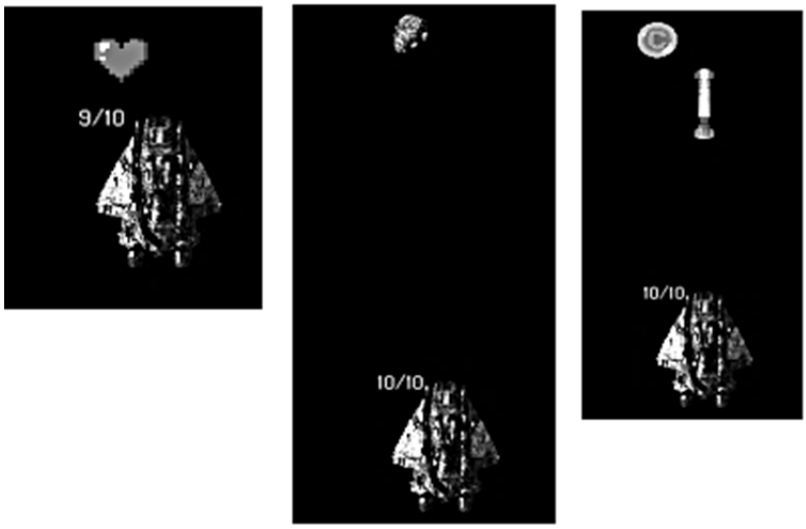

Рисунок 3 — Игровые бонусы

Во время игры проигрывается музыка, которую по желанию можно либо отключить, либо переключить на следующую композицию. Конец игры наступает, когда количество очков здоровья будет равно 0. Далее при выходе в меню, если счёт не равен 0, будет выведен результат игры.

Заключение. Люди проводят много времени за играми, и это факт, в связи с которым встает задача превратить это увлечение во что-то более продуктивное, чем простое развлечение и вымещение негативных эмоций. Использование разработанного игрового приложения позволяет, не только отвлечься, но и улучшать способности к пространственному мышлению и визуальному представлению двухмерных объектов за счет фокусирования внимания на интересующих объектах на визуально загруженном фоне, а также одновременного отслеживания нескольких движущихся предметов.

В ходе выполнения данного исследования, были усвоены приемы практического использования объектно-ориентированного подхода в создании законченного программного продукта. Преимуществом данного проекта является возможность использовать его в игровой индустрии.

Список цитируемых источников

1. *Хорев, П. Б.* Объектно-ориентированное программирование / П. Б. Хорев. — М. : Academia, 2017. — 448 с.

UDC 338.49

H. S. Drmeyan
Armenian state university of economics, Yerevan, Republic of Armenia

SMART INFRASTRUCTURE AS A GUARANTEE OF AN INCLUSIVE ENVIRONMENT

Introduction. The aim of the work is to present the opportunities which are giving smart infrastructure to enhance the quality of life of the population and to build an inclusive environment. Building an inclusive environment is now one of the biggest priorities of developed countries. Since the mid of 20th century, the architect Ronald Mace coined the term universal design. Which would allow people with disabilities to be involved in public life without having any difficulties. At the beginning of the 21st century, a lot of countries started to invest in the smart city concept to make people's life easier and more comfortable. And smart technologies are made not only for saving money and time but as well be build a more inclusive society.

Main part. A smart infrastructure could be defined as a cyber-physical system that provides for an integral management of all elements that it comprises by means of different technological tools that help compile and analyze data to meet efficiency, sustainability, productivity and safety objectives. By another definition "A smart infrastructure is a smart system that uses a data feedback loop to improve decision-making regarding a matter. A system that can monitor, measure, analyze, communicate and act based on data collected by sensors."[1].

There are many tips of smart infrastructures:

1. Semi-intelligent infrastructure.
2. Intelligent infrastructure.
3. Smart infrastructure.
4. Smart networks.
5. Smart buildings.
6. Smart services /waste management, street lighting, road protection and so on.

One of the most important infrastructures for community is transport infrastructure. This is connected with several infrastructures, such as road infrastructure, water infrastructure, street lighting infrastructure. In regions subject to climate stress from increased storm intensity and frequency, soil bioengineering coupled with appropriate water management techniques can help prevent slope failures in transport infrastructure facilities. Soil bioengineering uses locally available plant and vegetative materials to deter slope failure and treat slope instability [2, p. 55]. One of the most important principles of universal design is accessibility. The principle of accessibility asserts that designs should be usable by people of diverse abilities, without special adaptation or modification. Historically, accessibility in design focused on accommodating people with disabilities. As knowledge and experience of accessible design increased, it became increasingly clear that many required "accommodations" could be designed to benefit everyone. There are four characteristics of accessible designs: perceptibility, operability, simplicity, and forgiveness [3, p. 6]. Perceptibility is achieved when everyone can perceive the design, regardless of sensory abilities. Operability is achieved when everyone can use the design, regardless of physical abilities. Simplicity is achieved when everyone can easily understand and use the design, regardless of experience, literacy, or concentration level. Forgiveness is achieved when designs minimize the occurrence and consequences of errors [3, p. 16].

Not long ago, designers were eclectic generalists. They studied art, science, and religion in order to understand the basic workings of nature, and then applied what they learned to solve the problems of the day. Over time, the quantity and complexity of accumulated knowledge led to increased specialization among designers, and breadth of knowledge was increasingly traded for depth of knowledge. This trend continues today. As designers become more specialized, awareness of advances and discoveries in other areas of specialization diminishes. This is inevitable and unfortunate, since much can be learned from progress in other design disciplines. [3, p. 12]

During the past 35 years, the social definitions and concepts of disability have changed radically. The World Health Organization's classification system (WHO, 2002) has shifted from exclusively emphasizing the medical model, which views disability as a feature of the person, to the social model that sees disability resulting from an interaction of people with the environment. The recognition of the power of environmental factors to enable or disable a person highlights the challenge for designers and advocates. Likewise, the approach to design that accommodates people with functional limitations has changed from narrow code compliance to meet the specialized needs of a few to a more inclusive design process for everybody. Contrary to the assumption that attention to the needs of diverse people limits good design, the results of imaginative designers around the world reveal a wide range of applications that delight the senses and lift the human spirit when "universal design" is integral. With initiatives such as the UN CORD, universal design (UD) is gaining growing importance. In fact, UD was included in the UN CORD action plan. Building upon Ron Mace's (1985) definition of UD, the action plan included the following: "'Universal design' means the design of products, environments, programs and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (National Disability Authority, n.d.). This marks one of several milestones in the evolution of the universal design paradigm, which are highlighted in this chapter and which have led to the emergence and evolution of the universal design paradigm [4, p. 34].

From 1994 to 1997, the Center for Universal Design conducted a research and demonstration project funded by the U.S. Department of Education's National Institute on Disability and Rehabilitation Research (NIDRR). The project was titled "Studies to Further the Development of Universal Design" (project no. H133A40006). One of the activities of the project was to develop a set of universal design guidelines. The resulting Principles of Universal Design were as follows [4, p. 59]:

- Principle 1: Equitable Use;
- Principle 2: Flexibility in Use;
- Principle 3: Simple and Intuitive Use;
- Principle 4: Perceptible Information;
- Principle 5: Tolerance for Error;
- Principle 6: Low Physical Effort;
- Principle 7: Size and Space for Approach and Use.

While the existing mass infrastructure is difficult to change, there are many opportunities for practicing universal design in developing countries and the rapidly growing suburbs of major cities. Economic development, reducing environmental pollution, and reducing energy consumption are the driving goals of contemporary mass transportation initiatives. While these goals may drive infrastructure improvements, designers, developers, and government officials should not lose sight of demographic shifts and issues of social justice that can be incorporated at the same time. [4, p. 208] In developing countries such as Armenia, Azerbaijan, Georgia, Ukraine, Belarus, there are a lot of problems connected with the matters of inclusive education. There are no ramps at many schools, supermar-

kets, community buildings. There are no voice guides for blind people in cities. There are no many visual guides for deaf people. Kindergartens, schools, colleges and universities do not have special tools, therapy supplies and other adjustments to organize the educational process.

Conclusion. Developing countries still have problems adapting to urban infrastructure. To this day, buildings, structures and other infrastructures are designed, built in Armenia, without taking into account the idea of universal design. Then, after the building process is finished various international and local organizations are implementing adaptation projects for those building and infrastructures, to make them useable for people with disabilities. But the idea of universal design is not only for people with disabilities. It serves the whole community and makes the environment more comfortable and flexible for people.

If we want to choose the most suitable design solution, we must understand and negotiate among inevitable tradeoffs in accessibility and usability. This requires a commitment to asking for user input throughout the design process. It is important to involve representative users in evaluating designs during the development process to ensure that the needs of the full diversity of potential users have been included in the evaluation process.

People interested in both universal design and the implementation of international and universal norms for equalization of opportunities for persons with disabilities should make an endeavor to understand the convention and the Standard Rules and find ways to apply them to their particular circumstances. If their country is not a party to the convention, they should work to have it validate and once it has done so, use the monitoring mechanisms to promote the cause of universal design.

In my own opinion that most infrastructure and building designers, developers, and construction specialists lack an understanding of the changing needs and abilities of the community and the people with disabilities, and lack knowledge of how to develop appropriate universal design solutions. The present generation of designers and facility owners and operators has had little involvement in those processes consequently has little understanding of the needs of the growing populations of aging people or of people with disabilities. The problem would be more easily resolved if responsibility for environmental decisions that impact on population were centralized.

There is a way of thinking in the building industry and related fields that might procrastinate, complicate, confound, and endanger the implementation of universal design-based life safety systems such as elevators used in combination with exit stairs for occupants egress.

References

1. Smart infrastructures: essential for smart cities [Electronic resource]. — Mode of access : https://nexusintegra.io/smart-infrastructures-essential-for-smart-cities/ . — Date of access : 20.04.2022.
2. *Dell'Acqua, G.* Transport infrastructure and systems / G. Dell'Acqua, F. Wegman. — Taylor and Francis Group, 2017. — 55 p.
3. *Butler, J*. Universal principles of design / J. Buttler, W. Lidwell, K. Holden. — Gloucester, MA, USA, 2010, 112-113. : Rockport publishers, 2003. — 216 p.
4. Wolfgang, F. E. P. Ostroff E. Universal design handbook / F. E. P. Wolfgang, E. Ostroff. — Nova : New York, NY, USA. — 2001. — 496 p.

UDC 378.1

E. V. Gvishch
Belarussian State University, Minsk, the Republic of Belarus

ENGLISH IN A PROGRAMMER'S LIFE AND CAREER

Introduction. Nowadays most of the youth speak at least one foreign language. Starting from the first grades of school, we learn a foreign language. But when I was at school, many of my classmates wondered why they needed it. Of course, learning new languages is not an easy thing. Here are some reasons why we should learn foreign languages and why it is very useful.

Main part. Firstly, learning languages is good for our brain. It is a good challenge that stimulates it and forms new neural connections. It makes it easier to learn not only new languages, but other school subjects: math, science, etc. Also, according to statistics, people who learn new languages are less likely to suffer from Alzheimer's and other brain diseases in an elderly age. With knowing more than one language, the brain concentrates even better on relevant information and blocks out irrelevant information.

Secondly, scientists have found out that our native language influences our world perception. With the use of different methods, the researchers launched comparative language studies with people from different countries. They found that grammar that people grow up with influence cognitive processes.

Thirdly, when learning a new language, a lot of attention is paid to grammar and spelling of words. Later, without realizing, you begin to pay more attention to the grammar of your native language and you become more literate.