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THE EFFECT OF EDUCATIONAL INTERVENTIONS ON THE LEVEL OF CRITICAL THINKING SKILLS OF SENIORS: A CASE STUDY

EL EFECTO DE LAS INTERVENCIONES EDUCATIVAS EN EL NIVEL DE LAS HABILIDADES DE PENSAMIENTO CRÍTICO DE LAS PERSONAS MAYORES: UN ESTUDIO DE CASO

Monika Prostináková Hossová[1*]
E-mail: monika.prostinakova.hossova@ucm.sk
ORCID: https://orcid.org/0000-0003-1694-7701
Magdaléna Švecová[1]
E-mail: magdalena.svecova@ucm.sk
ORCID: https://orcid.org/0000-0002-6851-023X
[1] University of Ss. Cyril and Methodius in Trnava. Slovak Republic.
*Autor para correspondencia

ABSTRACT

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.

Keywords:

Case Study, critical thinking, media literacy, seniors.

RESUMEN

El estudio resume los resultados de un proyecto destinado a desarrollar las competencias de pensamiento crítico de las personas mayores (personas mayores de 65 años), con dos líneas principales del proyecto en sí: la investigación del nivel de pensamiento crítico y las habilidades de evaluación de la información de las personas mayores y su posterior implementación. de educación de las personas mayores con el fin de aumentar su alfabetización en esta área. El estudio reflexiona sobre los conocimientos teóricos en el ámbito de la educación superior y la adquisición de competencias de pensamiento crítico y el aumento del nivel de alfabetización mediática, informativa y digital, analizando la cuestión en el contexto del aprendizaje y la práctica permanente en el espacio europeo. La parte de investigación del estudio se centra en la interpretación de los resultados de la investigación piloto sobre el nivel de pensamiento crítico de las personas mayores y también en la presentación de los resultados de la educación implementada de las personas mayores involucradas en la investigación. La investigación tiene el carácter de una investigación piloto y tiene como objetivo investigar el nivel de competencias de pensamiento crítico en un grupo de población seleccionado a través de métodos de investigación cuantitativos. La contribución del estudio y del proyecto implementado radica en la creación de un concepto educativo para personas mayores, que aumenta principalmente el nivel de pensamiento crítico y, al mismo tiempo, mejora la calidad de vida de las personas mayores en la sociedad digital y ayuda a reducir la brecha generacional o la exclusión social.

Palabras clave:

Estudio de caso, pensamiento crítico, alfabetización mediática, personas mayores**.**

INTRODUCTION

The importance or even necessity of a developed level of media literacy is no longer debated. Experts and the general public are aware that in today's post-factual world, a critical view of information and media content is essential and should be part of everyone's equipment. Critical thinking and the ability to critically analyse information are considered to be the foundation of media literacy (Grizzle & Wilson, 2011) and as competences that should be developed continuously throughout life – from early childhood, in adolescence, in adulthood and in post-productive years. Critical thinking is understood as an intellectual process, reasoning that is based on logical thought processes and evaluation of information (Scriven, 1993, in Petrasová, 2008; see also Grecmanová et al., 2000; Buckingham, 2003). The use of the term critical thinking is often both misused and overused, especially by disinformation media, propagandists and conspirators. It is precisely these terms that are now considered to be the so-called negative phenomena of the post-factual society (Moravčíková, 2020; Hossová, 2018), which we can fight against with an effective tool - developed ability to think critically.

All demographic forecasts predict that the population, especially in Europe, is ageing and will continue to age. Therefore, experts and institutions are developing the phenomenon of active ageing (Stojáková & Pavelková, 2013). One of the appropriate ways of spending time of seniors is education, not only in the sense of personal development or enrichment, but also in the field of new knowledge and technologies (Stojáková & Pavelková, 2013). Today's seniors are part of the digital immigrant generation, who, in addition to the coming old age, have to adapt to changes in society, mainly stemming from digitisation and technological advances, where many previously offline activities are moving online. Digital immigrants, for example, only learned to use e-mail later in life (Palfrey & Gasser, 2008).

The EU supports lifelong learning to ensure that seniors can acquire new skills and knowledge throughout their lives, including programmes to increase digital literacy and media education (European Commission, 2021). Educational activities are run by non-profit organisations, companies whose business is education, and Third Age Universities are also known, and educational activities are also organised by local governments (cities or municipalities). Key player in this sphere are various fact-checking organizations (Rasi-Heikkinen & Luksua, 2023). The emphasis is on methods that facilitate the integration of theory and practice (Madej, 2022).

MATERIALS AND METHODS

In the present study we focus on critical thinking and the possibilities of increasing the level of critical thinking and media literacy of Slovak seniors. Despite the fact that we conduct our research activities in Slovakia, the applicability of such research is wide and its results usable worldwide. The aim of this study is to investigate the effectiveness of short-term education in the development of critical thinking skills of seniors.

The research sample consists of 15 Slovak seniors who are members of the Regional Organization Unity of Pensioners Trnava in Slovakia. We have a long-standing cooperation with this organization, which has been involved in our research activities in the past. Members of this organization have participated in educational and research initiatives implemented by the Faculty of Mass Media Communication of the University of St. Cyril and Methodius in Trnava.

Intergenerational learning has several typical features and characteristics, making it enriching for both parties involved - students and course leaders: exchange of experiences and perspectives, improving social skills, innovation and creativity, boosting self-confidence and self-esteem, improving the health of seniors, strengthening communities (Pstross et al., 2017; Burke et al., 2013; Ho, 2010).

The structure of both courses, divided into 6 thematic units, follows the same scenario: theoretical introduction to the subject, discussion, presentation of examples, practical exercise and final discussion. It should be noted that seniors are constantly encouraged to react to the information presented and to ask questions about possible uncertainties during the explanations. The short-term training is divided into two courses over two days, covering a total of 6 thematic units.

RESULTS AND DISCUSSION

The results of the investigation are based on testing the level of critical thinking of seniors who participate in short-term training in critical thinking and the strengthening of skills related to it. The short-term education, i.e. the created courses (workshops) are attended by 15 seniors associated in the Regional Organisation Unity of Pensioners Trnava in Slovakia, on the basis of voluntariness and own interest. The testing of the level of critical thinking skills is approached in two phases - before and after the course. We evaluate the results in a group design, i.e., we observe improvements/deteriorations in each category and overall, within the group of 15 seniors participating in the short-term training. In the following section, we briefly describe the course content and report the results of the scores (determined by a questionnaire, see Kobylarek et al., 2020) before and after the course. Complete records of respondents' answers and scores are available upon request, as well as suggestions for course structure and content fulfillment.

Course description

The short-term education or courses are held over two days on May 7, 2024 and May 22, 2024. We see the division of the content of the education into two days as appropriate, especially from the point of view of time (seniors are not exhausted, they are able to keep their attention), but also from the point of view of its effectiveness (seniors have space to think about the acquired knowledge, to follow up the information, to process their impressions, etc.). The course content is divided into 6 thematic units:

- **How media work:** the aim of the unit is to explain to students the basic models of how all types of media (print, radio, television, social media, websites) work. We focus on explaining the differences between public and private media, as well as the functioning of social media.

- **Relevance of content in the media:** the aim of the thematic unit is to provide students with the knowledge to identify relevant content in the media and also to determine the relevance of the media itself (e.g. the author of the media content, editorial contacts, etc.).

- **Thematic focus of the media:** the aim of this part of the course is to introduce students to the choice of topics by individual media so that they can clearly distinguish between

the one-sided focus of the content (bias) and the thematic focus of the media (typical of e.g. hobby magazines or tabloids). On the basis of such knowledge, seniors are then able to distinguish between relevant media (publishing relevant facts, scientific knowledge or respondents' contributions) and biased media (spreading propaganda or with a one-sided pro-government orientation).

- **Fraud for profit:** the aim of the unit is to teach students to recognize misleading emails and messages, fake advertising articles or content working with fake identities of well-known persons, etc.

- **Manipulation of image, sound and video:** the aim of the course is to familiarize seniors with the principles of image, sound and video manipulation (e.g. publishing a photo in the wrong context or deliberate distortion created by photo editing, etc.). It also focuses on explaining the principle of deepfake videos and points out the importance of recognizing the relevance of the medium.

- **Summary - additional safety warnings:** the final part of the course mentions e.g. websites whose name is similar to the name of the relevant media, but also points out how suspicious media content can be easily spotted (e.g. grammatical mistakes in the content, presenting old news as new information, etc.).

All thematic units are composed of the following parts: theoretical introduction, discussion, practical examples and prevention options, final discussion.

Evaluation of questionnaires - level of critical thinking of respondents

The questionnaire contains 25 statements that are divided into six categories: analysing (A), evaluating (E), constructing (C), remembering (R), understanding (U), and applying (X). One of the statements is part of two categories (analysing and remembering). In Table 1, we present the categorization of the utterances according to Kobylarek et al. (2020). In Table 2, we report the scores obtained by averaging the responses of all respondents to the questions included in a given category. Respondents are asked to rate each of the statements according to the extent to which they agree or disagree with it based on their own experience. Accordingly, for each statement, respondents are asked to select a response from 1 to 5 (1 = strongly disagree, 5 = strongly agree). The researcher then assigns each question a score from 1 to 5 in accordance with the respondent's selected answer. Some questions are marked with an "r", indicating that the scoring is intended to be reversed (i.e. response 1 is scored 5 points, while response 5 is scored 1 point). Table 3 presents the results of testing the level of critical thinking of seniors after the training - course.

Comparing the results in Table 2 and Table 3, it can be seen that the scores increased after the completion of the training course, in all the categories analysed. In addition to comparing the scores, we also focused on identifying problem areas/questions where respondents scored lower (before the course - Table 2). We perceive more pronounced deficiencies for question *9 (r) - Everything already exists, so nothing completely new can be created.* In this case, we noted some skepticism among respondents about the possibilities of new "inventions", suggesting their possible unpreparedness for new threats related to online or media communication. Low scores were also observed, e.g. in question *22 (r) - I have difficulties with paraphrasing* (the question is marked with an "r", so we are positive about higher scores when evaluating the answers). Respondents' answers signal that they themselves identify their difficulties with paraphrasing or retelling the information they have received, which can lead to misinformation when sharing it further. The seniors' own view of in-depth analysis of reality and the use of multiple sources also emerged as problematic. This was considered a waste of time by more than 50% of the seniors before the course and they did not perceive the importance of such an activity. The last major deficiency is registered in the case of question *3 - I am willing to share the newly gained information.* At first glance, it seems that sharing newly acquired information is positive, but only if the respondent verifies and critically processes this information. However, given the results of the evaluation of the other items, it is possible that sharing information in this way (without in-depth analysis) may be the sharing of information that is false, distorted or misleading.

Table 1. Classification of statements from the questionnaire into the analysed categories.

Category	Statements
Analysing (A)	4 (r) - In-depth analyses of reality are a waste of life. 12 - I like finding dependencies between seemingly different. 17 - I can extract the most relevant parts of a text. 24 - When I read the text, I am researching for a relationship between the information it contains and other texts that I have read. 19 (r) - I do not remember much from what I was learning at school.
Evaluating (E)	1 - After reading it, I check important information, even if it seems to be true. 11 - In the discussion, I care about justifying my stance on the matter and understanding the other party at the same time. 16 - When I am interested in some information, I try to check if it is true. 18 - To evaluate the information, I check many sources.
Creating (C)	2 - I like combining information from different texts. 6 - The same content can be expressed in many different ways. 8 - I form my impression on the basis of various information that I combine with each other. 9 (r) - Everything already exists, so nothing completely new can be created. 13 - I can see the structure of the text, and I could change it. 20 - I like discussing new meanings in texts that I already know.

Remembering (R)	5 - After reading it, I am able to repeat important threads from the text. 15 - If necessary, I can recall information about which I once read. 19 (r) - I do not remember much from what I was learning at school.
Understanding (U)	7 - I can understand texts from various fields. 21 - I like to collate different opinions and compare them with each other. 22 (r) - I have difficulties with paraphrasing. 25 - I pay attention to the contexts, nuances and overtones of the statements.
Applying (X)	3 - I am willing to share the newly gained information. 10 - When I talk, I give many examples. 14 - When discussing, I try to use practical examples to justify my stance on the matter. 23 - I try to use the information I have learned in everyday life.

Source: own processing according to Kobylarek et al. (2020).

Table 2. Level of critical thinking before and after short-term training (score).

Category	Average score in category before	Average score in category after
Analysing (A)	6.16	6.6
Evaluating (E)	7.06	7.28
Creating (C)	6.29	6.48
Remembering (R)	5.6	5.79
Understanding (U)	5.88	6.03
Applying (X)	6.72	7.60

Source: Prepared by authors

On the contrary, the results of testing the level of critical thinking after completing the short-term training (Table 2) show shifts in the scores and thus in the respondents' ability to think critically. We see the biggest shift in the X - applying category, Respondents are more likely to use giving concrete examples in discussion and to try to use the information they have learned in their daily lives. We also see an improvement in category E - evaluating, indicating that seniors with acquired knowledge and developed skills place more emphasis on verifying information from multiple sources. There is also a relatively significant shift in category A - analysing, which means that after completing the course, seniors now perceive it as important to find connections in information and attach more importance to in-depth analysis of the information obtained.

On the basis of the conducted research and testing of the level of critical thinking skills of a group of Slovak seniors, we summarize the main findings:

- Respondents' analytical skills increase after receiving short-term training aimed at increasing their critical thinking skills. Seniors attach more importance to in-depth analysis of information and consequently are able to select relevant data/information from the abundance available. A significant shift is the attention paid to information from other sources leading to verification of its veracity.

- The respondents' information assessment system changed after completing the course. Whereas before the training they did not put emphasis on verifying the information they had obtained from another source, now they are much more "willing" and frequent to look up information from other sources, even though they trust the original source of information.

- When working with information, seniors are more inclined to use multiple sources and some combination of the information they have acquired after completing the training. At the same time, they understand that the same content can be presented in different ways depending on the author's intent.

- In the area of comprehension of media content/information, respondents are better able to work with the text, find its main idea and read the context.

Seniors apply the knowledge they have acquired to a greater extent. They support their own opinions with practical examples and consciously try to use the information in their daily lives.

On the basis of the data collected, its evaluation and interpretation, we proceed to answer the research question:

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

Based on the data obtained, we conclude that the mean scores of respondents in all analysed categories increased after receiving short-term training aimed at increasing the level of critical thinking skills of seniors. The above shows that undergoing short-term education/training in the subject area has a positive impact on increasing the critical thinking skills and abilities of seniors.

Based on the course implementation and also the questionnaire survey, we have made some recommendations that could help future lecturers in this area:

Intergenerational interaction: younger instructors who are tech-savvy can help seniors cope with digital challenges. This exchange of experience creates a win-win situation, with the young gaining patience and respect for the older generation while the seniors

develop new skills. Younger lecturers should receive training on how to behave towards seniors. They should also avoid an overly mentoring tone and lecturing. They should have studied the issues and terminology in detail.

Focus on digital and media literacy: Disinformation and hoaxes occur primarily in the digital environment, which is new to many seniors. Programs should include practical instructions on how to use smartphones, internet apps, enabling them to navigate the digital world more effectively.

Combining theory and practice: training programmes should combine basic theory with real-life scenarios. Exercises aimed at recognising misinformation or media manipulation will help them to apply the acquired knowledge more effectively.

Encouraging discussion: discussions during training courses create a space for seniors to openly share their views and experiences. This active engagement helps to gain a deeper understanding of topics and encourages critical reflection, leading to a better understanding of issues and broadening their perspectives. The use of discussion throughout the course is not excluded.

CONCLUSIONS

The present study is a case study and focuses on a narrow group of respondents. At the same time, however, this survey serves as a pilot survey for further exploration and implementation of educational activities for the target group of seniors. We are aware of the limitations of the conducted research, based on which we propose recommendations for the future. The research sample of seniors should be broader and representative in case of a comprehensive investigation of the issue. We also consider it appropriate to focus on theoretical reflection on the problem of critical thinking, or to look at the problem of critical thinking outside the context of media communication. This should lead to the acquisition of the basics of critical analysis in general and in several spheres of life. In addition, we consider it necessary to focus in the future also on the lecturers of these courses (young people), who, by means of a questionnaire survey or the implementation of focus groups, can reflect on their views on the training activities, experiences and assess the impact on them of contact with seniors in the context of intergenerational learning, which we consider an important part of the activities implemented.

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