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Problems of Language Ecology in the Virtual Social Network

Afruz Gurbanova
Department 12
Institute of Information Technology
Baku, Azerbaijan
afruz1961@gmail.com

Mehriban Baghirova
Department 12
Institute of Information Technology
Baku, Azerbaijan
mehriban.amea@gmail.com

Abstract—A virtual environment is a computer environment where people can interact with each other. A language ecosystem is a system in which languages interact with each other and with the environment. The virtual language ecosystem is a dynamic and evolving field that encompasses a wide range of technologies and applications related to language use in computer systems. Social networks have become an integral part of the lives of many people around the world. Every day, millions of users communicate on social networks, share their thoughts, feelings, photos and videos. Social networks significantly influence the way we communicate, and as a result, language is shaped and changed through it. The influence of social media and social networks on language and communication style is analyzed in the research work. Based on the indicators for 2020-2023, the use of social networks in Azerbaijan is predicted for 2024-2026. The importance of social networks in preserving the languages of minority nations is shown. The article also examines the characteristics and problems of the language ecosystem in the virtual environment of social networks, and shows its perspectives. Recommendations were given on ensuring the safety of the language ecosystem in the virtual environment of social networks.

Keywords—*virtual environment, social network, social media, language ecosystem, language policy, Internet language, Netspeak*

I. INTRODUCTION

Social networks are recognized as the fastest growing and easiest means of communication in the 21st century. These networks cover the entire world population and have become an integral part of the lives of people of different ages. Social networks are a mirror reflecting the dynamics, problems and potential of modern society.

In the virtual environment of social networks, the language ecosystem is a dynamic and constantly evolving system in which different forms of language interact, including written language, spoken language, slang, emoji, memes and other non-verbal elements. This ecosystem has a significant impact on how people use language and how language develops over time. A language ecosystem is a dynamic and interconnected system that encompasses all aspects of language, including its use, development, and change.

The most used form of communication in the current, globalization era is Internet communication. As a virtual environment, the Internet is a dynamic and multifaceted language ecosystem where different languages, cultures and modes of communication interact. The Internet language ecosystem is constantly evolving. Understanding this dynamic ecosystem is critical to ensuring equal access to information and opportunities for all people online. The

expansion of the Internet has given rise to electronic communication in addition to oral and written forms and is designed for multimedia interaction between computer users around the world. Unlike normalized forms of speech recorded in dictionaries and grammars, speech in the Internet environment does not have a specific language norm, that is, language in social networks is not static and undergoes regular changes. As a result, new words connected to the Internet - Netlish, Weblish, Internet language, Electronic discourse, Electronic language, Interactive languages were invented as an alternative to NetIzen (Internet users) and NetSpeak (the language spoken by Internet users) [1].

NetSpeak language is a dynamically developing language ecosystem in the virtual environment of the Internet. This language is integrated into our daily lives, affecting the way we communicate, work and learn. Advances in language technologies such as machine translation and speech recognition are transforming NetSpeak, making it more accessible and universal. NetSpeak is an interesting and dynamic phenomenon that continues to develop and shape our society in the virtual environment [2]-[3]. The online communication language known as “NetSpeak” is described as an “informal” language by linguist Norman Fairclough, Emeritus Professor at Lancaster University [1]. Netspeak contributes to the evolution of the language by creating new words, phrases and grammatical structures. Artificial intelligence will play an increasingly important role in NetSpeak Language by improving translation, chatbots and other language technologies.

Advances in artificial intelligence will play an increasingly important role in the internet language ecosystem, improving machine translation, chatbots and other language technologies. Overall, artificial intelligence has a positive impact on the Internet language ecosystem, making communication more efficient and accessible.

The influence of social media and social networks on language and communication style is analyzed in the research work. The importance of social networks in the preservation of the languages of minority nations, as well as in learning a second language, is shown. The peculiarities and problems of the language ecosystem are investigated in the virtual environment of social networks, and their perspectives are shown. Recommendations are given on ensuring the safety of the language ecosystem in the virtual environment of social networks.

II. RELATED WORK

In [4], Craig finds out that when using social media, students develop undesirable reading and writing habits due to frequent use of abbreviations and unusual jargon, which impairs students’ literacy skills. Most students avoid long

sentences and replace them with shorter ones. Fast typing skills often result in spelling mistakes. Thus, social media influences student writing more than any other skill.

[5] suggests that although the knowledge and use of abbreviations, acronyms and slang play an important role in having careless and fast conversations on social media, it does not necessarily mean that the whole conversation is saturated and overloaded. Social media users should use abbreviations, acronyms, or jargon that are well understood by the social media audience when communicating in a wide audience. Excessive use of text language and slang is considered inappropriate when chatting online on social media. Despite all this, social media has both desirable and undesirable effects on the way people write in English and communicate their ideas to others.

[6] explores the positive and negative effects of social media on students' English language learning skills. It is shown that it all depends on their understanding of how they learn English in their classes with correct grammar and spelling and how they use it on social media using incorrect grammar, typos, abbreviations and slang. This will help students to be aware of the negative aspects of informal and spoken English used in social media. If students fail to make the transition from informal to formal writing, it will make worsen their academic writing.

[7] states that we live in an age where there are many opportunities to learn English using technology and online resources. Social media is said to be a useful platform for developing various language skills such as reading, writing and vocabulary.

III. LANGUAGE CHANGE IN SOCIAL NETWORKS

One of the external factors that can contribute to the changes taking place in the language is the virtual environment of social networks. The virtual environment of social networks, becoming an integral part of human life, changes both communication methods and language environment.

Academician S.Gayda notes three revolutions in the history of human communication: writing, printing and the Internet [8]. The Internet is the most effective area of social communication today. It has a strong influence on the transformation of traditional norms and rules of both social and interpersonal speech behavior. Digitization of language and culture poses a number of new problems for society: from the destruction of traditional ones and the emergence of new literacy in the Internet communications to the formation of a new type of culture with a certain communicative character, that is media culture.

Users have found a simpler language for online communication. By using simple language, communication becomes more accessible and convenient for everyone. Mostly the younger generation is adopting these new words and expressions. Those words and phrases have become an important part of their everyday language. This has a serious impact on the future of the young generation and leaves a negative trace on their speech culture. This leads to a generational gap in a language use, with older generations finding it difficult to understand the ever-evolving language of social media [9]. On social media, people from different demographic groups often "speak different languages" as

they not only use different sets of words, but also give different meanings to the same words.

The language is semantically degraded. In the virtual environment of social networks, the informal communication style and the influence of other languages lead to a decrease in the level of literacy and the degradation of language norms. Natural languages change over time, they evolve according to the needs of their users and the socio-technological environment. The modern language is constantly developing being affected by various factors, that is socio-cultural changes, technological progress and interaction with other languages. Thus, the impact of social networks and platforms on our language is a real phenomenon [10].

Social media is significantly changing the way people communicate in the digital age. In communication, the use of expressions, photos and videos is more common. Online movies, video games, blogs, news and websites use some different slang, abbreviations and even completely new words that are not in the official dictionary.

Currently, there are more than 4.95 billion social media users in the world. This is equivalent to about 61,4% of the world population. Annual growth is 3,7 percent (125 million new users). This number is expected to rise to 5.85 billion users in 2027 [11]. 82% of social media users are aged 18-34, indicating that young people are still the most active generation on social media. More than 75% of the world population aged 13 and over uses social media.

Today, there are 5.16 billion Internet users in the world, which means that 64.4% of the world population is connected to the Internet. Over the past year, the total number of Internet users worldwide has increased by 1.9% [12].

The distribution of social network users by age group in 2023 is as follows: 12% are aged 13-19, 6.5% of them are male, 5.5% are female; 31% are aged 20-29, 17.5% of them are male, 13.5% are female; 22.2% are aged 30-39, 12.3% of them are male, 9.9% are female; 15.5% are aged 40-49, 8.1% of them are male, 7.4% are female. Facebook remains the world leader in monthly active users. Currently, the platform has nearly 3 billion monthly active users, which is about 37% of the world population. Instagram has consolidated its position among social networks and has 2 billion monthly active users. Facebook is the most popular social network in the world, attracting a diverse audience of all age groups. 4.6% of Facebook users are aged 13-17, 22.6% are aged 18-24, 29.4% are aged 25-34, 19.1% are aged 35-44, 11.4% are aged 45- 54, 7.2% are aged 55-64, and 5.7% are aged 65 and over. As WhatsApp has 2 billion daily active users, its monthly user count is even higher. The largest age group is 18-24 (30.8%).

In modern times, with the development of information and communication technologies, as in all countries, the interest in social networks is growing significantly every day in Azerbaijan. Today, a large part of Azerbaijani people uses the Internet, especially social networks. At the same time, young people dominate. According to the "Digital Azerbaijan" report of the world's most trusted social media analysis center "We are social", the number of social media users in 2020 was 3.70 million, 4.30 million in 2021, and 5.20 million in 2022 [13].

In order to ensure social security in the age of developing technologies, it is very important to predict the future development of society's use of network technologies, the readiness of countries for possible technological innovations, and the continuous development of the Internet. The article uses FORECAST functions to predict the use of social networks for the years 2024-2026 based on the indicators for the years 2020-2023. FORECAST is one of Excel's statistical functions that can be used for forecasting [14]. The number of social network users is predicted to increase in 2024-2026 (Table I., see Fig. 1.). The FORECAST function uses linear regression and its equation is:

$$y = a + bx, \quad (1)$$

Where:

$$a = \bar{y} - b\bar{x}, \quad b = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sum(x-\bar{x})^2}. \quad (2)$$

As can be seen from Table I the number of social network users in 2023 increased by 21,2% compared to 2020. Table 1 also provides a forecast of the growth of social network users for the years 2023-2026. 36.41% of the population of Azerbaijan use Instagram, 17.7% use Facebook, 11.67% use YouTube, and 7.6% use Twitter [15].

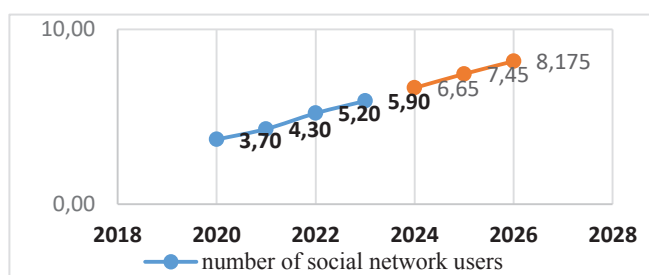


Fig. 1. Number of social network users in Azerbaijan for 2020-2026.

TABLE I. NUMBER OF SOCIAL NETWORK USERS IN AZERBAIJAN FOR 2020-2026

Years	Total population (millions)	Number of social network users (million)	The ratio of social media users to the population in Azerbaijan (%)	Projected number of social network users (millions)
2020	9974,0	3,70	37,1	
2021	10026,1	4,30	42,2	
2022	10063,3	5,20	50,7	
2023	10127,1	5,90	58,3	
2024				6,65
2025				7,45
2026				8,175

IV. EFFECTS OF SOCIAL NETWORKS ON LANGUAGE

As a dynamic and ever-evolving entity, language has always been affected by social changes, technological progress and cultural changes. In recent years, the rapid spread of social media platforms and digital communication tools has accelerated this linguistic evolution to an

unprecedented degree. Social media has a profound and multifaceted impact on language, changing the way we communicate, express ourselves, and perceive information. In the virtual environment of social networks, an informal style of communication using slangs, abbreviations, emojis, expressions, memes and other non-standard language elements prevails. The use of abbreviations in the virtual environment is an integral part of the language ecosystem. Abbreviations, as short forms of words or phrases, are common in the virtual language environment [16].

Popular social networks such as Instagram and Facebook have a significant impact on the language ecosystem of the virtual environment. Their features, such as the visual format of content, the use of comments, and the privacy of groups, lead to the emergence of new linguistic forms and trends. Instagram and Facebook users also use words like #hashtag to shorten their content. There is no complete idea or meaning here, but not everyone understands this word. As a result, the language loses its roots. People express their ideas in pictures rather than words, use abbreviations, and as a result words are deformed. In general, hashtags are a powerful tool that can improve or degrade the language ecosystem of a virtual environment.

In the context of technology and social networks, it is important to pay attention to the use of language, to respect existing cultural standards, and to avoid the use of language that conflicts with social values and conventions.

With the exception of social media professionals and academic journalists, most of what is posted on social media by the general public is not edited, monitored, or checked for correct language use. Currently, language protection and development are declared as the language policy of the European Union. Language policy plays a key role in protecting the language from emerging threats. With the acceleration of the process of globalization and intercultural communication, changes are also taking place in the national language. First of all, there are changes in the lexical composition of the language, especially in the interaction of national and foreign words. In such circumstances, it is of great importance to preserve the language.

People from different countries and cultures interact in the virtual environment of social networks, which leads to language mixing, reciprocity and interference. The use of foreign words always fills the native language with words borrowed from a foreign language. Today, we often hear foreign words from TV reporters, journalists and other media representatives. Of course, all this affects the speech of social network users, especially the speech of young people.

In order to determine the impact of the globalization process on world languages, a number of projects and programs implemented by UNESCO in the direction of language protection, important documents are adopted. UNESCO's Atlas of the World's Languages in Danger and UNESCO's Concept of Language Vitality and Endangerment are important steps towards language conservation. All the problems listed above lead to the collapse of the country's national unity, its spiritual culture, intellectual potential, and in this case, one of the main issues of national security is the preservation and purity of the language [17].

The virtual environment of social networks allows people to communicate with each other regardless of geographical

location, language barriers and social status. Social media platforms have crossed geographical boundaries and created connections between people of different cultures and languages. This global scope encourages the merging of languages and the borrowing of some words from other languages. Users incorporate foreign words and expressions into their online communications, resulting in language enrichment and diversification. Social networks act as a means of language exchange and enable the integration of linguistic elements of different cultures. Language change and innovation are constant in online and offline communication and have led to new words entering people's lexicon and even modern day dictionaries. People discuss information and news from the Internet or social networks every day. Words used in networks are officially included in dictionaries, for example, the Oxford English Dictionary [18]. This reaffirms the importance of sites like Facebook, Twitter and in the modern professional and personal communication space.

A language ecosystem in a virtual environment can promote cultural exchange as people from different cultures can interact with each other.

V. THE ROLE OF SOCIAL NETWORKS IN PROTECTING THE MINORITY LANGUAGES

The virtual environment of social networks can be used to preserve and revive endangered languages. People who speak endangered languages can use social networks to find and communicate with each other. This can help preserve their linguistic identity and culture [19]. Globalization, or the increasing interconnectedness of countries, is often blamed for the destruction of the minority languages. Conversely, endangered languages have a better chance of survival when they are used online. "The presence of these languages on the Internet is very important for their survival. Social media is just another point of contact for people who want to stay connected to their language," says Daino, project coordinator for Latin America.

Scientists believe that social networks like Facebook and Twitter will actually preserve language instead of dumbing it down. Phone apps linked to YouTube and Facebook could save the world's rarest languages from extinction [20]. People must speak endangered languages for their survival. Oxford University researchers are carefully studying these languages. The researcher of this university Dr. Johanneke Sytsema thinks social media could be a new way to keep minority languages alive. Many developers and linguists are using modern technology to protect endangered languages around the world. As languages die out at an alarming rate, speakers of endangered languages are turning to technology over time to deliver their unique language and culture to the next generation. It is more important than ever to take advantage of artificial intelligence in documenting and studying languages, and in the fight to save endangered languages. Today, the most popular social network Facebook is available in more than 70 official languages. The list includes indigenous languages such as Cherokee and Quechua, and has launched 13 news languages, including Azerbaijani, Javanese, Macedonian, Galician and Sinhala.

Modern technologies seem to be a threat to the existence of small languages, but few people use various technologies such as social media and text messages to keep their languages alive and expand their reach. New technologies

can be used to preserve small languages, record spoken language, create teaching materials and translate texts. Many social media platforms and messaging apps are easy to use and require no special technical knowledge or training. These technologies are especially important for endangered languages. Artificial intelligence can record, transcribe and translate these spoken languages, ensuring their preservation and availability. Social networks like Instagram, Facebook, YouTube and even text messages can be a lifeguard for many endangered languages. The preservation of unwritten languages is of great importance for the preservation of the world's linguistic diversity and cultural heritage. About 43% of all languages and dialects in the world do not have a written language. This is another serious obstacle to their protection in the digital world where most of the information is presented in the form of text. While artificial intelligence and other exponential technologies offer opportunities for language preservation, there are unique challenges to using these technologies to revitalize these languages with meaning. Not all speakers of minority languages have access to the Internet or computers, which can limit their ability to use technology. Many indigenous languages are based on oral tradition. Translating them into writing can change the full meaning of these languages [21].

According to experts, half of the languages more than 7,000 recorded in the world today may disappear by the end of the 21st century. The proliferation of social media can slow down or even reverse this process. For example, North American Hindus use social networks to revive interest in their mother tongue among young people. In Tuva, they created an iPhone application where the pronunciation of words in the Tuva language spoken in Siberia and Mongolia can be checked.

As J. David Harrison, a linguist at Swarthmore College in Pennsylvania, notes: "Minor languages use social media, YouTube, text messaging and other technologies to expand their voice and scope. A language spoken by only 50 people in rural places has the ability to be heard globally. In a remote location, due to digital technology, language can find a global voice and a global audience."

Margaret Noory studies North American aboriginal culture at Michigan State University. More than 200 Indian tribes in Canada and the United States use the Facebook social network extensively to communicate with each other in their native language. Rare indigenous languages use social networking platforms to upload audio files to preserve specific dialects. Margaret Noory, a teacher at the University of Michigan, says that she uses social networks to protect the Native American language. They preserve and archive all communications from elders fluently speaking in their native language and add to the endangered language repository.

Social media has become a powerful tool for disseminating information, but unfortunately, it is also a breeding ground for disinformation. The spread of misinformation can be a problem in virtual environments because people can easily share false information. There are a number of steps you can take to combat misinformation on social media. Artificial intelligence is used to identify and combat misinformation online. N-Gram Analysis, machine learning (ML) algorithms for detecting and controlling malicious content on social media platforms [22]-[23] and artificial intelligence-based methods such as natural language processing (NLP) with deep neural networks [24]. NLP tools

are widely used to process online text comments in Social Media.

Modern mobile devices, including smartphones based on the Android operating system, have extensive spell-checking functions. Spell checker apps for Android are a very useful. Taking into account the results of the research, we came to the conclusion that the positive effects of social networks are greater than the negative effects. The positive effects are mainly manifested in the expansion of teenagers' vocabulary, improving their pronunciation, learning a new language and other issues. It turns out that the biggest negative impact is on writing skills. The main language problems caused by the use of social networks are: use of slang, poor spelling and punctuation, use of foreign words and abbreviations. Thus, the language ecosystem of the virtual environment will continue to develop in the future. In this environment, the use of languages will be more diverse, faster and more technologically advanced. The language ecosystem in the virtual environment can have both positive and negative effects on society, so it is important to identify the potential benefits and risks of this system, and to work out effective mechanisms to eliminate its negative effects. To eliminate such negative situations, the following is recommended:

- Providing platform interface and functionality in multiple languages to reach a wider audience;
- To facilitate communication between users in different languages, automatic translation of content is appropriate;
- Supporting a variety of languages and dialects to reflect the richness and beauty of the language ecosystem;
- Use of natural language email (NLP) technologies is necessary to better understand user queries and provide more relevant results. It is important to create personalized language training programs based on the individual needs of users;
- It is necessary to create virtual spaces for intercultural communication and experience exchange. Promoting awareness of different cultures and languages, mutual respect and understanding between people from different cultures;
- It is necessary to create a safe and inclusive environment for all social network users; It is imperative that the language ecosystem in the virtual environment be more accessible to people who have not learned languages;
- The virtual environment of social networks can be used to preserve and revive endangered languages. In the virtual environment of social networks, it is appropriate to use them to store and archive language data such as audio and video recordings, texts and dictionaries;
- The Internet and social networks are a good source for teenagers to find the necessary information, help them develop and improve themselves. It is necessary

feature that helps you avoid many mistakes and improve the quality of your written text.

VI. CONCLUSION

for teenagers to read as much as possible, to find a genre of literature that interests them, this will help them express their thoughts more skillfully;

- Teenagers need to get out of the habit of being online all the time and checking email, this will help them increase their productivity;
- Using the Internet and social networks for learning a second language and strengthening language skills is necessary for teenagers to continue their studies in the language of their choice and for their future prospects;
- Protecting the language ecosystem in virtual environments is critical to protecting users, data, and content. It is necessary to implement strong data security measures such as encryption, access control and authentication protocols to protect users' personal information;
- In the virtual environment of social networks, there is a problem of cyberbullying, where users are insulted and threatened, which can have a negative impact on their mental health. It is necessary to develop clear content policies and guidelines that prohibit harmful, offensive or illegal content.

In the virtual environment of social networks, the language ecosystem is a dynamically developing system, and it has both problems and prospects. The future of this system depends on how we use the opportunities of the virtual environment of social networks and solve the problems related to it. Use the power of the virtual environment of social networks to develop languages, spread knowledge and create a more inclusive and just society. The virtual environment of social networks can help preserve the linguistic and cultural heritage of mankind. Implementing these recommendations will help create a more inclusive, vibrant and sustainable language ecosystem that will benefit people around the world in a virtual social media environment.

REFERENCES

- [1] D. Crystal, *Language and the Internet*. Cambridge University Press, 2006, p. 318.
- [2] H. Lundell, "Netspeak: The language of the Internet," 2009, pp. 1-23.
- [3] D. Vasic, K. Aleksic-Maslac, J. Poropat Darrer, "Impact of Information and Communication Technologies to the language changes and the creation of new language form – Netspeak," EDEN annual conference, 2010, pp. 9-12.
- [4] D. Craig, "Instant messaging: The language of youth literacy. The Boothe Prize Essays," 2003, pp. 118-119.
- [5] M.A. Hashmi, M.I. Mahmood, T. Naz, "Impact of mass media in the use of English slang words / short forms among Pakistani students," *Int J EduSci*, 2019, 24(13), pp. 8-12.
- [6] P. S. Rao, "The impact of social media on learning English: A critical study in English language teaching (ELT) context," *Research Journal of English*, 2019, 4(2), pp. 266-274.

- [7] M.S. George, "Developing listening and reading skills through social media using apps," *Literary Studies*, 2018, 3, pp. 93-101.
- [8] N. Klushina, "Communicative culture on the internet and media linguoecology," *Journal of Linguistics*, 2022, Vol. 73, No 1, pp. 78 – 85.
- [9] D. Gherghita-Mihaila, "How is Social Media Influencing the Way we Communicate?" *Acta Universitatis Danubius. Communicatio*, 2016, 10(1), pp. 74-83.
- [10] J. Liu, X. Zhang, H. Li, "Analysis of Language Phenomena in Internet Slang: A Case Study of Internet Dirt y Language," *Open Access Library Journal*, 2023, 10(8), pp. 1-12.
- [11] J.R. Firth, "A Synopsis of Linguistic Theory, 1930-1955", In: Firth, J.R., Ed. *Studies in Linguistic Analysis*, Blackwell, Oxford, 1957, pp. 1-32.
- [12] Digital 2023: Global Overview Report. [Online]. Available: <https://datareportal.com/reports/digital-2023-global-overview-report>.
- [13] Digital in Azerbaijan. [Online]. Available: <https://datareportal.com/digital-in-azerbaijan>.
- [14] K.Q. Dashdamirova, *Kibersotsiotekhnologicheskkiye problemy i perspektivy setevogo obshchestva v usloviyakh Industrii 4.0.* The 4-th International Science and Technology Conference «Modern Network Technologies», Moscow, October 27-29, 2022, p. 55-61
- [15] Social Media Stats Azerbaijan. [Online]. Available: <https://gs.statcounter.com/social-media-stats/all/azerbaijan>.
- [16] M. A. Yunis, "Language of social media: An investigation of the changes that soft media has imposed on language use," In 9th International Research Conference on Education, Language, and Literature, IRCEELT, 2019, pp. 309-314.
- [17] A. M. Gurbanova, "About the Terminology Threats of the Azerbaijani Language in Terms of Globalization," *Problems of information society*, 2015, №2, pp. 75–82.
- [18] Oxford Dictionaries, [Online]. Available: <http://en.oxforddictionaries.com>.
- [19] J. Sallabank, "The role of social networks in endangered language maintenance and revitalization: The case of Guernesiais in the Channel Islands," *Anthropological Linguistics*, 2010, 52(2), pp.184-205.
- [20] A. Fenyvesi, "Endangered languages in the digital age: Supporting and studying digital language use in them," *Finnisch-Ugrische Mitteilungen*, 2014, 38, pp. 255-269.
- [21] A.M. Gurbanova., "Problems and Prospects for Minority Languages in the Age of Industry 4.0," *Lecture Notes on Data Engineering and Communications Technologies (LNDECT)*. Springer Publisher, 2023, vol.158, pp. 722-734.
- [22] J. Asha, A. Meenakowshalya, "Fake news detection using n-gram analysis and machine learning algorithms," *Journal of Mobile Computing, Communications & Mobile Networks*, 2021, T. 8, №. 1, pp. 33- 43.
- [23] H. Ahmed, I. Traore, S. Saad, "Detection of online fake news using N-Gram analysis and machine learning techniques," In: Traore I, Woungang I, Awad A (eds) *Intelligent, secure, and dependable systems in distributed and cloud environments*. *Lecture Notes in Computer Science*, 2017, pp. 127–138.
- [24] V.U. Gongane, M.V. Munot, A.D. Anuse, *Detection and moderation of detrimental content on social media platforms: Current status and future directions. Social Network Analysis and Mining*. 2022, p.129.