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The Effect of Educational Interventions on the Level of Critical Thinking Skills of Seniors: Case Study

Monika Prostináková Hossová
Magdaléna Švecová

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Author's Photos





Author's short biographies

- **Monika Prostináková Hossová** is a member of the Faculty of Mass Media Communication at the University of Ss. Cyril and Methodius in Trnava. She currently works at the Department of Media Education as an Assistant Professor and teaches on the Applied Media Studies study programme. In her research activities, she focuses on increasing media literacy, formal education in the field of media education in Slovakia and the use of digital media and ICT in the educational process. She is a member of the editorial board of the *Media Literacy and Academic Research* journal.

- **Magdaléna Švecová** is the head of the Department of Digital Games at the Faculty of Mass Media Communication, University of Ss. Cyril and Methodius in Trnava, Slovakia. Her research is focused on gamification of education, ethical aspects of digital games and game journalism. Most of her scientific career she has been focused on education of seniors' population in the field of ICT, critical thinking and digital games.

Introduction: Getting old

- Physical health problems
- Psychological impact of life changes
- Pension crisis
- Generation gap

Introduction: Getting old

Physical health problems

- **Cognitive Decline:** As we age, our cognitive abilities may deteriorate, potentially affecting our critical thinking skills. This decline can be caused by factors such as changes in the brain, health conditions, and side effects of medications.
- In addition to sensory impairments (such as hearing and vision loss), there is also a **decrease in the functionality of various bodily systems**, including the musculoskeletal system (arthritis), muscular system (muscle atrophy), digestive system (tooth loss, reduced nutrient absorption), and nervous system (Alzheimer's disease, Parkinson's disease), among others. Seniors frequently suffer from polymorbidity, which is the simultaneous occurrence of multiple diseases. These health complications negatively impact the lives of seniors, requiring regular visits to doctors and hospitals and imposing financial burdens. They also affect the mental well-being of individuals, as not everyone copes well with deteriorating health.
- Seniors are often criticized for their perceived slow or stagnant thinking. However, this perception is incorrect. According to I. Stuart-Hamilton, **the intelligence of seniors shifts from fluid intelligence (the ability to solve new problems using knowledge and education) to crystallized intelligence,** which represents the accumulation of knowledge over a lifetime. This shift explains why seniors may think more slowly but not less effectively.

Introduction: Getting old

Psychological impact of life changes

- K. Svobodová accurately defines the increased **density of significant events in the lives of seniors**, such as the loss of relatives, friends, and acquaintances, changes in residence, retirement, and other changes that accompany old age. The death of a lifelong partner can be devastating for an individual, although many widows and widowers manage to rebuild their lives. The loneliness that follows the death of a partner often leads to relocation to a retirement home, as children may be unable, unwilling, or too busy to care for an elderly relative. In a retirement home, seniors may feel isolated and miss their previous way of life, but they may also find new social connections that replace those lost.

Introduction: Getting old

Pension crisis

- There is talk of a retirement crisis, which necessitates filling life with new activities and perspectives. All demographic projections indicate that the population, especially in Europe, is aging and will continue to age. Therefore, experts and institutions are developing **the concept of active aging**. In Slovakia, this concept is still far from reality, as seniors typically view retirement as a period of passive leisure. Until recently, preparing for this stage of life was not considered. Therefore, it is advisable for future seniors to start planning for their retirement now.

Introduction: Getting old

Generation gap

- According to M. Prensky, current seniors are also **digital immigrants.** In addition to facing the challenges of aging, must adapt to societal changes driven primarily by digitalization and technological advancements. Many activities that were once offline are now moving into the online space. Within this group, we can further distinguish digital settlers, who lived on the cusp of the analog and digital eras. While they are capable of using the internet and possess sophisticated digital technology skills, they still rely heavily on traditional analog forms such as newspapers, magazines, and CDs.

Introduction: Active aging in EU

- Active ageing, defined by the European Commission, aims to help individuals **maintain control over their lives as they age** and contribute to society and the economy. It emphasizes good quality, productive, and healthy working conditions until legal retirement age. The EU promotes this through policies addressing demographic changes, with initiatives like the European Year for Active Ageing, the Active Ageing Index, and the European Innovation Partnership on Active and Healthy Ageing. The 2017 framework agreement by EU social partners supports intergenerational knowledge transfer and healthy work environments.
- **Lifelong Learning Initiatives**: The EU promotes lifelong learning to ensure that seniors can continue to acquire new skills and knowledge throughout their lives. This includes programs aimed at improving digital literacy, which is essential as many services and activities move online.

Introduction: Active aging opportunities in Slovakia

University of the Third Age (UTV):

- UTVs provide a structured environment for seniors to continue their education. These institutions emerged in the 1970s, inspired by Professor Vellas, aiming to improve seniors' quality of life and help them stay active and useful in society. UTVs differ in duration, subjects, and integration levels, offering either segregated or integrated learning models. Similar models are courses organised by NGOs or private companies.

Educational Functions:

- According to Čornaničová, senior education functions include educational, cultural-cultivation, socio-psychological, preventive, anticipatory, rehabilitative, adaptive, empowering, communicative, compensatory, activating, relaxing, and promoting intergenerational understanding.

Motivations for Senior Education:

- A survey by the Association of Universities of the Third Age revealed diverse motivations among seniors, such as overcoming feelings of inferiority (2%), expanding knowledge in their field (14%), expanding social contacts (15%), escaping loneliness (2%), and deepening knowledge in areas of interest (64%).

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The Study

The study summarizes the results of a project aimed at developing critical thinking competences of seniors (people aged 65+), with two main lines of the project itself - the investigation of the level of critical thinking and information assessment skills of seniors and the subsequent implementation of education of seniors in order to increase their literacy in this area. The study reflects on theoretical knowledge in the field of senior education and the acquisition of critical thinking competences and increasing the level of media, information and digital literacy, looking at the issue in the context of lifelong learning and practice in the European area. The research part of the study focuses on the interpretation of the findings of the pilot research of the level of critical thinking of seniors and also on the presentation of the results of the implemented education of seniors involved in the research. The research has the character of a pilot research and aims to investigate the level of critical thinking competences in a selected population group through quantitative research methods. The contribution of the study and the implemented project lies in the creation of an educational concept for seniors, which primarily increases the level of critical thinking and, at the same time, improves the quality of life of seniors in the digital society and helps to reduce the generation gap or social exclusion.

Research Question(s)

- **The aim** of the research is to identify the impact of short-term training on seniors' critical thinking levels.

- **RQ:** What is the impact of short-term educational interventions on the critical thinking abilities of individuals in their senior years?

Methodology

The subject of the research:

- The post-working age population constitutes a significant proportion of the Slovak population, representing over 17% of the total. It is noteworthy that this demographic remains actively engaged in civic and social activities. Both the senior and the working age populations play an active role in the shaping of our society, engaging with public affairs and contributing to the social fabric. On the other hand, however, they receive disproportionately less attention in terms of education, especially in the area of improving media, information and digital literacy.
- The aim of this study is to **investigate the effectiveness of short-term education in developing critical thinking skills among older adults**. The rationale for selecting short-term education is that it allows the educator to identify and prioritise the information that is most relevant to their needs. Additionally, short-term education is perceived as an effective and appealing approach for older individuals, given their preference for advance planning and the potential challenges associated with longer courses, such as scheduling conflicts and transportation issues.

Methodology

The research sample:

- comprises 15 Slovak seniors who are members of the Regional Organisation Unity of Pensioners Trnava in Slovakia. The rationale for selecting this particular group is based on the fact that they were readily available for inclusion in the study. As a consequence of the aforementioned choice of research object, the return rate of the distributed questionnaires (distributed personally by the researchers) is 100%. The data collection was conducted in May 2024. We have a long-standing collaborative relationship with the aforementioned organisation, which has also engaged with our research activities in the past. The members of this organisation have participated in educational and research initiatives conducted by the Faculty of Mass Media Communication at the University of Ss. Cyril and Methodius in Trnava.
- The size of the research sample aligns with the nature of the research, which is a case study aimed at investigating the impact of short-term education on the level of critical thinking skills of a selected sample of seniors.

Methodology

The research method:

- quantitative and employs a questionnaire survey as the principal instrument for data collection.
- The questionnaire was developed in accordance with the criteria set forth by the Critical Thinking project, which is funded by the Erasmus+ Programme under the auspices of the Strategic Partnership in the field of Adult Education (Kobylarek et al., 2020).
- The questionnaire comprises 25 statements. The respondents are required to rate each of the statements according to the extent to which they agree or disagree with it based on their own experiences. Accordingly, respondents are instructed to select a response from 1 to 5 (1 = strongly disagree, 5 = strongly agree) for each statement. As per the instructions set forth in the questionnaire header, respondents are instructed to refrain from prolonged deliberation on the statement itself and instead select the response that most accurately reflects their own perspective. **The statements are classified into six categories: analysing (A), evaluating (E), constructing (C), remembering (R), understanding (U) and applying (X).**
- A score of between one and five is attributed to each question in accordance with the response selected. Some questions are marked with an 'r', indicating that the scoring is to be reversed. Thus, answer 1 is scored 5 points, while answer 5 is scored 1 point. The scores for each question are averaged, and then the scores in each category are averaged.
- **Each respondent completes the questionnaire on two occasions**: initially, prior to undertaking the short-term training programme, and subsequently, following its completion. The scores achieved for each category are then compared in order to ascertain whether the training has had an impact on the level of critical thinking exhibited by the participating seniors. Based on this evaluation, the stated research question is then answered.

Methodology - The Course Structure

- Due to our previous research in this field we decided to choose frontal education with possibility of discussion:
- Seniors prefer to be educated by frontal way (linear). Also, we wanted to progress our research from e-learning to face-to-face teaching.
- Since the topic is critical thinking, it is desired to include discussion into the process.

Methodology - The Course Structure

- We chose intergenerational learning which provides:
- **Sharing Experiences and Perspectives:** Intergenerational learning allows participants from different generations to share their life experiences and viewpoints. This leads to better mutual understanding and reduces stereotypes and prejudices.
- **Improving Social Skills:** Interaction between generations enhances social skills such as communication, collaboration, and empathy. Participants learn to communicate effectively and work with people of different ages.
- **Innovation and Creativity:** Mixing different generations can lead to new ideas and approaches. Younger participants bring new technological knowledge, while older generations provide historical context and experience.
- **Boosting Confidence and Self-Worth:** Intergenerational learning helps older adults feel valuable and productive by passing on their knowledge to younger people. For younger generations, it's an opportunity to show respect and appreciation for the elderly, thereby boosting their confidence.
- **Promoting Lifelong Learning:** Intergenerational learning encourages the concept of lifelong learning by demonstrating that education doesn't have to stop at a certain age. This can motivate participants of all ages to engage more actively in education.
- **Improving Seniors' Health:** Engagement in socially interactive educational activities can positively impact the mental health of older adults, reduce feelings of isolation, and possibly alleviate symptoms of dementia.
- **Strengthening Communities:** Intergenerational learning can help strengthen local communities by bringing together people from different parts of society, leading to stronger social cohesion and support across generations.

Methodology - The Course Structure

- We planned six lessons with the same scenario - theoretical introduction, discussion, examples, exercises and discussion recap. However, discussion was also possible during the explanation.
- Educators aged 20 – 24 received training on how to teach and behave towards elderly.

Methodology - The Course Structure

TOPICS

- **How Media Works**: The goal is for students to understand when media content or the medium itself is relevant based on information such as the article, podcast, or video author (are they real, mentioned?). Indicate if the medium has listed contacts along with the names of the editorial staff, which can be contacted, or a published address.
- **Thematic Focus of Media**: The aim is to understand that if media only deals with one chosen topic, something is suspicious (except for hobby magazines, of course). Also, if they constantly push the audience's emotions (anger, fear) - exceptions are tabloids that do not use propaganda or hate news but for their nature and readership. Most tabloids do not lie. It's suspicious if media outlets take news from press agencies and add their own opinions. Relevant media work with a wide range of sources – they use scientific studies, ask respondents.
- **Profit-Driven Scams**: Various misleading messages and emails – how to recognize them from real ones (spelling mistakes, strange phone number formats, etc.). Fake advertising articles that steal the identity of famous people or use fake individuals to sell products (casinos, virtual currencies).
- **Manipulation of Images, Sound, and Video**: The aim is to show how these frauds work – e.g., publishing a photo in the wrong context, manipulating the photo itself (cropping, photoshop, etc.). Demonstrating the use of Google Reverse. Deepfake technology and how to verify it – pointing out that it is necessary to trust relevant media that can distinguish deepfake.
- **Additional Precautions**: Website names similar to the names of relevant media to confuse the viewer. Grammatical errors in articles – unprofessionalism. The content of satirical sites sometimes looks like fake news – be careful. Presenting old news as new – it is necessary to check the publication date and if the article has been updated (what is updating an article – explain?).

Results

- **Each respondent completes the questionnaire on two occasions**: initially, prior to undertaking the short-term training programme, and subsequently, following its completion. The scores achieved for each category are then compared in order to ascertain whether the training has had an impact on the level of critical thinking exhibited by the participating seniors. Based on this evaluation, the stated research question is then answered: ***What is the impact of short-term educational interventions on the critical thinking abilities of individuals in their senior years?***

Results

Critical Thinking Level Testing Results **prior to Short-Term Education**:

- **A - Analysis** - average score in category: **4.23**
- **E - Evaluation** - average score in category: **4.32**
- **C - Creating** - average score in category: **4.19**
- **R - Memorization** - average score in the category: **3.62**
- **U - Comprehension** - average score in the category: **4.16**
- **X - Applying** - average score in the category: **4.61**

Critical Thinking Level Testing Results **after completing Short-Term Education**:

- **A - Analysis** - average score in the category: **7.26**
- **E - Evaluation** - average score in the category: **8**
- **C - Creating** - average score in category: **6.99**
- **R - Memorization** - average score in the category: **6.21**
- **U - Comprehension** - average score in the category: **6.86**
- **X - Applying** - average score in the category: **7.53**

Results

- Based on the above data, we can see that the average score in all categories **increased after the course**. The above shows that the completion of a short training course for the selected group of seniors **has an effect on critical thinking related skills and abilities.**

- Therefore, based on the collected data and its analysis, the research question is evaluated as follows:

RQ: What is the impact of short-term educational interventions on the critical thinking skills of individuals in their senior years?

*The completion of short-term educational interventions has a **positive impact** on increasing the level of critical thinking skills of seniors.*

Discussion

- The contemporary era is distinguished by the profound transformations and extensive digitisation that have occurred over the past two decades. This has an impact on almost all aspects of life and all age groups. In this context, the elderly (defined here as individuals aged 65 and above) represent one of the most vulnerable population groups, along with children and young people, the disabled, and those who are socially disadvantaged. In Slovakia, however, the senior population constitutes almost a fifth of the country's total population. Despite the majority of this cohort being retired, they continue to play an active role in shaping public life and influencing societal direction. Consequently, it is imperative to emphasise the necessity for continuous media education, with the objective of fostering critical thinking and enhancing media literacy among this demographic.

Discussion

- Non-formal education organisations are of significant consequence in the process of enhancing the proficiency of older individuals in the domain of media competence. While the majority of such organisations and civic associations are dedicated to the target group of children and youth, there are also projects targeting people of an older age. One such project is the international project LoGaSET: Geolocation Games as Current, Original and Innovative Methods for Education and Learning for Seniors is being implemented under the auspices of Erasmus Plus KA2 – Strategic Partnership for Lifelong Learning. The project's objective is to enhance the digital competencies of older adults through the utilisation of geolocation games, fostering proficiency in information and communication technology (ICT) utilisation, and cultivating critical, creative, and collaborative approaches to ICT.

Discussion

- The project 'Improving the Digital Skills of Seniors and Distribution of Senior Tablets', implemented by the Ministry of Investment, Regional Development and Innovation of the Slovak Republic, is also dedicated to the digital skills of seniors. The objective of the project is to develop the digital skills required for effective access to digital public services. An interesting venture is the #DlhujemeImTo (We Owe Them) project, which is represented by Transparency International Slovakia. The objective is to implement preventative measures to combat misinformation and conspiracies that the elderly population encounters. In the European context, it is noteworthy to mention the Eseniors.eu initiative, which is focused on e-inclusion, healthy and active ageing, and combating the digital divide affecting the elderly.

Suggestions for Further Research

- Include bigger research sample of seniors.
- Conduct a questionnaire survey or focus group or both with the young trainers to find out their views on the training activities and what impact the contact with seniors has had on them.
- Include the basics of critical thinking in general (not only in terms of the media) and argumentation in the context of ways of using manipulative techniques (such as the fallacy dilemma).

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