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Article

Technological Progress and the Transformation of Society: Perspectives for Individual Development

Abstract: *The presented contribution deals with the impact of technological progress on the transformation of society and its potential perspectives for the individual development of individuals. Due to the demographic indicators that have identified that the population is aging not only in the territory of the Slovak Republic, but also in Europe, in our contribution we focus on the target group of senior citizens, as their number is increasing in the world. Population aging appears to be a global demographic trend.*

It is the result of a combination of factors such as advances in medical care, better access to health care, changes in socio-economic structures and lifestyles. With the increasing presence of technology in all areas of life, seniors face new opportunities, but also challenges when it comes to adapting and using these technologies. This contribution focuses on identifying the possibilities that technological progress offers for the development of seniors in the field of education, health, social contact, but also active involvement in

society. At the same time, it also analyses the obstacles and limitations that seniors encounter when using new technologies and proposes measures and strategies to support their effective and inclusive involvement in the digital era, while we should not forget our social responsibility.

Keywords: *individual development, innovations, modern technologies, seniors, transformation of society.*

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1. Introduction

Technological progress has a significant power to transform the world around us. It is the driving engine, the drive of humanity into the future, which shapes our everyday reality and opens the door to many other possibilities. It moves humanity forward and shapes our society from scientific discoveries to innovations in the digital world. Currently, we are witnessing a revolution in the field of artificial intelligence, robotics, and other areas as well. Artificial intelligence has become the cornerstone of many innovations. We have the opportunity to observe that the digital world is growing at breakneck speed and brings with it

many advantages but also challenges to which it is necessary to respond flexibly. It is related to ethical issues related to privacy, security, cyberbullying, and social consequences. It is necessary that we use modern technologies responsibly and with regard to their possible risks.

Technological progress is taking us into the unknown with incredible speed. It is a challenge that we must accept with determination, because only in this way can we reach the true potential that modern technologies offer us. However, there are also people among us who come from a completely different time and cannot adapt so quickly to the current modern world, so it is necessary to help them in this.

2. Technological progress in the context of seniors

Demographic indicators have identified that the population is aging not only in the territory of the Slovak Republic, but also in Europe. Therefore, the target group of our article is seniors. Zverová (2022) states in her publication that according to the UN report from 2019, the number of elderly people in the world will probably reach almost 12% in 2030, while in 2050 it will already be 16%. The aging trend is expected to continue and in the year 2100, up to 23% of the world's population will be over 65 years old. Also, from the point of view of Kalvach et al. (2008) the number of old and very old people in waiting rooms and doctor's offices is increasing. Cevela et al. (2014) adds that the onset of a long-lived society brings serious challenges to individual people, families, communities, but also to social structures and some departments, which include the health sector. It is therefore necessary to respond to this situation in an effective way and to keep seniors as full members of our society as long as possible.

Technological progress in the context of seniors represents a change that opens up new possibilities for this group of the population as well. Despite the initial uncertainty and fears of many older people in connection with modern technologies, we are witnessing how their attitude and approach to the achievements of modern times is gradually changing, as evidenced by the results of our research. According to Neumajer et al. (2015), it is necessary to perceive modern technologies as elements that help to co-create the current society and the life of the people who exist in it.

Today's technological tools offer seniors the opportunity to improve their quality of life and develop in various areas. Mobile applications, the Internet, and online platforms allow access to education, healthcare, and social interaction from the comfort of their homes. Thanks to them, they can learn new things, keep themselves physically and mentally active and keep in touch with their loved ones, family members, and friends. In addition, technological conveniences such as sensors, smart devices, and other systems can help seniors in their daily activities and ensure their safety. These technologies enable health monitoring, household monitoring, and emergency assistance in case of need (senior falls, sudden nausea, etc.). Macková (2010) states that the Internet has become the operator of well-known social networks, which have become an everyday part of the lives of people interested in modern technologies.

Despite the natural and understandable concerns, modern technology currently brings more opportunities to seniors than ever before. However, it is important that we address the needs of seniors and ensure that technology is accessible and useful for this segment of the population. Ultimately, technological advances are a tool for seniors that can help improve their lives and allow them to age more actively and independently. Technologies offer a wide range of possibilities for their development in the fields of education, health, social contact, but also active involvement in society.

2.1. The field of education

It is important that we do not end education in our lives by achieving a certain level of education, but that we see it as lifelong learning. Šimonik (2005) explains that education is understood as a lifelong process that accompanies every person from birth to old age. It is education that changes individuals and thus also our entire society, of which we are a part. As Kalnický (2009) adds, gerontology deals with education, i.e. the education and upbringing of seniors, which is gradually integrated into andragogy.

The technologies that are part of today's modern age open the door to many possibilities for the development of seniors in the field of lifelong learning. They provide seniors with the opportunity to continuously learn and develop their skills and knowledge, regardless of their age. It is important to support, encourage, and motivate seniors to use these technological tools to their advantage and to enrich their lives. Below is an overview of the most frequently used:

a. Online learning platforms: there are a number of online learning platforms that offer a wide selection of courses, webinars, and materials on various topics. They provide seniors with the opportunity to acquire new knowledge and skills from the comfort of their home, which guarantees a high level of comfort.

b. Virtual universities and courses: some universities offer online courses and education that allow seniors to receive formal education without the need for a physical presence on campus. These courses are also often used to obtain degrees or certificates even among the younger generation.

c. Mobile applications: a number of mobile applications designed specifically for seniors are now available to help them develop memory, logical thinking, and other cognitive skills. These apps are often interactive and fun, making it easier for seniors to learn.

d. Video tutorials and webinars: they are a great way for seniors to learn new things through interactive presentations and explanations. They can participate in live online lectures or watch recordings from the archive according to their needs, possibilities and their own dedicated time.

e. Social media and online communities: seniors can use social networks and online communities to share experiences, information, and educational content with other people within their age group. These platforms provide space for mutual support and learning from each other.

2.2. Health area

Technological innovations bring many options for seniors in the field of health that help them maintain good health and improve their quality of life. They are a significant help in health care and can also help in the prevention of serious health problems and improve the overall well-being of seniors:

a. Telemedicine: allows seniors to consult their health status with a doctor without the need for a physical visit to a doctor's office or hospital. Through video calls or telephone communication, seniors can receive medical care and monitor their health from the comfort of their homes. Another important help is prescribing medicines via an electronic prescription, either by calling or writing an e-mail to the doctor, who will issue the e-prescription to the senior and the senior will only have to pick up the medicine at the pharmacy.

b. Monitoring of chronic diseases: watches, bracelets, smart phones, and other devices monitor vital functions such as heart rate, blood pressure, and physical activity of the senior.

These devices can provide seniors with continuous information about their health status and alert them to deviations and possible problems. Seniors suffering from chronic diseases such as diabetes, hypertension, etc. can monitor their symptoms and condition using special apps and devices. These technologies make it possible to monitor the progress of treatment and respond to changes in health status.

c. Reminders: applications and smart devices can help seniors monitor their treatment and medication regularity by setting various forms of reminders so that seniors do not forget to take their required dose of medication at the specified time. In addition, these technologies can provide reminders about medical appointments and notifications of important events, which improves adherence to prescribed treatment. Modern technologies are also a suitable means for compliance with the drinking regime, as many bottles have built-in sensors that are connected to smart phones and notifications remind seniors to properly comply with the drinking regime, which is extremely important to them.

d. Memory games: mobile applications and online platforms offer seniors a wide selection of memory and cognitive games that help maintain mental sharpness and mental alertness. These games are fun and interactive, which increases the motivation of seniors to exercise their brain regularly, with the ability to adjust the difficulty of exercises and tasks.

2.3. Social area

Modern technologies offer seniors various opportunities not only to maintain, but also to develop and acquire new social contacts, which is particularly important for their overall well-being and mental health. Technologies provide seniors with the means to maintain and develop their social contacts even if they are unable to meet family or friends in person/physically. Also, according to Draganová et al. (2006) the family is very important for seniors.

Modern technologies are therefore a suitable equivalent of face-to-face meetings, helping to combat isolation and strengthen seniors' sense of belonging and connection to the community.

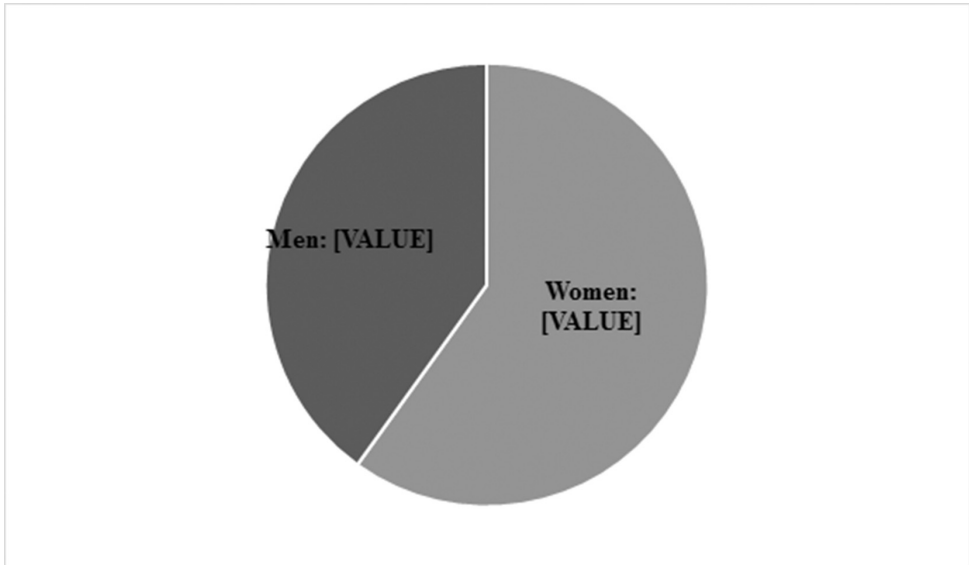
a. Social networks and communication applications: seniors can use social networks such as Facebook, Instagram or LinkedIn to keep in touch with family, friends, and other members of the community. In addition, they can use communication applications such as WhatsApp, Viber, Telegram, Skype, MS Teams, or Zoom for video calls, text messages, sending videos, photos or images that allow personal interaction without physical presence.

b. Online communities and forums: there are many online communities, groups, and forums focused on the interests of seniors, where they can find like-minded people in the same age group and share their experiences, interests, and hobbies (cooking, baking, etc.). These platforms provide space for mutual support, exchange of information, and establishment of new contacts.

3. Research methodology and results

A quantitative method in the form of a questionnaire was used to obtain relevant data. The respondents were women and men over 65 years of age from the Trnava self-governing region. 735 questionnaires were distributed, of which 619 were returned to us. There could be several reasons for the lower number of returns: reluctance to participate in the research, misunderstanding of some questions, inability to fill out the questionnaire, and others.

Figure 1. Gender of respondents



Source: author's own processing, 2024

Table 1. Use of modern technologies

Do you use modern technology?		
	Number of respondents	%
Yes, I use modern technology on a daily basis	389	63%
Yes, I use modern technology occasionally	175	28%
No, I don't use modern technology at all	55	9%
TOGETHER	619	100%

Source: author's own processing, 2024

The number of seniors who use modern technologies is increasing, which is also evident from our research. Up to 91% of the respondents, representing 564 respondents, said that they use modern technologies. Of these, 63% of respondents use modern technologies on a daily basis. 28% of respondents use modern technologies occasionally. The remaining 9% of respondents do not use modern technologies at all.

There can be several reasons for seniors not using modern technologies:

- insufficient adaptation to the present time: many seniors were born in a period when computers, tablets, etc. were really just sci-fi fantasies and cell phones and smart watches didn't exist;
- inability to use modern technologies due to absent education: a large part of the senior population does not have experience in using modern technologies, because they were brought up in a period when these technologies were unknown;

- physical limitations: some older people may have physical limitations that prevent them from using modern devices, such as vision, hearing, or motor limitations;
- lack of funds: seniors do not have sufficient funds to purchase modern technological equipment or to ensure access to an Internet connection;
- fear of the unknown: changes can be intimidating for some seniors. They may be worried that they will not be able to understand and control new technologies, so they prefer not to even try to control them;
- lack of motivation: for some seniors, using modern technologies may not be a priority. They may feel more comfortable with their traditional way of life and communication (sending letters/postcards, face-to-face meetings, etc.).

As our research shows, although not all older people have problems using modern technology, many do. Even Tomczyk (2015) points to the great challenge of society to include seniors among active users of modern technologies, because there are still seniors who do not want to accept new technologies, they try to avoid innovative solutions such as e.g. paying by card or using smart mobile phones.

It is important to offer help, support, and patience to seniors so that they can adapt to the digital world and use its benefits to their advantage and to the extent that suits them.

4. Suggestions and recommendations for practice

The effective and inclusive involvement of seniors in the digital era and the use of modern technologies requires a combination of effective measures and strategies that take into account their specific needs and abilities. We consider the key aspects to be:

- Digital literacy for seniors: courses and trainings in the field of digital literacy are among the basic steps to support the involvement of seniors in the digital era. They should be adapted not only to their needs, but also to the pace of their learning ability.
- Accessibility of technology: providing access to modern technology with different levels of ability and taking into account the possible limitations of seniors, such as large font, voice control, and simple interfaces.
- Support for mutual learning and sharing of experiences: creating an environment where seniors can share their experiences, knowledge and tricks in the use of modern technologies – it can be e.g. workshops, club meetings or online groups or discussion forums.
- Creation of digital community centres: creation of local community centres with access to modern technologies and for the support of seniors, where they can obtain information, learn about the achievements of modern times, e.g. also with the help of young people – volunteers.

5. Conclusion

It is imperative that we constantly learn and adapt to new technological trends. Collaboration between governments, businesses, and academia is key to ensuring we use technology to promote the common good. We had the opportunity to see that modern technologies proved to be an important and effective helper even during the global COVID-19 pandemic, during which personal contact between people was significantly limited.

The recommendations for practice proposed by us aim to ensure that seniors are full participants in the current, dynamically changing, modern era, which is also called the digital era,

and that they can fully use its advantages and benefits for various areas of their lives, which would increase its quality. Seniors can adapt, learn a lot of new things, but it is necessary to take into account their state of health and needs and approach them with empathy and patience. We believe that we, as educators, can also influence seniors in an effective way through education at Universities of the Third Age.

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Conflicts of interest

The author declares no conflict of interest.

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