manual simultaneously during the learning process.

In 2017, a specialized English-Uzbek dictionary was compiled and released in Braille as part of a project funded by the public fund under the Oliy Majlis of the Republic of Uzbekistan. The initial page of this dual-volume guide, created using the “Sloved” e-dictionary, showcases the English alphabet alongside its representations in standard and Braille formats. Additionally, to assist learners, the pronunciation of English letters is detailed in the Latin script. The dictionary is structured alphabetically, featuring over 1500 words commonly used in daily life. Within the book, some challenges arise concerning the pronunciation of English words, attributed to their representation in the Uzbek alphabet based on Braille Latin script. Furthermore, the transcriptions of English word pronunciations in a specialized script are not widely known.

From the respondents’ answers, it is evident that the availability of educational literature and materials for teaching English to visually impaired students in Uzbekistan is relatively low. The current educational resources have not been supplied to special schools. Considering this situation, the relevant ministries, in collaboration with non-governmental and non-profit organizations and international bodies, should conduct research to assess the required amount of educational literature, materials, multimedia resources, and equipment for these students. Subsequently, based on the findings, they should gradually fulfill these needs. It is essential to establish a government program focused on producing specific resources and systematically distributing them. This program should incorporate mechanisms to support the initiatives of both governmental and non-governmental organizations, universities, and research institutions specializing in assisting individuals with disabilities.

All respondents highlighted the necessity for “English-Uzbek” dictionaries in Braille as a response to the question “In your opinion, what other educational literature and materials are needed, for example (textbooks, dictionaries, handouts) besides special school textbooks?” They emphasized that such dictionaries are crucial tools in addressing the challenges students face in developing work-related skills such as writing and pronunciation. According to them, the presence of these dictionaries enables students to independently learn the spelling, pronunciation, and translation of new words. Based on their experiences, respondents mentioned that when students encounter a new English word, they have to wait until the next lesson to meet with the teacher to learn its spelling, pronunciation, or Uzbek translation due to the absence of dictionaries. Often, students forget the new words before the next lesson. They also highlighted that dictionaries help enhance students’ English reading skills to some extent when textbooks are not available.

Additionally, apart from textbooks and study guides, the necessity for books containing texts was emphasized as essential supplementary material. Since the current textbooks offer a limited number of thematic short texts, students lack sufficient resources to improve their English reading and comprehension skills. At the

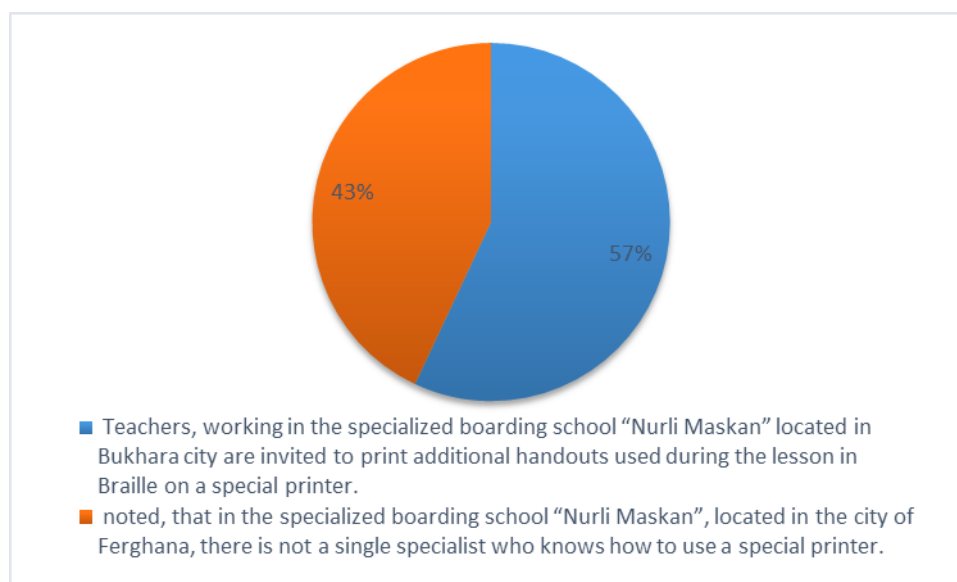
specialized boarding schools' libraries in "Nurli Maskan," where the respondents are employed, English fiction books in Braille from foreign countries are printed using special abbreviations. However, both students and teachers struggle to read them, limiting the utilization of such literature. The respondents suggested that the Ministry of Preschool and School Education of the Republic of Uzbekistan should conduct practical seminars and training sessions to address these issues or create and distribute methodological guidelines on deciphering and understanding the abbreviations found in Braille-printed English texts. Furthermore, the interview participants unanimously stressed the importance of producing English books with texts, as well as artistic and journalistic literature in Braille in Uzbekistan, and ensuring their systematic and regular delivery to the specialized boarding schools "Nurli Maskan".

The analysis of empirical research on the same question reveals a significant need in Uzbekistan for not only textbooks and study guides but also "English-Uzbek" dictionaries in Braille, along with books containing texts, artistic and publicist literature, and handouts used in teaching English to visually impaired students. The current literature of this kind is insufficient in quantity to meet the existing demand. Although a few "English-Uzbek" dictionaries in Braille have been published, the distribution of additional literature remains unestablished. This is supported by the fact that most respondents indicated a lack of awareness regarding available literature, apart from textbooks and training manuals in Braille. Only one respondent mentioned seeing the manual "English Lessons," while another respondent had only heard of its title. They expressed unfamiliarity with literature such as the "English-Uzbek" dictionary and "Grammar a News" both published in Braille in 2018.

Consequently, this raises the question of how English teachers instructing visually impaired students are managing the scarcity of literature in this format. "Based on your personal experience, how do you address the lack of additional literature besides textbooks and study guides?" The respondents gave the following answers to our question:

The respondents at the specialized boarding school "Nurli Maskan" in Bukhara mentioned that they print extra handouts for lessons on a Braille printer. However, interviews revealed challenges with this method. English teachers lack the necessary skills to operate the printer, and some are unaware of its existence. Additionally, there is a lack of specialists at "Nurli Maskan" who can fully utilize the printer's capabilities. This hinders the production of additional materials for English classes on the special printer.

*According to your personal experience, what ways of coping with the deficiency of textbooks and methodological manuals do you try to appeal to?*



**Figure 2.** Ways of coping with the deficiency of textbooks and methodological manuals

57 % of Teachers, working in the specialized boarding school "Nurli Maskan" located in Bukhara city are invited to print additional handouts used during the lesson in Braille on a special printer. 43 % noted, that in the specialized boarding school "Nurli Maskan", located in the city of Ferghana, there is not a single specialist who knows how to use a special printer.

It is known that many English language learning materials are usually enriched with various visual images (e.g., photographs, tables, materials in graphic format, and maps). Converting or adapting data in this format

to braille poses many challenges. Respondents 2, 3, 5, 6, 7 mentioned that there is a great need for training workshops and educational courses aimed at building skills in using a special printer.

In addition, all respondents reported that they prepare additional Braille materials (e.g., texts on topics and dictionaries) in handwritten form, which is needed in English classes. But based on their personal experience, they say that such a solution to the problem requires a lot of time and resources. After all, if there are on average ten students in one class, it is practically impossible to prepare a separate handout for each of them in handwritten form. Therefore, teachers usually have the opportunity to prepare only one or two copies of such materials. Firstly, it destroys the possibility of providing teaching material to all students of one class, and secondly, the use of one or two copies of the material by each student leads to a decrease in its quality. More precisely, the handwritten material prepared by the end of the lesson becomes practically useless. Also, it reduces the duration of using the handwritten material and negatively affects the distribution of the amount of time allocated to the learning process. As a result, the possibility of fully mastering the material to be learned in the lesson is reduced.

Summing up the empirical research on this issue, we can say that the Ministry of Preschool and School Education of the Republic of Uzbekistan, in cooperation with local and international, governmental and non-governmental organizations working in this field, uses special printers. intended for printing Braille materials, in the specialized boarding school “Nurli Maskan” it is desirable for teachers to organize educational courses aimed at the formation of the acquired skill on a systematic basis.

In addition, the limited number of available printers in specialized boarding schools “Nurli Maskan” further complicates the situation, given the fact that additional Braille teaching materials for English classes are regularly updated. According to 5 respondents, this problem can be solved to some extent by introducing specialized displays for Braille writing in specialized boarding schools “Nurli Maskan” and organizing training courses to improve the qualification of teachers and students on their use.

Also, four respondents noted that instead of flat descriptions of photos, maps, and drawings in writing, visual aids like object models and picture reliefs can be utilized. However, they pointed out that the specialized boarding schools “Nurli Maskan” lack such visual aids, leading teachers to resort to manual teaching aids. They emphasized the significant necessity for visual teaching aids in classes with elementary students. For instance, respondent No. 4 encountered considerable difficulty explaining the concept of the sun to his first-grade teacher during an English lesson. Despite describing the sun as round and mentioning its light and heat emissions, the student couldn't grasp the idea. Consequently, the teacher took the student outside, allowing him to feel the warmth of the sun, which helped him understand to some extent. The evident need for specialized visual aids in English classes to fulfill educational requirements is clear. Furthermore, it facilitates visually impaired learners in comprehending visual information from text-based educational materials. The analysis results reveal that the Ministry of Preschool and School Education of the Republic of Uzbekistan has established a panel of experts comprising state entities responsible for the sector, local and international foundations, public associations, English-speaking organizations, and language teachers and specialists from “Nurli Maskan” specialized boarding schools. The Ministry of Preschool and School Education of the Republic of Uzbekistan can conduct research by participating as a customer in grant project competitions held by the Ministry of Higher Education, Science, and Innovation of the Republic of Uzbekistan. Based on the results of the studies, it will be possible to establish a system of regular production and supply based on a certain volume of demand and a formed list of special visual aids. In this regard, the Ministry of Preschool and School Education of the Republic of Uzbekistan can effectively use the mechanism of legislative initiative.

Respondents were asked: “In what format would you prefer to prepare English-Uzbek dictionaries for schoolchildren with visual impairments (e.g., Braille only, audio only, or Braille with attached audio materials)?” The question was considered. All respondents to this question emphasized that “English-Uzbek” dictionaries intended for schoolchildren with visual impairments should be prepared in Braille with attached audio materials. According to all respondents, if such dictionaries are prepared only in Braille, it creates problems for pupils with visual impairments in mastering the correct pronunciation of English words. Five respondents, based on their personal experience, said that pupils often forget the pronunciation of words taught by the teacher during the lesson after the training. If “English-Uzbek” dictionaries designed for visually impaired students are created in Braille with accompanying audio materials, students will be able to learn the pronunciation of words on their own.

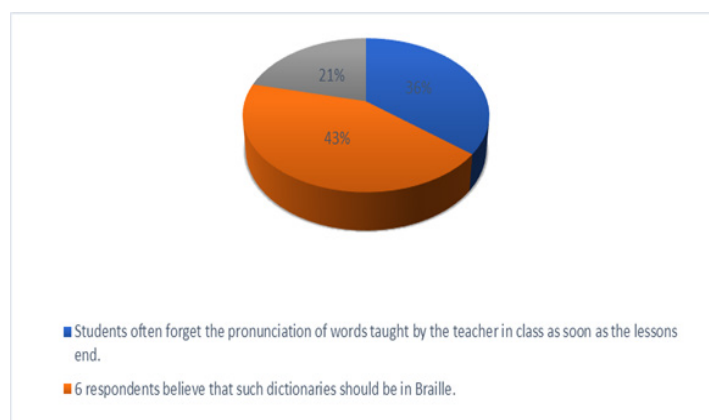
Moreover, six participants advocate for the compilation of such dictionaries in Braille. They justify this by stating that it is the most effective approach for developing the reading abilities of visually impaired students in Uzbekistan, where there is a shortage of educational materials containing English texts in Braille.

Three respondents emphasized the essential role of these resources in fostering the accurate spelling skills of visually impaired students when it comes to English words.

When compiling “English-Uzbek” Braille dictionaries for schoolchildren with visual impairments, which technology is more effective for expressing the pronunciation of English words using Uzbek letters of the Latin

alphabet based on Braille or for presenting the pronunciation of English words using Braille? Using the attached audio material instead of such an expression, the results of the question were as follows:

*In what format do you prefer ‘English-Uzbek’ dictionaries designed for visually impaired students to be prepared (e.g., Braille only, audio only, or Braille with audio materials attached)?*



**Figure 3.** Preferred form of ‘English-Uzbek’ dictionaries designed for visually impaired students

“English-Uzbek” dictionaries intended for schoolchildren with visual impairments should be compiled in Braille with audio materials attached. Students often forget the pronunciation of words taught by the teacher in class as soon as the lessons end. 6 respondents believe that such dictionaries should be in Braille. 3 respondents mentioned that these types of resources are a necessary factor in developing the skills of correct spelling of English words in students with visual impairments.

All respondents stated that when compiling such dictionaries, it is necessary to write down English words and their Uzbek translation in Braille, as well as to provide pronunciation of English words by attaching materials in audio format. According to their personal experience, the spelling and pronunciation of new words are taught in English classes for visually impaired students in the following order:

First, new words related to the topic are introduced orally by the teacher along with their Uzbek translations. The English spelling of each word is then recorded in the student’s vocabulary notebooks in the form of letters. After that, the pronunciation of this word is recorded by presenting Uzbek letters in the Latin alphabet based on the Braille alphabet. For example, the word “day” is pronounced as “dey”. Or “yesterday” is pronounced as “yesterday” and “book” is pronounced as “buk” in English. Finally, the Uzbek translation of the word is written at the end.

In the opinion of all respondents, writing of new words on the topic in student dictionaries occurs in such two forms (first in the English alphabet based on Braille, or rather, the correct spelling of the word, then in the form of its pronunciation in Uzbek letters of the Latin alphabet based on Braille) causes some confusion.

According to the results of case studies mentioned by respondents during interviews, the perplexities caused by the lack of special “English-Uzbek” dictionaries for schoolchildren with visual impairments can be divided into two groups:

1. Confusion about the correct spelling of English words.
2. Confusion in the correct pronunciation of English words.

Differences in the spelling and pronunciation of English words confuse students with visual impairments. They struggle to decide which version of the word is the correct spelling. Even in the process of correctly pronouncing English words, the fact that one word is spelled in two forms in the dictionary causes difficulty in determining which one is the correct pronunciation. As a result, they hesitate in the correct spelling and pronunciation of English words. According to the respondents, this is demonstrated by analyzing the results of dictation testing.

In addition, this confusion is caused by the similarities and differences between the letters in English and the Latin Braille script. The confusion caused by this problem is common among elementary school students. Because, according to respondents 1 and 7, who conduct classes with visually impaired elementary school students, this situation is considered an overload for children who have not yet mastered the spelling rules of the Uzbek language. This is especially common among first-graders. Here, the difference between English and Uzbek alphabets should be presented in the form of a table. Besides, according to 3 respondents, when recording the pronunciation of English words, pupils’ dictionaries lack signs serving to express in writing certain letter combinations. For example, “bed” in English. The letter “e” used in the pronunciation of a word is



phonetically pronounced by combining the letters “e” and “a”. The written expression of the pronunciation of the letter combination “th” is also difficult. If it is spelled as “z”, there is a problem in distinguishing the difference in pronunciation with the letter “z”. In such a situation, there is no symbol in the text to express the same sound combination in Braille. Even if such transcription symbols exist in the English alphabet based on the Braille system, they are not known to teachers teaching English to visually impaired students in Uzbekistan. This situation makes it urgent for the Ministry of Preschool and School Education of the Republic of Uzbekistan to conduct research aimed at studying such methodological problems. In such studies it is also necessary to study the world experience of using Braille transcription symbols of the English alphabet.

Teachers use different solutions based on their personal experience to deal with such confusion and difficulties in teaching visually impaired students the correct spelling and pronunciation of English words. For example, respondents 6 and 7 say that this problem can be solved by teaching children the rules of correct reading of English spelling and letter combinations. Respondents 3 and 4 say that this method is not a perfect solution either. According to them, there are exceptional cases where the rules of correct pronunciation of English words are not followed. This leads to confusion for the learner who encounters words pronounced in exceptional cases that do not follow the rules. Respondents 1, 2 and 5 indicated that they solved such problems by teaching students the pronunciation of each word orally during class. However, according to their observations, students cannot always remember the correct pronunciation of English words for a long time.

Summarising the analysis of the respondents’ opinions on this issue, we can say that when compiling “English-Uzbek” dictionaries for visually impaired students, the correct spelling of the English word should be given first, and then its Uzbek translation in Braille, and the pronunciation of the English word should be reinforced by audio material, the use of technology will be more effective.

In order to get a clearer idea of the respondents’ opinion on the use of technology in the creation of “English-Uzbek” dictionaries for visually impaired students, this type of question was asked: “Do you know any dictionaries of the same type made in Uzbekistan?” was asked additionally.

One of the respondents said that he had learned about the publication of such a dictionary from media reports. The rest of the respondents said that they did not know about the existence of such a dictionary in Uzbekistan. However, such dictionaries have been prepared and published in Uzbekistan.

However, dictionaries of this type have been prepared and published in Uzbekistan on the initiative of various higher education institutions and non-governmental organisations, albeit in small numbers.

In particular, one of the authors of the article analysing this study and its results participated in a project to prepare and publish such a dictionary. It is important to note that the participant is visually impaired and is one of the authors of the current dictionary.

Due to such factors as the limited funds allocated for the preparation of this dictionary, the short period of time, and the fact that the rules of the assigned tasks are strictly defined, it was not possible to study the world experience in this field, as well as the attitudes of specialists and experts. Therefore, the authors had to create a dictionary based on their personal experience. When preparing the dictionary, they used the technology of first writing the English word in the order of the English alphabet, then pronouncing the English word expressed in the Uzbek alphabet, Latin script based on Braille, and finally providing the Uzbek translation. As one of the authors above is considered visually impaired, when he was learning English at school, his teachers recorded new words in the dictionary in this order. The means and objectives of the grant project for the production of this dictionary do not include additional audio material. The dictionary prepared for this purpose will be published in Braille using the above technology.

According to the terms of the project, the finished dictionaries were distributed to the central and regional libraries of the Society for the Blind. The general public is not sufficiently informed about the existence of such a dictionary, where to find it, in what order and how to use it. This is also shown by the answers of the respondents to this question.

In addition, the authors of the article devoted to the analysis of this study and its results were involved in the preparation of the teaching manual “Lessons of the English language”, which was prepared in 2014 on the basis of a grant project of the Public Fund for Support of Non-Profit Organisations and Other Institutions of Civil Society under the Supreme Assembly of the Republic of Uzbekistan. In particular, one of the authors of the article participated as one of the authors of the tutorial and the other as its editor. The tutorial contains English-Uzbek dictionaries on each topic, as well as various grammatical materials, exercises, thematic texts and dialogues.

When preparing his dictionary part, he first looked at the correct spelling of the English word and then at the technology of presenting its Uzbek translation. The English pronunciation of the words is provided in the audio materials attached to the tutorial. However, even within the framework of the grant project aimed at preparing this training manual, it was not possible to study the world experience in this regard and the attitudes of specialists and experts due to the limitations of the above-mentioned project. Therefore, the authors and project participants relied on their own experience in the preparation of the tutorial, especially its part on

dictionaries. The two participants in the above mentioned project have some experience in this regard, since people with visual disabilities are counted. Both of them are graduates of the specialized boarding school “Nurli maskan”, which is designed for the education of students with visual disabilities and often those who have such problems in English classes. This led to the formation of the ability to solve the problem in question, albeit to a certain extent.

However, this tutorial was only distributed to the libraries of the Society of the Blind of Uzbekistan, in accordance with the terms of the grant project that funded its production. As a result, its reach to the main users, i.e. the students and teachers of the “Nurli maskan” boarding school, is somewhat limited. In addition, the information on how to prepare this tutorial, how to find it and how to use it has not been sufficiently communicated to the general public. This is also confirmed by the results of an empirical study carried out in preparation for this article. The respondents’ opinions on this issue were quoted in the context of the relevant question above. The respondents’ low awareness of the same two teaching materials designed for English language learners with visual impairments has also raised complications in understanding the question of what technologies should be used in the creation of dictionaries in such a category.

A situational analysis based on the results of the study, which served as the empirical basis for this article, shows that:

1. In Uzbekistan, educational literature for English learners with visual impairments has been prepared and published, albeit in small quantities, in addition to school textbooks.
2. However, its targeted delivery to the final consumer has not been established in a systematic form.
3. The public is not sufficiently informed about where to find the prepared educational materials, in what order and about the rules for their use.

Therefore, the Ministry of Preschool and School Education of the Republic of Uzbekistan intends to develop an information exchange portal open to teachers of state and non-governmental organizations, foundations, scientific and higher educational institutions, specialized boarding schools “Nurli maskan” working in this field. This portal should publish reports on projects related to the field, prepare educational and methodological materials, rules for finding and using them, questionnaires intended for research to prepare educational materials, interviews with experts and specialists, debates, podcasts and open lessons of experienced teachers in online form. It is also necessary that this portal also has online chats that allow you to share experiences and ideas for teachers of specialized boarding schools “Nurli maskan”. Somehow, in the course of the study, 4 participants mentioned that various seminar trainings in methodological goals for teachers of schools without visual disabilities will be organized, but no such training in teaching English to schoolchildren with visual disabilities will not be organized, there are not only live but also online platforms that allow a mutual exchange of experience.

## **CONCLUSIONS AND PROPOSALS**

Taking into account the current situation, firstly, the relevant ministries, in cooperation with NGOs and international organizations, should carry out research aimed at determining the extent of the need for educational literature, audio materials, multimedia products and the equipment required for their use, according to the results of which it is necessary to develop, step by step, a state programme aimed at satisfying the same; in this programme it is necessary to include mechanisms to support initiatives of governmental and non-governmental organizations, higher education and scientific research institutions specializing in work with people with disabilities.

The Ministry of Preschool and School Education of the Republic of Uzbekistan should prepare and distribute methodological instructions for reading and understanding these visual abbreviations found in books of English-language texts published in the Braille alphabet, or organize practical seminars and trainings aimed at solving such problems; in Uzbekistan, it is necessary to organize systematically and regularly the supply of books of English texts, fiction and publicistic literature in Braille alphabet to specialized boarding schools of “Nurli maskan”.

The Ministry of Preschool and School Education of the Republic of Uzbekistan, in cooperation with local and international governmental and non-governmental organizations working in this field, intends to systematically establish the organization of training courses aimed at the formation of the ability to use special printers designed for the printing of Braille materials among the teachers of the specialized boarding school “Nurli maskan”; from the results of the analysis it became known that the Ministry of preschool and school education of the Republic of Uzbekistan should conduct researches aimed at making a list on the size of the need for such special educational equipment, their types, forming an expert group consisting of specialists from English teachers and other fields working in specialized boarding schools “Nurli maskan”. Such research can also be organized by participating as a client in the grant project competitions held by the Ministry of preschool and school education of the Republic of Uzbekistan in the Ministry of Higher Education, Science and Innovation of

the Republic of Uzbekistan.

Based on the amount of needs identified as a result of the study, as well as the list of special visual weapons formed, it is possible to establish a system for their regular production, targeted delivery. In this case, the Ministry of preschool and school education of the Republic of Uzbekistan can also make good use of the legislative initiative mechanism.

## REFERENCES

1. Ali Alhabahbe F, Subhi Alhadidi M. (2022). The degree to which students with visual impairments in Jordanian Public Schools use their assistive technology to study subjects in inclusive schools from their point of view. *Dirasat Human & Social Sciences*, 49(2), 451-466.

2. Al Khateeb J. (2010). *Introduction in teaching students with special needs* (2nd ed.). Dar Alfeker Publications.

3. Argyropoulos V., Papadimitriou V. (2015). Braille reading accuracy of students who are visually impaired: The effects of gender, age at vision loss, and level of education. *Journal of Visual Impairment & Blindness*, 109 (2), 107-118.

4. Basaran S. (2012). *Energy Education Science and Technology Part B Social and Educational Studies*. 2, 217-226.

5. Bishop V. (2004). *Teaching visually impaired children*. Charles C Thomas Publisher.

6. Boshkov D. (2019). Features of teaching English to schoolchildren with visual impairments. *Science Diary*. 6, 10.

7. Chaovanajinda V., Sirivungruang I., Niyomphol W. (2021, June 25). The development of English Braille literacy for the students with visual impairment by using an activity-based learning method [Conference session]. The 7th Ratchasuda Virtual International Conference on Disability.

8. De Boer, A. A., Timmerman, M. E., Pijl, S. J., & Minnaert, A. E. M. G. (2012). The psychometric evaluation of a questionnaire to measure attitudes towards inclusive education. *European Journal of Psychology of Education*, 27, 573-589. <https://doi.org/10.1007/s10212-011-0096-z>

9. Elkins, J., Van Kraayenoord, C. E., & Jobling, A. (2003). Parents' attitudes to inclusion of their children with special needs. *Journal of Research in Special Educational Needs*, 3(2), 122-129. <https://doi.org/10.1111/1471-3802.00005>

10. Gaad, E. (2004). Cross-cultural perspective on the effect of cultural attitudes towards inclusion for children with disabilities. *Inter-national Journal of Inclusive Education*, 8 (3), 311-328. <https://doi.org/10.1080/1360311042000194645>

11. Gritsishina N., Guryeva L. (2011). Methods of teaching the blind and visually impaired a foreign language using gaming technologies. *Almanac of modern science and education*. 4 (47), 124.

12. Hadidi M. (2011). *An introduction to visual disability* (4th ed.). Dar Al Fikr Publication.

13. Harrison J., Gregory C., Alsup J. (2003). Using distance education for families to improve children's Braille literacy. *Journal of Visual Impairment & Blindness*, 97, 169-172.

14. Holbrook M., Nannen L. (1991). Method of literacy instruction for Braille. *Journal of Visual Impairment & Blindness*, 91(5), 420-422.

15. Kapperman Gaylen, Koster Elizabeth, Burman Rachel. (2018). The Study of Foreign Languages by Students Who Are Blind Using the JAWS Screen Reader and a Refreshable Braille Display. *Journal of Visual Impairment & Blindness*. Northern Illinois University. May-June, 317-323.

16. Involvement of children with visual impairments in the educational process in English lessons in an inclusive class. *Language and text*. 4. (3), 116-128.

17. Mallaev D., Nurmagomedova H. (2017). Problems of teaching foreign languages to children with visual impairments in the context of the implementation of the subprogram «English-speaking Dagestan». Bulletin of the Dagestan State Pedagogical University. Psychological and pedagogical sciences. 11 (3), 68-72.

18. Mavropalias, T., Alevriadou, A., & Rachanioti, E. (2021). Parental perspectives on inclusive education for children with intellectual disabilities in Greece. *International Journal of Developmental Disabilities*, 67(6), 397-405. <https://doi.org/10.1080/20473869.2019.1675429>

19. Minina O.G., Rocheva N.I., Konevskaya E.V. (2011). Methods of individual teaching of visually impaired students English. *Inclusive education: methodology, practice, technologies*. 203-204.

20. Nikolaev A. (2019). Innovative approach to teaching foreign languages to blind students in the context of inclusive education. *World of science, culture, education*. 6 (79), 320.

21. Vorobyova O.A., Katsap O.Yu. (2022). On the Peculiarities of Teaching Schoolchildren with Visual Impairments English. *St. Petersburg*, 8.

22. Vostrova, E.E. (2016). Features of teaching visually impaired and blind students a foreign language. *Young scientist*. 16.1 (120.1), 6-8.

#### **FINANCING**

The authors did not receive funding for the development of this research.

#### **CONFLICT OF INTEREST**

The authors declare that there is no conflict of interest.

#### **AUTHORSHIP CONTRIBUTION**

*Conceptualization:* Nozima Muratova, Gulsanam Khasanova, Xurshid Toshov, Ozod Kurbanov.

*Formal analysis:* Nozima Muratova, Gulsanam Khasanova, Xurshid Toshov, Ozod Kurbanov.

*Research:* Nozima Muratova, Gulsanam Khasanova, Xurshid Toshov, Ozod Kurbanov.

*Writing - original draft:* Nozima Muratova, Gulsanam Khasanova, Xurshid Toshov, Ozod Kurbanov.

*Writing - revision and editing:* Nozima Muratova, Gulsanam Khasanova, Xurshid Toshov, Ozod Kurbanov.