*Л.Н. Гумилев атындағы Еуразия ұлттық университетінің ХАБАРШЫСЫ.*
*ISSN: 2616-6771. eISSN: 2617-9962*

**ГЕОГРАФИЯ. ЭКОЛОГИЯ СЕРИЯСЫ /**
**GEOGRAPHY. ECOLOGY SERIES/ СЕРИЯ ГЕОГРАФИЯ. ЭКОЛОГИЯ**

IRSTI 87.01.45
Article

https://doi.org/10.32523/2616-6771-2024-146-1-85-95

# Environmental literacy of the population of Astana city

**N.S. Mamytova[1]*, A.A. Turakkazy[2], E.R. Salibayeva[3]**

*"Kazakh University of Technology and Business" named after K. Kulazhanov, Astana, Kazakhstan*

*(E-mail: nmamytova@mail.ru[1]*, akerke.turakkazy@mail.ru[2], salibaevaevelina@gmail.com[3])*

**Abstract.** This paper examines the level of environmental culture and outlook among different social groups in Astana city. A social survey was conducted among students and teachers of higher educational institutions, schoolchildren, students of Astana, specialists of the Department of Ecology in Astana, enterprises and nature users, as well as volunteers and citizens of the capital. The article examines the factors affecting the level of environmental literacy, such as the separation of garbage for recycling, the use of energy-saving devices, whether you are taking any steps to reduce the use of plastic products, whether schools tell how to properly separate garbage, what measures the state should take more stringent to protect the environment, as well as the responsibility of the population in the field of environmental protection. The online survey revealed a relatively satisfactory level of environmental culture of the city population, but there is a lack of environmental behavior of the population in the sector of solid waste management. The analysis of the survey results by age and industry categories, as well as the received suggestions of specialists and citizens of the capital allow the adjustment of educational programs and educational activities to improve the general environmental awareness and culture.

**Keywords:** survey, environmental education, environmental education, household waste, environment.

**Received: 27.02.2024 Accepted: 10.03.2024 Available online:30.03.2024**

## Introduction

Ecological literacy, due to its multifaceted nature, acts as an important tool to improve our social interaction with the environment [1,2].

Modern environmental education realizes the needs of society in solving problems of survival, protection of the natural environment, as well as focuses on the creation of key moral and other values of civilization [3,4].

Environmental education has a number of key functions:

– Educational function – formation of ideas about nature, man and society;

– Developmental function – realizing separate connections in the natural and social world, moral personal development of the younger generation;

– Educative function – education of an emotionally positive view of the world and responsible attitude to nature; formation of ecological culture [5,6].

Our study aims not only to assess the current status of adult environmental literacy, but also to identify potential impact points for the development of effective strategies and measures to promote sustainable lifestyles.

In particular, the results of the study can serve as a source for introducing courses aimed at strengthening environmental literacy and culture in society into educational programs.

At present, environmental education and upbringing has been practically discontinued due to the lack of ecology lessons in kindergartens, schools, colleges, and there is no compulsory study of ecological disciplines on environmental protection in higher education institutions of the city.

The aim of the article is to study public and individual values of moral and ethical norms, views concerning the relationship between man and nature in the adult population and among schoolchildren of Astana city.

Objectives of the study:

– To analyze the level of ecological culture by means of questionnaire survey;

– To assess the environmental literacy of the population based on the results of the social survey.

## Materials and methods

A social survey was conducted to better understand the current level of environmental literacy in the society. A total of 274 respondents were interviewed. The survey was conducted among students, faculty of universities, specialists from the Department of Ecology, enterprises and nature users, as well as volunteers of the city and citizens of our capital. For the adult population the survey questions were compiled 10 questions with choice answers (Table 1) in the Forms app program and sent by link via messengers WhatsApp, Instagram, Telegram (https://docs.google.com/forms/d/e/1FAIpQLSfotS1wu2bO4p-KJbIA1SInxS0SaLgH9FrIuUfZkZE1_31QqA/viewform). Answers for respondents were offered in the form of "yes" or "no".

Separate questions were compiled for pupils of 20 schools of Astana city (Table 1) and the link (https://docs.google.com/forms/d/e/1FAIpQLSdiTdT-mRg6MLnRah2lb3SOjV4qGoAXECgAhX2MJD6AkqSgBA/viewform)/ was used.

Table 1

**Questions for the survey**

| № | Questions for adults | Questions for students in grades 3-8 |
|---|---|---|
| 1 | How often do you separate your trash for recycling? | Do you think nature should be protected? |
| 2 | Do you use energy-efficient appliances in your home? | Do you clean up after yourself when you are outdoors? |
| 3 | Do you think that your daily actions have an impact on the environmental situation in your area? | What do you do with wrappers, empty bottles on the street while walking? |
| 4 | Are you taking any steps to reduce the use of plastic products? | Do they tell you in school how to properly separate your trash? |
| 5 | Have you participated in any environmental events or activities? | Do you know the dangers of household waste? |
| 6 | Are you willing to pay more for goods and services from environmentally responsible companies? | Do you share your trash at home? |
| 7 | Do you think the government should take stricter measures to protect the environment? | Do you know how long it takes for the trash you throw away to decompose? |
| 8 | Do you subscribe to online resources related to the environment? | Do you think it is necessary to have an elective (lesson) in school? |

## Results and Discussion

The results of the survey among the adult population for each question are presented in the form of a series of diagrams in Fig. 1.

On the first question – do you separate garbage, answered sometimes – 47%, often – 27.1%, do not sort – 26% of the adult population of Astana city.

On the second question – do you use energy saving devices, 74.6% answered positively, 25.4% of respondents do not use.

81.2% of the adult population of Astana city believe that their actions affect the environment and only 55.8% take any action to reduce the use of non-recyclable products.

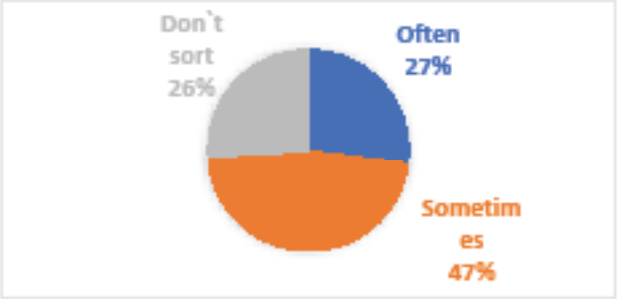
Only 42% of the adult population of Astana participated in any environmental events and activities.

95% of respondents believe that the state should take stricter measures to protect the environment, 64.1% are willing to pay more for goods and services from companies engaged in environmentally responsible business.

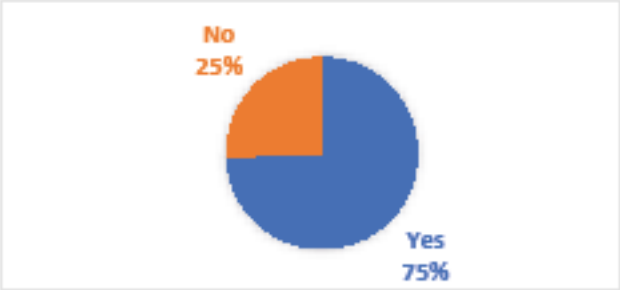
67.2% of adults are not interested in news about the environmental situation.

According to the results of the ninth question, a small number of survey participants are subscribed to environmental social networks: Instagram, Telegram, and news sites.

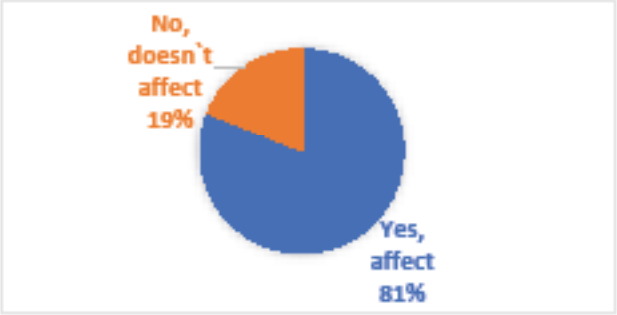
For the tenth question, respondents showed understanding of the importance of preserving natural resources for future generations, and recommend the right approach in managing environmental culture, education and awareness, and environmental solution to preserve and develop the environment.



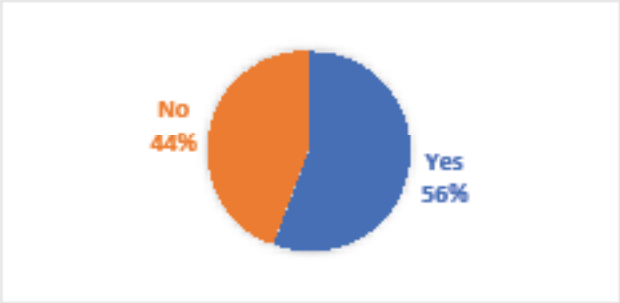

1-How often do you separate trash for recycling?



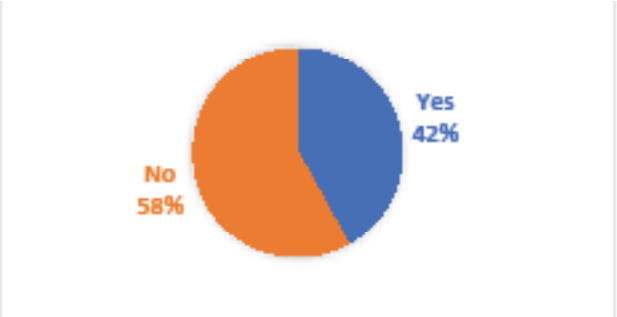

2-Do you use energy saving devices in your home?



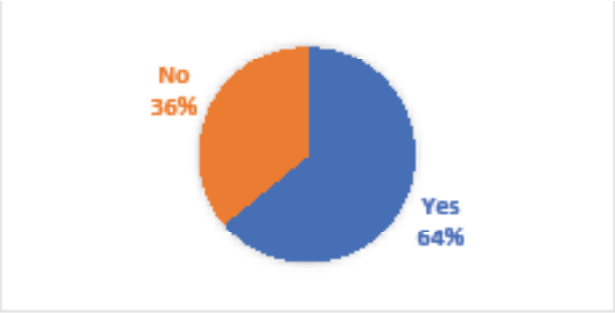

3-Do you think that your daily actions have an impact on the environmental situation in your area?



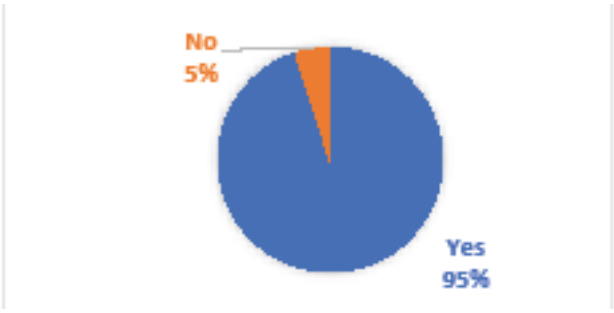

4-Do you take any steps to reduce the use of plastic products?



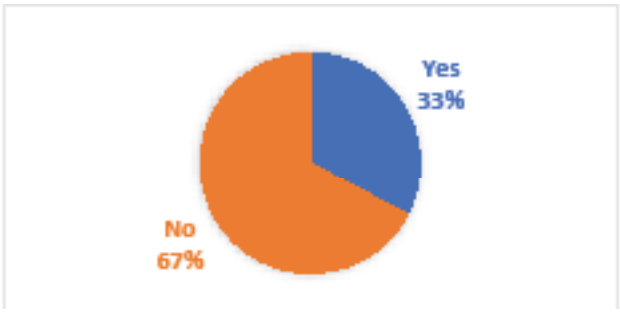

5-Did you participate in any environmental activities or events?




6-Would you be willing to pay more for goods and services from environmentally responsible companies?




7 - Do you think the government should take stricter measures to protect the environment?



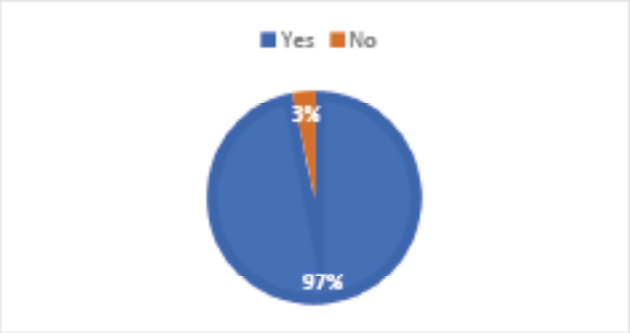

8 - Do you subscribe to environmental related internet resources?

**Figure 1 Results of the questionnaire survey of the adult population**

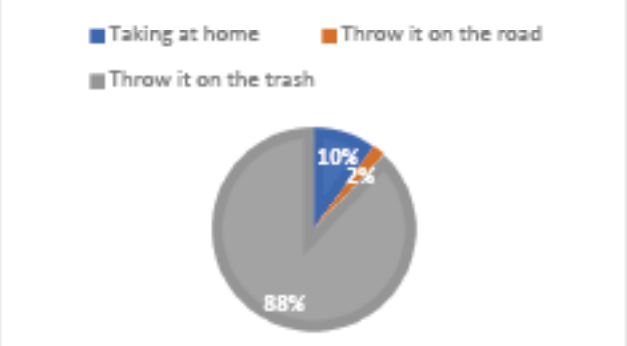
Note: compiled on the basis of a questionnaire [1]

A social survey was conducted among schoolchildren to assess their environmental literacy. The survey is designed to identify the current level of awareness, opinions and practices of schoolchildren in the field of environmental protection. The survey was conducted in secondary school No. 20 of Astana city in parallels of 8th and 3rd grades. The results of questioning of schoolchildren are presented in histograms (Figure 2).

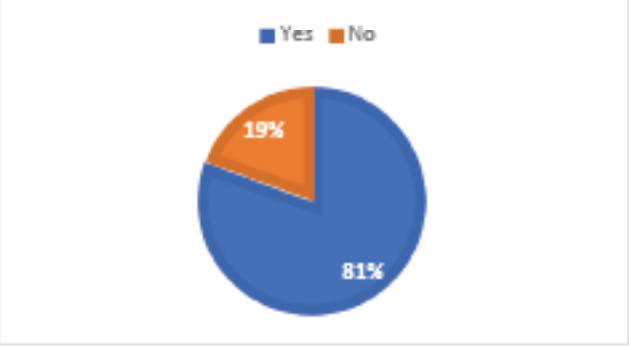

9-How do you think nature should be protected?



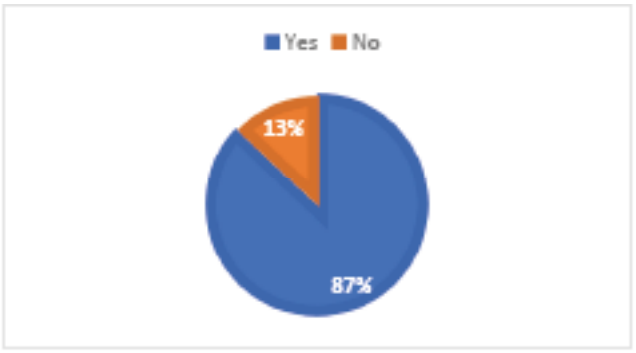

10 Do you clean up after yourself when you are outdoors?



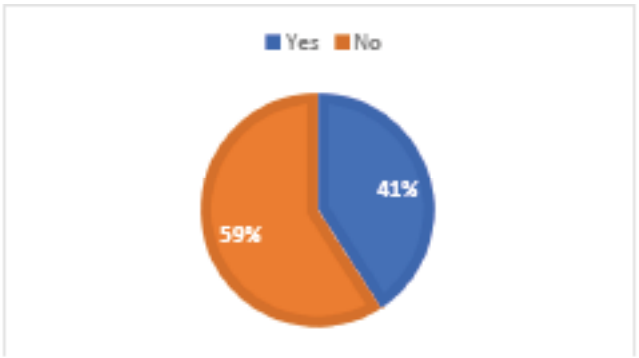

11-What do you do with wrappers, empty bottles on the street while walking?



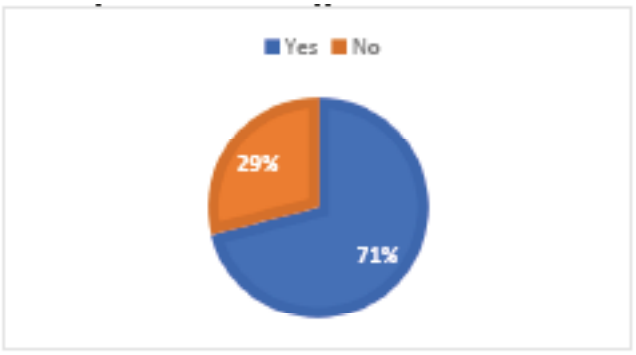

12-Do they tell you in school how to properly separate trash?



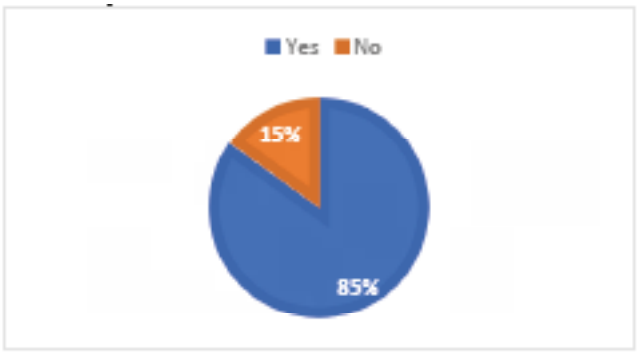

13-Do you know the dangers of household waste?




14-Do you take out the trash at home?




15-Do you know how long it takes for the trash you throw away to decompose?




16-How do you think it is necessary to have an elective (lesson) in school?

**Figure 2 Results of questionnaire survey of pupils of secondary school №20 of Astana city**

Note: compiled on the basis of a questionnaire [1]

During the analysis of the survey results, the majority of pupils of secondary school №20 of Astana city (98.5%) has a positive attitude to nature.

97% of pupils of secondary school №20 of Astana city clean up garbage after themselves. 88% of pupils throw garbage into the trash can, 10% take garbage home and only 2% leave garbage on the road/public places.

81% of pupils said that schools tell them about how to separate litter properly. 85% consider it necessary to introduce environmental lessons into the school program.

87% of schoolchildren know the dangers of household waste. 71% know the period of decomposition of waste thrown away.

Only 41% of schoolchildren sort waste at home.

The results of our survey reflect the level of awareness of adults and schoolchildren about current environmental problems. It is noticeable that a significant part of respondents (67.2%) is not interested in news about the environmental situation. This emphasizes the need to improve the information base and educational programs.

It is interesting to note that a small proportion of respondents (27.1%) expressed concern about sorting and recycling of household waste, 47% periodically try to sort waste. While 26% do not consider this issue as a priority. This diversity of opinions may be due to differences in awareness and perception of environmental threats.

In terms of daily practices, 55.8% of respondents stated that they regularly take steps to reduce their ecological footprint, while 44.2% admitted that their ecological practices are limited. These data provide opportunities to create educational programs that encourage practical behavioral changes.

Analyzing the differences between groups showed that younger respondents were more interested in sustainability issues than the older generation. Also, people with higher education show higher levels of awareness and practices than those with education completed at the high school level.

Analysis of the results of the social survey on environmental literacy of the population allows us to conclude about the current level of awareness, opinions and practices in the field of environmental protection. The findings can serve as a basis for the development of further strategies and activities to improve environmental literacy of the society.

This review of the results of the social survey forms the basis for further research and development of effective strategies to improve environmental literacy among the adult population.

The study emphasizes the relevance of the topic of environmental literacy and the importance of conducting such questionnaires to understand the needs and directions in the development of educational programs. The results can also serve as a starting point for the formation of an informed public opinion and decision-making aimed at sustainable development and care for the environment.

In the survey, many respondents wrote their comments and wishes. Most of them believe that there is no environmental culture, it is necessary to educate the future generation from childhood to protect the environment.

In general, adult respondents believe that environmental literacy of the population is one of the obligatory components of culture and education of the society. One of the respondents wrote that "Environmental culture is intertwined with ordinary culture of behavior and respectful attitude to those around you, understanding of natural processes".

Respondents expressed a desire to see real steps to improve public literacy. They proposed ideas to promote sustainable environmental development and preserve ecosystem health. Among the ideas for sustainable development, they suggested building a large plastic recycling plant in several cities in Kazakhstan. Several respondents believe that it is necessary to inform more and more people about environmental issues and educate people about recycling. In addition to all of the above, survey participants believe it is important for the government to strengthen laws to hold people accountable for leaving garbage behind and improperly sorting waste into trash cans. Many are concerned that waste is a source of viruses and bacteria, therefore, timely recycling will help to solve epidemic problems.

## Conclusion

1. The relatively satisfactory level of environmental culture of the city population was revealed, but there is a lack of environmental behavior of the population in the sector of solid domestic waste management.

2№ The analysis of differences between the groups showed that younger respondents are more interested in the issues of sustainability of environmental development than the older generation.

3. The questionnaire survey revealed the degree of cultural and environmental mobilization of the society to implement various environmental strategies, in particular, the population is ready to respond positively to various initiatives in the field of information support of environmental protection, to measures to preserve ecosystem health, to toughening of laws on the part of the state aimed at increasing responsibility for environmental offenses.

**Acknowledgements:** We express our deep gratitude to all respondents who took part in the social survey "Environmental Literacy of Astana City Population". Your important participation not only enriched our research data, but also contributed to a deep understanding of the current level of environmental awareness in society. Thank you for your valuable opinions and contribution to our project.

**Conflict of interests:** The authors confirm that there was no conflict of interest during the study. No financial or organizational influences affected the objectivity of our results, guaranteeing the independence and credibility of the scientific analysis.

**Contributions of the authors:**

– significant contribution to the design of the work of E.R. Salibaev;
– collection, analysis or interpretation of the results of the work of A.A. Turakkazy, E.R. Salibaev;
– writing the text and its content N.S. Mamytova;
– approval of the final version of the article for publication by N.S. Mamytov;
– agreeing to be responsible for all aspects of the work, due diligence and resolution of issues related to the reliability of data or integrity of all parts of N.S. Mamytov's article.

**References**

1. Крохалевская О.С. Использование игровых технологий в процессе экологического образования дошкольников. 25.03.2017 – [Электрон. ресурс] -URL:https://infourok.ru/ispolzovanie-igrovih-tehnologiy-v-processe-ekologicheskogo-obrazovaniya-doshkolnikov-1712802.html (дата обращения: 25.12.2023).

2. Оглезнева А.В. Особенности экологического образования в странах Западной Европы и США//Теория и практика современной науки. - 2016. - №5(11). - С.1278-1281. https://cyberleninka.ru/article/n/osobennosti-ekologicheskogo-obrazovaniya-molodezhi-v-respublike-kazahstan/viewer (дата обращения: 25.12.2023).

3. Кобзарь О.И., Хахалкина Т.В. Непрерывное экологическое образование: проблемы, опыт, перспективы // Материалы межрегиональной научно-практической конференции. –Томск, 2006. – С. 234.

4. Ашырова М.Г. Проблемы и необходимости экологического воспитания и образования детей; цели экологического воспитания//Сборник статей международной научно-практической конференции: в 4 частях. – 2016. – С.35-38. https://cyberleninka.ru/article/n/vospitanie-ekologicheskoy-kultury-uchaschihsya-posredstvom-proektno-issledovatelskoy-deyatelnosti (дата обращения: 25.12.2023).

5. Букин А. П. В дружбе с людьми и природой. – М.: Просвещение, 1991. –306 с.

6. Деревянно В.А., Савельев С.С, Бабански И.Т. Урок экологического творчества//Начальна школа. - 1989. - №12. - С.40-44. https://cyberleninka.ru/article/n/ekologicheskoe-vospitanie-kak-vazhneyshaya-zadacha-sovremennoy-sistemy-obrazovaniya (дата обращения: 25.12.2023).

**Н.С. Мамытова, А.А. Тұраққазы, Э.Р. Салибаева**

*Қ.Кулажанов атындағы Қазақ технология және бизнес университеті, Астана, Қазақстан*

**Астана қаласы халқының экологиялық сауаттылығы**

**Аннотация.** Жұмыста Астана қаласындағы түрлі әлеуметтік топтар арасындағы экологиялық мәдениет пен дүниетаным деңгейі зерттелді. Жоғары оқу орнының білім алушылары мен оқытушылары, Астана қаласы мектептерінің оқушылары, Астана қаласы бойынша экология департаментінің мамандары, табиғат пайдаланушы кәсіпорындар, сондай-ақ елорда еріктілері мен азаматтары арасында әлеуметтік сауалнама жүргізілді. Мақалада экологиялық сауаттылық деңгейіне әсер ететін факторлар қарастырылады, мысалы, қоқысты қайта өңдеу үшін сұрыптау, энергияны үнемдейтін құрылғыларды пайдалану, пластмассадан жасалған бұйымдарды пайдалануды азайту, мектептерде қоқысты қалай дұрыс сұрыптау. Осы негізде мемлекеттің қоршаған ортаны қорғау үшін неғұрлым қатаң шаралар қабылдау керектігі, сондай-ақ қоршаған ортаны қорғау саласында халықтың жауапкершілігін күшейту қажеттігі анықталды. Онлайн сауалнама қала халқының экологиялық мәдениетінің салыстырмалы түрде қанағаттанарлық деңгейде екендігін анықтады. Алайда қатты тұрмыстық қалдықтармен жұмыс істеу секторында халықтың экологиялық мінез-құлқының жеткіліксіздігі байқалды. Жас және салалық санаттар бойынша сауалнама нәтижелерін талдау, сондай-ақ елорда азаматтары мен мамандарының жасаған ұсыныстары жалпы экологиялық білім мен мәдениетті арттыру бойынша білім беру бағдарламалары мен тәрбие іс-шараларын түзетуге мүмкіндік береді.

**Түйін сөздер:** сауалнама, экологиялық білім, экологиялық тәрбие, тұрмыстық қалдықтар, қоршаған орта.

**Н.С. Мамытова , А.А. Тұраққазы, Э.Р. Салибаева**
*АО «Казахский университет технологии и бизнеса» имени К. Кулажанова», Астана, Казахстан*

## Экологическая грамотность населения города Астаны

**Аннотация.** В работе изучен уровень экологической культуры и мировоззрения среди различных социальных групп в г. Астане. Проведен социальный опрос среди обучающихся и преподавателей высшего учебного заведения, учеников школ, г. Астаны, специалистов департамента экологии по г.Астане, предприятий-природопользователей, а также волонтеров и граждан столицы. Статья рассматривает факторы, влияющие на уровень экологической грамотности, такие, как разделение мусора для последующей переработки, использование энергосберегающих устройств, предпринимаются ли какие-либо шаги для сокращения использования пластиковых изделий, рассказывают ли в школах, как правильно разделять мусор, какие более строгие меры государство должно принимать для защиты окружающей среды, а также ответственность населения в области охраны окружающей среды. Проведенный онлайн-опрос выявил относительно удовлетворительный уровень экологической культуры населения города, однако имеется недостаточность экологичного поведения населения в секторе обращения с твердо-бытовыми отходами. Анализ результатов опроса по возрастным и отраслевым категориям, а также полученные предложения специалистов и граждан столицы позволяют корректировать образовательные программы и воспитательные мероприятия по повышению общей экологической образованности и культуры.

**Ключевые слова:** опрос, экологическое образование, экологическое воспитание, бытовые отходы, окружающая среда.

**References**

1. Ispol'zovaniye igrovykh tekhnologiy v protsesse ekologicheskogo obrazovaniya doshkol'nikov [The use of gaming technologies in the process of environmental education of preschoolers]. Available at: https://infourok.ru/ispolzovanie-igrovih-tehnologiy-v-processe-ekologicheskogo-obrazovaniya-doshkolnikov-1712802.html (accessed: 25.12.2023)

2. Oglezneva A.V. Osobennosti ekologicheskogo obrazovaniya v stranakh Zapadnoy Yevropy i SSHA [Features of environmental education in Western Europe and the USA] Zhurnal «Teoriya i praktika sovremennoy nauki» [The journal “Theory and practice of modern science”]. 5(11). 1278-1281(2016), https://cyberleninka.ru/article/n/osobennosti-ekologicheskogo-obrazovaniya-molodezhi-v-respublike-kazahstan/viewer (accessed: 25.12.2023) [in Russian]

3. Kobzar' O.I., Khakhalkina T.V. Nepreryvnoye ekologicheskoye obrazovaniye: problemy, opyt, perspektivy [Continuing environmental education: problems, experience, prospects] (Tomsk, 2006. – p.234.) [in Russian]

4. Ashyrova M.G. Problemy i neobkhodimosti ekologicheskogo vospitaniya i obrazovaniya detey; tseli ekologicheskogo vospitaniya [Problems and needs of environmental education and education of children; goals of environmental education] Sbornik statey mezhdunarodnoy nauchno-prakticheskoy konferentsii [Collection of articles of the international scientific and practical conference]. 35-38(2016), https://cyberleninka.ru/article/n/vospitanie-ekologicheskoy-kultury-uchaschihsya-posredstvom-proektno-issledovatelskoy-deyatelnosti (accessed: 25.12.2023)

5 Bukin A.P. V druzhbe s lyud'mi i prirodoy [In friendship with people and nature]. (Moscow, 1991, 306 p.) [in Russian]

6 Derevyanno V.A., Savel'yev S.S., Babanski I.T. Urok ekologicheskogo tvorchestva [The lesson of ecological creativity] Zhurnal “Nachal'naya shkola” [The journal “Elementary school”]. 12.40-44(1989), https://cyberleninka.ru/article/n/ekologicheskoe-vospitanie-kak-vazhneyshaya-zadacha-sovremennoy-sistemy-obrazovaniya (accessed: 25.12.2023) [in Russian]

**Information about the authors:**

***Мамытова Н.С.*** **–** хат-хабар үшін автор, PhD, Қ.Құлажанов атындағы Қазақ технология және бизнес университеті, химия, химиялық технология және экология кафедрасының қауым. профессоры, Кайым Мұхамедханов көш., 37А, 010000, Астана, Казақстан

***Тұраққазы А.А.*** **–** магистр, Қ.Құлажанов атындағы Қазақ технология және бизнес университеті, химия, химиялық технология және экология кафедрасы, Кайым Мұхамедханов көш., 37 А, 010000, Астана, Қазақстан

***Салибаева Э.Р.*** **–** Қ.Құлажанов атындағы Қазақ технология және бизнес университеті, «6В05213 Экология» білім беру бағдарламасының 2 курс студенті, Қайым Мұхамедханов көш., 37 А, 010000, Астана, Қазақстан

***Mamytova N.*** **–** corresponding author, Doctor of Philosophy, Ass. Professor of the Department of "Chemistry, Chemical Technology and Ecology'' Kazakh University of Technology and Business named after K. Kulazhanov 37 A Kayym Mukhamedkhanov Street, 010000, Astana, Kazakhstan.

***Turakkazy A.A.*** **–** Master of Chemistry, Chemical Technology and Ecology Department Kazakh University of Technology and Business named after K. Kulazhanov, 37 A Kayym Mukhamedkhanov Street, 010000, Astana, Kazakhstan.

***Salibayeva E.*** **–** 2nd year student of the educational program "6B05213 Ecology" of the department "Chemistry, Chemical Technology and Ecology" Kazakh University of Technology and Business named after K. Kulazhanov, 37 A Kayym Mukhamedkhanov Street, 010000, Astana, Kazakhstan.