



# Media Literacy *and* Academic Research

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Media Literacy and Academic Research is a scientific journal focused on the academic reflection of media and information literacy issues, media education, critical thinking, digital media and new trends in related areas of media and communication studies. The journal is devoted to addressing contemporary issues and future developments related to the interdisciplinary academic discussion, the results of empirical research and the mutual interaction of expertise in media and information studies, media education as well as their sociological, psychological, political, linguistic and technological aspects.

Media Literacy and Academic Research is a double-blind peer-reviewed journal published twice a year (since April 2022 published only online). The journal is international and interdisciplinary, inviting contributions from across the globe and from various academic disciplines of social sciences. It focuses on theoretical and empirical studies, research results, as well as related to the new trends, practices and other academic research areas. Also encouraged are literature reviews, innovative initiatives, best practices in online teaching, institutional policies, standards and assessment. The Journal welcomes the submission of manuscripts that meet the general criteria of significance and scientific excellence. *Media Literacy and Academic Research* welcomes article submissions and does not charge a publication fee.

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In our rapidly evolving media landscape, the rampant spread of misinformation has reached unprecedented levels, blurring the lines between fact and fiction. The rise of the post-truth era, where emotional appeal often triumphs over objective reality, presents a formidable challenge for individuals and societies alike. In this critical context, the roles of educators and policymakers become even more crucial in their efforts to combat the dissemination of misinformation and promote accurate information consumption. Media literacy, with its emphasis on critical thinking, emerges as a vital tool in navigating these treacherous waters. Educators are at the forefront of the battle against misinformation.

By integrating media literacy into the curriculum, they can equip students with the essential skills needed to critically analyse the vast amounts of information they encounter daily. This includes teaching students to question sources, understand the construction of media messages, and identify bias and propaganda, thereby fostering a generation of informed and discerning citizens.

Critical thinking skills are fundamental in this process. They enable individuals to discern the credibility of information, an increasingly complex task in a digital world flooded with data. For instance, students can be trained to verify the authenticity of news by cross-referencing multiple sources, examining the evidence presented, and understanding the context. Such skills are not only academic but are also essential life skills that help foster informed and engaged citizens. Furthermore, educators can create a classroom environment that encourages scepticism and inquiry. Promoting discussions that allow students to express diverse perspectives and debate contentious issues helps develop a critical mindset. Through these discussions, students learn to value evidence over opinion and reasoned argument over emotional rhetoric.

While educators play a crucial role in the microcosm of the classroom, policymakers are responsible for creating a broader framework that supports media literacy education. This involves developing policies that mandate the inclusion of media literacy in educational standards and curricula. It also requires the provision of resources and training for teachers to effectively deliver media literacy education. Policymakers can also collaborate with educational institutions, non-profits, and media organisations to create public awareness campaigns highlighting the importance of media literacy. Such initiatives can reach beyond the classroom, educating the general public about the dangers of misinformation and the importance of critical media consumption. Moreover, regulatory measures should support these strategies to hold social media platforms accountable for spreading misinformation. While respecting freedom of expression, these regulations can ensure that platforms have reliable fact-checking mechanisms and transparent algorithms that do not favour sensational content over factual information.

Collaboration between educators and policymakers is not just beneficial, but simply essential in this endeavour. Educators, through their direct interaction with students, lay the foundation for critical media engagement. Policymakers, by shaping the educational landscape and regulatory environment, ensure that these efforts are not only supported but also sustained, thereby reinforcing the importance of media literacy in our society. Ultimately, the goal is to support a citizenry that is well-informed and capable of critical reflection. In doing so, we can mitigate the impact of misinformation and uphold the principles of a democratic society where informed discourse and rational decision-making prevail.

Pleasant reading,

**Norbert Vrabec**  
Editor-In-Chief



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Gül Kadan, Neriman Aral

# Investigating the Effect of the Media Literacy Family Education Program on the Media Literacy Levels of 48-60-Month-Old Children and Their Mothers

DOI: <https://doi.org/10.34135/mlar-24-01-01>

## ABSTRACT

The research aimed to examine the effect of the media literacy family education program on the media literacy levels of 48-60-month-old children and their mothers. The research was conducted as distance education with 48-60-month-old children and their mothers attending independent kindergartens affiliated with the Çankırı Provincial Directorate of National Education during the 2019-2020 academic period. In this context, 18 mothers and children formed the experimental group and 22 mothers and children formed the control group. The quantitative part of the study, which was carried out with a convergent parallel mixed method model, consisted of a 2 x 3 mixed plot semi-experimental design with experimental and control groups consisting of pre-test-post-test-permanence-test, and the qualitative part consisted of interviews with mothers after the program. In the study, the "General information form", "Media literacy scale parent form", "Media literacy scale child form" and "Semi-structured interview form" developed by the researchers were used as data collection tools, and the "Media literacy family education program" was prepared within the scope of the study. As a result of the research, a significant difference was found in the post-test scores of mothers and children in the experimental and control groups in favor of the experimental group. No significant difference was found in the comprehension dimension in the post-test-permanence-test scores of the mothers in the experimental group. In the interview held after the program, the mothers stated that there was a change in themselves and their children after the program, and that they found the training program effective. Based on the results obtained from the research, it can be recommended that parents act consciously about media and implement a media literacy family education program.

## KEY WORDS

Early Childhood. Family Education. Media. Media Literacy. Parent.

# 1 Introduction

The media and the messages given through it have influenced people in every period and of all ages, shaped the world and become the fourth power. Thanks to the media and media tools that have a significant impact on the masses, people are informed, entertained and opinions, thoughts and ideas are shared with people who are miles away (Potter, 2018; Yılmaz & Güney, 2021). The messages, which have very important functions, that are conveyed by the media to the target audience, need to be well structured and filtered in this context. However, media owners do not always act in this direction, even if sometimes unknowingly. In particular, media owners who want to create a loyal consumer base, increase the sales of goods or products, and thus continue their existence, can also deliver inaccurate messages to the masses. In such a situation, people are misinformed and undesirable results may occur (Aarsand & Melander, 2016; Aydoğan, 2015; Mateus, 2021; Sezer & Sert, 2019; Šupšaková, 2016). These messages given through media can especially affect children in early childhood. Studies have shown that children in early childhood are very fond of media tools, spend most of the day with media tools (Aral & Kadan, 2021; Gündoğdu et al., 2016; Kadan & Aral, 2018a), and that media causes nutritional problems in children (Boyland & Whalen, 2015; Koyuncu-Şahin et al., 2018) and negative consequences in all development areas (Aral & Kadan, 2019; Coşkun & Arslantaş, 2016; Kadan & Aral, 2018b; Kadan & Aral, 2019; Kardeş, 2020; Lemish & Kolucki, 2013; Peterson & Densley, 2017; Wartella, 2013).

All kinds of behaviors and habits that can be taught or acquired by children in early childhood can follow them for a lifetime, almost like their identity. During the period of rapid development, children need adults to make sense of this world that is foreign to them. While children begin to chart a course for themselves through their communication and interactions with adults, they can also take them as role models. Children, who take adults' frequent use of media tools as a role model, become interested in media tools. Sometimes, parents receive help from these tools in managing their children's behavior outside of their own interests, which further strengthens children's interests (Kildare & Middlemiss, 2017). Studies have shown that visual and auditory effects from media tools, when combined with the developmental processes of children, pave the way for addiction and cause problems in developmental areas (Ai, 2013; Aral & Doğan Keskin, 2018; Basay et al., 2020; Chen & Gau, 2016; Cho & Lee, 2017; Diergarten et al., 2017; Ertemel & Aydın, 2018; Haug et al., 2015; Hazar & Hazar, 2017; Kucirkova et al., 2018; Mustafaoğlu et al., 2018; Panova & Carbonell, 2018; Park & Park, 2014). Parents have a great responsibility in making children aware of this situation. It is clear that parents can protect their children by first regulating their interest in media and limiting their media use (Coşkun & Arslantaş, 2016; Kildare & Middlemiss, 2017; Yılmaz & Güney, 2021; Yücelyiğit & Aral, 2020). In this case, the most important thing to do is to introduce the concept of media literacy to parents.

Media literacy is defined in the most general sense as a person's ability to perceive the information and messages given through media, to use the skills of analysis and synthesis when reflection on the messages, and to have the knowledge, skills and equipment for all these processes (Karaduman, 2019; Potter, 2018). Providing media literacy to children through their parents from very early ages can turn children into conscious, productive media users and support their development areas, especially preventing the development of addiction (Bulut-Özek, 2016; Can and Besler, 2018; Filiz, 2020; Hobbs, 2022; Scull et al., 2017; Weintraub-Austin et al., 2020). Studies on media literacy for families and children in early childhood have been found in the literature (Austin, 2018; Bulut-Özek, 2016; Dezuanni, 2018; Diergarten et al., 2017; Filiz, 2020; Henkel, 2019; Jie & Zixi, 2015; Karaağaç, 2015; Karaboğa, 2019; Karahisar, 2014; Marsh et al., 2017; Nieding et al., 2016; Sharkins et al. 2016; Šramová, 2014; Türkoğlu, 2017; Yıldız, 2017). When the studies were examined, it was determined that the studies focused on the current media literacy levels of children and parents in early childhood were limited, and that these studies were conducted abroad (Diergarten et al., 2017; Marsh et al., 2017;



Nieding et al., 2016). It is also thought that it is important to provide educational programs for children and families in early childhood. It is vital to eliminate these limitations. In the light of these thoughts, the research aimed to determine the effect of media literacy family education programs on the media literacy levels of 48-60-month-old children and their mothers. Under this general purpose, the following hypotheses were tested in the research.

Hypothesis 1: After the media literacy family education program has been applied to the mothers in the experimental group, the media literacy levels of the mothers in the experimental group will be higher than the media literacy level of the mothers in the control group.

Hypothesis 2: There will be a significant difference between the pre-test and post-test media literacy levels of mothers in the experimental group during the media literacy family training organized for parents.

Hypothesis 3: There will be no significant difference in the permanence test in the sub-dimensions of the media literacy scale of mothers in the experimental group.

Hypothesis 4: There will be no significant difference between the pre-test and post-test in the media literacy scale sub-dimensions of mothers in the control group.

Hypothesis 5: There will be a significant difference between the pre-test and post-test scores of the children in the experimental and control groups in the media literacy scale child form.

Hypothesis 6: There will be a significant difference between the pre-test and post-test scores of the children in the experimental group after the education they will have received with their mothers.

Hypothesis 7: There will be no significant difference between the post-test and the permanence- test in the permanence test conducted four weeks after the implementation of the media literacy family education program with the children in the experimental group.

Hypothesis 8: There will be no significant difference between the pre-test and post-test scores of the children in the control group.

## **2 Methodology**

The research model, study group, data collection tools, data collection method and data analysis section are given below.

### **2.1 Research Model**

Convergent parallel mixed method was used in the research. In the convergent parallel mixed method, quantitative and qualitative data are collected at the same time and analyses are performed differently. It is checked whether the findings in the analysis of quantitative and qualitative data confirm each other and the conclusion is reached together (Creswell, 2013). In the quantitative dimension of the research, a 2 x 3 mixed (split plot) semi-experimental design with experimental and control groups, consisting of pre-test-post-test and permanence test, was used and the interview method was used to collect qualitative data.

### **2.2 Study Group**

The research was conducted in the 2019-2020 academic year with mothers and their children who attended pre-school education in Çankırı Provincial Center, the children being aged 48-60 months. In the study, mothers were preferred because they are the primary caregivers of their children and share longer periods of time with their children (Kayılı, 2018). In creating the study group, data obtained from Çankırı Provincial Directorate of National Education was taken into

consideration. At the same time, the opinions of Provincial Directorate of National Education was taken into consideration. At the same time, the opinions of Provincial Directorate of National Education officials and school administrators were taken into consideration. As a result of the opinions, it was determined that there were six independent kindergartens located in Çankırı city center. Experimental and control groups were created from parents reached through schools, and the program was applied to mothers online due to the COVID-19 pandemic. First of all, 22 mothers were included in the experimental group and 22 mothers were included in the control group, but during the application process, 4 mothers could not continue the training program due to COVID-19, hospitalization and prolonged recovery process. For this reason, the research was conducted with 18 mothers and their children in the experimental group and 22 mothers and their children in the control group. 55.6% of the mothers in the experimental group are in the 31-35 age group, 55.6% are university graduates, while 55.6% of the fathers in the experimental group are university graduates. The monthly income of 77.8% of the families in the experimental group is 4001 and above. Of the children in the experimental group, 66.7% are boys, 77.8% are five years old, and 38.9% have been attending preschool education for 17 months or more. While 36.4% of the mothers in the control group are in the 31-35 age group, 45.5% are high school graduates, 36.4% of the fathers are high school graduates and 36.4% are university graduates. 63.6% of the families in the control group have a monthly income of 4001 and above. 50% of the children in the control group are girls, 50% are boys and 54.5% are five years old. 36.4% of children have been attending pre-school education for six months.

## 2.3 Data Collection Tools

The data of the research were collected with the General information form, Media literacy scale parent form, Media literacy scale child form and Semi-structured interview form. In addition, the Media literacy family education program was developed for parents in the research.

**General information form.** The form contains questions designed to determine the age of the mothers, the education level of the parents, monthly income, gender, the age of the child, and how long the child has been attending pre-school education.

**Media literacy scale parent form.** It was developed to determine the media literacy levels of parents with children aged 36-72 months (Kadan and Aral, 2023). Media literacy scale parent form is a five-point Likert type measurement tool consisting of 34 items and three sub-dimensions (Analysis, Comprehension, Evaluation). Items are coded as 5 = *completely agree*, 4 = *partially agree*, 3 = *undecided*, 2 = *disagree*, 1 = *strongly disagree*. There are no reverse coded items in the scale. Among the sub-dimensions, the Analysis sub-dimension (9, 14, 15, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 34) consists of 16 items, the Comprehension sub-dimension (1, 7, 10, 12, 16, 18, 19, 31, 33) consists of 9 items and the Evaluation sub-dimension (2, 3, 4, 5, 6, 8, 11, 13, 32) consists of 9 items. The highest score from the measurement tool is 170 and the lowest score is 34. A high score indicates a high level of media literacy. In the reliability analysis, Cronbach Alpha values were determined as .81 for the Comprehension sub-dimension, .86 for the Analysis sub-dimension and .79 for the Evaluation sub-dimension.

**Media literacy scale child form.** It was developed by researchers to determine whether 36-72-month-old children can distinguish between their media usage levels and smart signs in the media (Kadan & Aral, 2020). Media literacy scale child form is a measurement tool consisting of 10 illustrated items and a single dimension. The pictures on the measuring tool are shown to the children one by one and asked what they mean. When the child answers correctly, he/she receives "1" point, and when he/she answers incorrectly or cannot answer, he/she receives "0" point. The highest score that can be obtained is "10" and an increase in the score shows that children can distinguish intelligent signs in the media. The measurement tool, which has

no time limit, is applied individually. As a result of the reliability analysis, conducted for the measurement tool, the reliability was found to be .73.

**Semi-structured interview form.** It is a form developed by researchers in order to determine the opinions of parents regarding the applied education program and finalized according to the opinions of seven faculty members (5 in the field of child development and 2 in the field of measurement and evaluation). The form includes questions to determine the changes in mothers and children after the training, the shortcomings and strengths of the training program, the effectiveness of the methods and materials used in the training program, and the opinions of parents in the evaluation on of the training program.

**Media literacy family education program.** Media literacy family education program was prepared in order to determine parents' media literacy levels and to support the media literacy levels. The program was applied to mothers in sessions in which their children were also included, and fathers were also indirectly included in the training program through family letters written to fathers at the end of each session.

Media literacy family education program derives its philosophical basis from the philosophy of pragmatism and progressivism and reconstructionism, which are the consequences of its philosophy in education. The philosophy of pragmatism emphasizes the existence of learners' prior experiences on the subject in teaching any subject. Learners' prior experience prepares the groundwork for new learning. In addition, constant repetition of these experiences has the power to facilitate new learning. While progressivism, one of the philosophical foundations, sees education as the most important force in developing democratic and social life, reconstructionism argues that the restricting of society, social development, change and social reforms depending on the structuring will be realized through education (Sharma et al., 2018). The psychological foundations of the Media literacy family education program are based on programmed learning and the views of Ralph Tayler. It is stated that the success of education in programmed learning can be achieved by working in small steps, actively participating in the educational environment of the learners, rewarding success, correcting mistakes immediately, making gradual progress in education and giving importance to the individual speed of the learners. Ralph Tayler underlines the importance of continuity in success in education, emphasizes repetition and recruitment immediately after the learning of skills and concepts, and states that this is possible by ensuring that all subjects in the learning experience are interconnected (Tayler, 1949, in Demirel, 2017).

In the theoretical foundations of the Media literacy family education program, Albert Bandura's Social cognitive theory and the Cultural indicators theory advocated by George Gerbner and his friends were used. Social cognitive theory developed by Albert Bandura states that when people learn any behavior, they observe the people around them and shape in their own behavior based on these observations. Based on this theory, children in early childhood observe their parent's behavior and can internalize their parents' interest in media tools (Bandura, 1997, in Aslan & Özgün, 2017). In the theory of Cultural indicators, developed by George Gerbner and his friends in 1967, it is stated that all messages given in the media are planted in the audience and listeners and as a result of this planting, uniform thinking human profile emerges. However, it is emphasized in the theory that viewers/ listeners who have developed the ability to question these messages are not affected by the negative effects of the media, and therefore media literacy is important (Gerbner, 1969, in Signorielli et al. 2019).

In the design of the Media literacy family education program, methods, and techniques such as educational games, case study, brainstorming, demonstration, question-answer and discussion, which are among adult learning methods, were used. Thus, mothers who participated in the training, actively participated in the sessions and assumed their own learning responsibilities.

While preparing the Media literacy family education program, in the empirical part, interviews were held to determine how often parents and children use media tools, and a needs analysis form was used to determine the needs. While it was determined in the interviews that both



parents and children use media tools at a high level and are exposed to messages from the media, the subjects they want to receive education on are listed in Table 1.

Educational subject	Weighted rank average
The impact of media violence on children	2440
Effects of technological devices (mobile phones, computers, tablets) on children	2323
Children, television, and education	2262
What technological tools (mobile phones, computers, tablets, televisions) affect children in negative behaviors and parental responsibilities	2179
Media education and children	2126
Different programs and children	2120
Parents' responsibilities towards media tools	2118
Media literacy and its importance for children	1853
Reading media correctly	1835

**TABLE 1:** Educational subjects parents want to undertake for media literacy and weighted rank averages

Source: own processing, 2024

When the training that parents want to receive regarding media literacy and their weighted rank averages in Table 1 are examined, it is seen that parents mostly stated that they want to receive training on the impact of violence in the media on children.

After completing the theoretical and empirical parts and deciding on the design of the training program, the Media literacy family education program was prepared in the form of 12 sessions. The prepared training program was presented to the opinions of field experts (4 in the field of child development, 2 preschool education institutions' administrators and teachers). According to the feedback from experts, adjustments were made to the program and the program was given its final form. Media literacy family education program consisted of 12 sessions, each session was 60 minutes long and was implemented online twice a week. Media literacy family education program sessions are presented below.

- Session 1: Introduction and program introduction
- Session 2: Communication and media
- Session 3: Benefits and harms of media
- Session 4: Children and media
- Session 5: Children and television
- Session 6: Children and computers
- Session 7: Media and violence
- Session 8: Reading the media correctly.
- Session 9: Media literacy
- Session 10: Media education and society
- Session 11: Media education and children
- Session 12: Parents' responsibilities toward media

## 2.4 Data Collection Method

In order to conduct the research, firstly, an ethics committee report was received from Çankırı Karatekin University Ethics Committee with decision number 21 and dated March 21<sup>st</sup>, 2018. After the ethics committee report, institutional work permit was obtained from Çankırı Provincial Directorate of National Education on April 18<sup>th</sup>, 2018. After obtaining ethics

committee and institutional permissions, the administrators of the independent kindergartens affiliated with the Çankırı Provincial Directorate of National Education were interviewed and verbal permissions were obtained. Due to the COVID-19 pandemic process, parents were reached through institutions' administrators and teachers. Parents of children aged 48-60 months who continue their education in six independent kindergartens were met online via the Zoom platform on September 19<sup>th</sup>, 2020, and were informed about the education program. Contact information was obtained from parents who wanted to participate in the education voluntarily. Voluntary consent forms were sent to the e-mail addresses of the families who stated that they would participate voluntarily, and they were allowed to return the forms after signing them. After the volunteer consent forms were sent, experimental and control groups were created.

We met online with the mothers and their children in the experimental group on October 5<sup>th</sup>, 2020, and with the mothers and their children in the control group on the Zoom platform on September 28<sup>th</sup>, 2020, and their participation in the experimental and control groups and what was expected from them during the education program were summarized. In order for the pre-tests to be administered, an appointment was made with the families regarding the date and time. The children in the experimental group were met online on October 13<sup>rd</sup>, 2020, and the children in the control group were met online on October 15<sup>th</sup>, 2020, and after the children's trust was gained, the Media literacy scale child form was applied individually to the children in a period of approximately 5 minutes.

Media literacy scale parent form was applied as a pre-test to the mothers in the experimental and control groups through Google Form. Media literacy family education program started to be implemented on October 19<sup>th</sup>, 2020. The education program was implemented online between October 19<sup>th</sup>, and November 27<sup>th</sup>, 2020, in two sessions a week, each session for 60 minutes, and at the end of each session, home activity samples and family letters written for fathers were sent to mothers via e-mail.

In the implementation of the program, question-answer, discussion, brainstorming, case study, role playing, animation and story creation techniques were applied with the mothers. The program included children reading stories with their mothers with puppets, completing unfinished sentences, drawing techniques, experiments, active games with music, watching cartoons and commercials, and talking while watching them.

After the completion of the education program, the children in the experimental and control groups came together online on November 30<sup>th</sup>, 2020, and post-test applications were carried out. Post-test applications were carried out within a five-minute period with the children in the control group. The final test for mothers in the experimental and control groups was conducted via Google Form on November 30<sup>th</sup>, 2020.

Post program semi-structured interview forms with the mothers in the experimental group were conducted online on December 1<sup>st</sup>, 2020. A 10-minute interview was held with each mother and the answers were recorded. Four weeks after the completion of the education program, the mothers were contacted by phone and informed about the permanence test. An online permanence test was applied to the children in the experimental group on December 28, 2020, and the mothers were contacted via Google Form. The permanence test was completed with a child within seven to ten minutes.

## **2.5 Analysis of Data**

In the study, SPSS 20 package program was used for quantitative data, a content analysis form consisting of categories and subcategories was created in the analysis of qualitative data, and the answers given by the mothers were analyzed in line with the content analysis form.

SPSS package program was used in the analysis of quantitative data, and Shapiro Wilk test results and kurtosis and skewness values were examined in order to determine whether the answers given by mothers and children showed a normal distribution or not, since the sample number was less than 50. When the normality analysis results of the Media literacy scale parent form sub-dimensions pre-test-post-test-permanence-test results of the mothers in the experimental and control groups and the children's Media literacy scale child form pre-test-post-test-permanence-test results were examined, it was seen that the mothers in the experimental and control groups. While the pre-test results showed a normal distribution, the post-test results show that the mothers in the experimental group did not have a normal distribution in the evaluation and analysis sub-dimensions, the mothers in the experimental group had a normal distribution in the comprehension sub-dimension, and the mothers in the control group had a normal distribution in the three sub-dimensions. In the permanence test applied to the mothers in the experimental group, normal distribution was achieved in the comprehension and evaluation sub-dimensions of the mothers, but normal distribution was not achieved in the analysis sub-dimension.

When looking at the results for children, it was determined that the pre-test results of the children in the experimental and control groups were normally distributed, while the post-test and permanence test results of the children in the experimental group were not normally distributed, while the post-test results of the children in the control group were normally distributed.

Based on the normality analysis results, an independent samples t test, a related samples t test, Mann Whitney U test, Wilcoxon Signed Rank tests were used in the research.

In the content analysis form for the semi-structured interview questions asked to the mothers after the program, positive opinions, negative opinions were found in the mother and the child after the training program, distance education problems, internet connection problems, duration strengths in the training program, in the sub-category of the missing aspects of the training program. In the sub-category of the aspects category, the following statements were included, questioning the media awareness of media messages, richness of the content, characteristics of the educator and management of the process, and inclusion of spouses. In addition, in the sub-category of the method and materials category in the education program, there are topics such as thinking on different subjects, increasing children's participation, being eye-catching, learning by doing and permanence, and adequate and document sharing in the sub-category of the evaluation of the education program.

The answers given by the mothers were coded separately according to categories and sub-categories by two independent researchers. The reliability between independent researchers was found to be 100% and the answers given by the mothers were coded and presented as A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub>, A<sub>4</sub>, A<sub>5</sub>, A<sub>6</sub>, A<sub>7</sub>, A<sub>8</sub>, A<sub>9</sub>, A<sub>10</sub>, A<sub>11</sub>, A<sub>12</sub>, A<sub>13</sub>, A<sub>14</sub>, A<sub>15</sub>, A<sub>16</sub>, A<sub>17</sub>, A<sub>18</sub> (A= Mother).

### 3 Results

The findings of the research conducted to determine whether the Media literacy family education program has an effect on the Media literacy levels of 48-60-month-old children and their mothers are presented below.

MLS-PF-Pre-test	Group	n	x	ss	sd	t	p	Effect size
Comprehension-Pre-test	Experimental	18	29,94	4,42				
	Control	22	28,41	4,00	38	1,15	0,26	
Evaluation-Pre-test	Experimental	18	33,17	3,32				
	Control	22	32,45	2,50	38	0,77	0,44	
Analysis-Pre-test	Experimental	18	65,00	6,99				
	Control	22	65,04	4,99	38	0,024	0,98	



MLS- PF- Post- test	Group	n	x	ss	sd	t	p	Effect size
Comprehension- Post-test	Experimental Control	18 22	37,89 30,41	2,68 3,23	38	7,85	.00	10,12
Mann Whitney U test	Group	n	x	Rank sum	z	u	p	Effect size
Evaluation- Post test	Experimental Control	18 22	30,81 12,07	554,50 265,50	-5,06	12,50	.00	0,80
Analysis-Post test	Experimental Control	18 22	30,69 12,16	552,50 267,50	-5,01	14,50	.00	0,79

p<.05

**TABLE 2:** Pre-test-post-test mean scores of mothers in the experimental and control groups for the media literacy scale parent form sub-dimensions and t-test and Mann Whitney U test results

Source: own processing, SPSS-20, 2020

When Table 2 is examined, it is seen that the pre-test scores of the mothers in the experimental and control groups on the Media literacy scale parent form sub-dimensions are close to each other. Considering the t-test results, there was no significant difference found in the pre-test results of the mothers in the experimental and control groups in the Media literacy scale parent form sub-dimensions (Comprehension [ $t(38)=1,15$ ;  $p>.05$ ]; Evaluation [ $t(38)=0,77$ ;  $p>.05$ ], Analysis [ $t(38)=0,02$ ;  $p>.05$ ]). When the post-test results are examined, it is seen that the average score of the mothers in the experimental group is high. When the t-test and Mann Whitney U test results were examined, a significant difference was observed in the Comprehension, Evaluation and Analysis sub-dimensions of the Media literacy scale parent form of the mothers in the experimental and control groups in favor of the mothers in the experimental and control groups in favor of the mothers in the experimental group (Comprehension [ $t(38)=7,85$ ;  $p<.05$ ]; Evaluation [ $U=12,50$ ;  $p<.05$ ]; Analysis [ $U=14,50$ ;  $p<.05$ ]). It was found that the mothers in the experimental group had scores on Comprehension ( $x=37,89$ ), Evaluation ( $x=30,81$ ) and Analysis ( $x=30,69$ ), post-test scores. Comprehension ( $x=30,41$ ), Evaluation ( $x=12,07$ ) and Analysis ( $x=12,16$ ) post-test scores of the mothers in the control group was found to be higher than the average. When the effect size value is examined, it is seen that it is highly effective according to Cohen's  $d$  (1988) criteria. This result confirmed Hypothesis 1. In other words, after training was given to the mothers in the experimental group, the sub-dimensions of the Media Literacy scale of the mothers were found to be higher than those of the control group, thus confirming Hypothesis 1.

MLS-PF	Measurement	x	ss	sd	t	p	Effect size
Comprehension	Pre-test Post-test	29,39 37,89	4,24 2,68	17	-5,23	.00	2,39
Comprehension	Post-test Permanence test	37,89 34,89	2,68 2,70	17	1,99	.06	1
Wilcoxon signed rank test	Measurement	x	Rank sum	z	p	Effect size	
Evaluation	Pre-test Post-test	3,67 19,34	11,00 619	-4,99	.00	1,13	
Evaluation	Post-test Permanence test	10,60 4	159 12	-3,21	.00	0,54	
Analysis	Pre-test Post-test	4,50 21,34	9,00 811	-5,98	.00	1,44	
Analysis	Post-test Permanence-test	9,91 2,50	168,50 2,50	-3,62	.00	0,60	

p<.05

**TABLE 3:** Pre-test-post-test-permanence-test mean scores of the mothers in the experimental group for the media literacy scale parent form sub-dimensions and t-test and Wilcoxon signed ranks test results (n=18)

Source: own processing, SPSS-20, 2020

As seen in the table, the post-test mean scores of the mothers in the experimental group in the Media literacy scale parent form sub-dimensions were found to be higher than the pre-test mean scores. When the t-test and Wilcoxon signed ranks test results were examined, there was a significant difference in favor of the post-test in the Media literacy scale parent form sub-dimensions of the mothers in the experimental group (Comprehension [ $t(17)=-5,23$ ;  $p<.05$ ]; Evaluation [ $z=-4,99$ ;  $p<.05$ ], Analysis [ $z=-5,98$ ;  $p<.05$ ]). When we look at the effect size, it is seen that the effect size is high (Comprehension  $ES=2,39$ ; Evaluation  $ES=1,13$ ; Analysis  $ES=1,44$ ). The table shows that the post-test mean scores of the mothers in the experimental group regarding the Media literacy scale parent form sub-dimensions are higher than the permanence test score mean. Considering the t test and Wilcoxon Signed Ranks test results, there was a significant difference between the post-test and permanence-test in the Comprehension sub-dimension [ $t(17)=1,99$ ;  $p>.05$ ], while within Analysis [ $z=-3,62$ ;  $p<.05$ ] and Evaluation [ $z=-3,21$ ;  $p<.05$ ] a significant difference was found in these sub-dimensions in favor of the post-test. When the effect size values are examined, it is seen that it is highly effective. In this case, a significant difference was found between the pre-test and post-test results of the mothers in the experimental group. This situation confirmed Hypothesis 2. However, while there was no significant difference in comprehension sub-dimension between the permanence test and the post-test of the mothers in the experimental group, there was a significant difference in the evaluation and analysis sub-dimension, causing Hypothesis 3 to be partially accepted.

MLS-PF	Measurement	x	ss	sd	t	p	Effect size
Comprehension	Pre-test	28,41	3,99	21	-2,66	.01	0,55
	Post-test	30,41	3,23				
Evaluation	Pre-test	32,45	2,50	21	3,85	.00	.82
	Post-test	34,23	2,56				
Analysis	Pre-test	65,04	4,99	21	6,31	.00	1.34
	Post-test	70,50	3,90				

$p<.05$

**TABLE 4:** Pre-test-post-test mean scores and t-test results of the media literacy scale parent form sub-dimensions of mothers in the control group ( $n=22$ )

Source: own processing, SPSS-20, 2020

According to the table, the post-test mean scores of the mothers were found to be higher than the pre-test mean scores. In other words, the post-test scores of mothers in the control group increased. When the t-test results were examined, there was a significant difference in favor of the post-test in the Media literacy scale parent form sub-dimensions of the mothers in the control group (Comprehension [ $t(21)=-2,66$ ;  $p<.05$ ]; Evaluation [ $t(21)=3,85$ ;  $p<.05$ ]; Analysis [ $t(21)=6,31$ ;  $p<.05$ ]. Considering the effect-size value, a high level of effect was detected. This result caused Hypothesis 4 to be partially rejected, because there was no significant difference in the comprehension sub-dimension.

Independent Sample t test	Group	n	x	ss	sd	t	p	Effect size
MLS-CF-Pre-test	Experimental	18	5,55	2,20	38	0,69	.49	0,5
	Control	22	5,14	1,64				
Mann Whitney U test	Group	n	x	Rank average	z	U	p	Effect size
MLS-CF-Post-test	Experimental	18	30,78	554,00	-5,16	13,00	.00	0,82
	Control	22	12,09	266,00				

$p<.05$

**TABLE 5:** Pre-test-post-test score means of the children in the experimental and control groups for the media literacy scale child form and independent samples t-test and Mann Whitney U test result

Source: own processing, SPSS-20, 2020

According to the table, the pre-test scores of the children in the experimental group and the control group were found to be close to each other, and there was a significant difference in the t test [ $t(38) = 0,69$ ;  $p > .05$ ]. In the post-test results, the average score of the children in the experimental group increased and a significant difference was found as a result of the Mann Whitney U test ( $U = 13,00$ ;  $p < .05$ ). When we look at the effect size value, it is seen that there is large effect size and that the education program applied to the children together with their mothers has a large effect on the children. Hypothesis 5 stated that there would be a significant difference between the media literacy scale pre-test and post-test scores of children in the experimental and control groups. The significant difference obtained supported Hypothesis 5.

Measurement	Rank averages	Rank total	z	p	Effect size
Pre-test	3,50	3,50			
Post-test	9,85	167,50	-3,58	.00	0,60
Post-test	6,39	57,50			
Permanence test	4,25	8,50	-2,19	.03	0,40

$p < .05$

**TABLE 6:** Pre-test-post-test-permanence test average scores and Wilcoxon signed ranks test results of the media literacy scale child form of the children in the experimental group ( $n = 18$ )

Source: own processing, SPSS-20, 2020

When the table is examined, a significant difference ( $z = -3,58$ ;  $p < .05$ ) was found between the pre-test and post-test results of the children in the experimental group in the Media literacy scale child form in favor of the post-test. The children's post-test mean scores ( $x = 9,85$ ) increased compared to their pre-test mean scores ( $x = 3,50$ ). In other words, there has been an improvement in children's media literacy levels. Considering the effect size, it appears to be highly effective. According to the table, it is seen that there is a significant difference between the post-test and permanence test scores of the children in the experimental group ( $z = -2,19$ ;  $p < .05$ ), and the significant difference occurs in favor of the post-test. The effect size appears to be at a medium level. Hypothesis 6 states that there is a significant difference between the media literacy scale child form pre-test and post-test scores of the children in the experimental group. The significant difference between the pre-test and post-test results of the children in the experimental group supports Hypothesis 6. Hypothesis 7 is based on the fact that there will be no significant difference between the post-test and permanence test of the children in the experimental group. However, as a result of the research, the significant difference between the post-test and permanence test of the children in the experimental group caused Hypothesis 7 to be rejected.

Measurement	x	ss	sd	t	p	Effect size
Pre-test	5,14	1,64				
Post-test	5,32	1,96	21	0,39	.71	0,60

$p < .05$

**TABLE 7:** Pre-test-post-test score averages and t test results of the media literacy scale child form of children in the control group ( $n = 22$ )

Source: own processing, SPSS-20, 2020

As seen in the table, the pre-test-post-test mean scores of the children in the control group are close to each other, with a significant difference not being available [ $t(21) = 0,39$ ;  $p > .05$ ]. Hypothesis 8 states that there will be no significant difference between the Media literacy scale child form pre-test and post-test scores of the children in the control group. The fact that there is no significant difference between the pre-test and post-test scores of the children in the control group and those obtained from the study confirms Hypothesis 8.



After the training was provided to the mothers, face-to-face interviews were held with the mothers. First of all, “Mothers, what changes did you see in yourself and your child after the program?” – the question was posed. All mothers (n=18) stated that there were positive changes in themselves and their children after the program. One of the mothers, A<sub>17</sub>, said: “It was a very good practice for me to realize the things I missed no matter how careful I tried to be about the programs our children watched. It was a great opportunity for me to expand my critical perspective.”, she said, while A<sub>2</sub> said: “The change in her child was very effective on my child. My child shared what we learned with other family members. When his 7-year-old brother wants to watch Back Streets [a detective series], he feels fear and violence. I was very happy when you said it ‘isn’t suitable for you, don’t watch it’. I was very happy that he internalized what he heard and put into practice. Also, while watching cartoons, he and his brother make comments like ‘Mom, can this be real? How ridiculous is this?’” stated as follows.

Secondly, “What were the missing aspects of the structure of the education program for the mothers?” – the question was posed. Mothers mostly stated that shortness of time (n=13) was the shortcoming in the structure of the education program, followed by distance education problems (n=7), internet and connection problems (n=4). A<sub>13</sub>, one of the mothers, said: “The only shortcoming I can point out is the shortness of the process. Maybe if it was a little longer, more children’s programs could be reviewed.”

“What were the strengths of the structure of the education program for mothers?” When asked the question, mothers mostly stated the strengths of the structure of the education program as the characteristics of the educator and the management of the process (n=20), followed by developing a perspective on media messages (n=9), questioning the media (n=8), and the richness of the content (n=6). Mother A<sub>9</sub> said: “We have learned once again how harmful the media can be when used in bad hands. As tech moms, we have knowledge on how to deal with this”. She expressed her thoughts as follows.

Another question asked to mothers is “How do you evaluate the methods and materials in the education program?” Mothers rated the methods and materials used in the program as being most remarkable (n=9), increasing children’s participation (n=8) ensuring learning by doing and experiencing permanence (n=8), and enabling thinking on different topics (n=7). A<sub>18</sub>, one of the mothers, gave her thoughts: “The puppets, videos and games were very interesting and entertaining, especially for the children. The children listened very carefully and participated actively. Supporting the narrative technique used for parents with visuals ensured that the subject was attention-grabbing and got rid of monotony. The games supported by visuals during the breaks were very eye-catching. I know that I get excited like a child to be the first to complete the sentences in games. I think every method used ensured that the subjects were permanent and that we learned by doing and experiencing while having fun”, she expressed it as follows.

Finally, when the question “How would you evaluate the education program?” was asked to the mothers, they stated that they generally found the education program adequate (n=22) and that document sharing was nice (n=7). Mother A<sub>8</sub> said: “I think it was enough. The reminders of that day sent after the training not only ensured that we had documentation but also supported our spouses’ knowledge. The education content was so full and good that I think there is nothing left that I can say about it. However, since fathers set an example and are as effective as mothers in helping children acquire habits and education, can such education be carried out with fathers as well? I thought”, she expressed her thoughts as follows.

## 4 Discussion

In the research conducted to determine the effect of the Media literacy family education program on the media literacy levels of 48-60-month-old children and their mothers, it was determined that there was no significant difference between the pre-test scores of the mothers

in the experimental and control groups, the scores were close to each other, in other words, the media literacy levels of the mothers were similar to each other. A significant difference was found between the post-test scores of the mothers in the experimental and control groups, taken from the Comprehension, Evaluation and Analysis sub-dimensions of the Media literacy scale, in favor of the experimental group. It is possible to explain the obtained results with the structure of the Media literacy family education program. In the post-program interviews with the mothers in the experimental group they stated that they found the education program sufficient, that they ensured the permanence of the information by sharing documents, that the methods and materials used had attracted attention, and that there was change in both themselves and their children after the education program. The results obtained and the high post-test scores of the experimental group confirmed that the education achieved its purpose.

Comprehension, one of the important components of media literacy, is defined as the ability to question what messages mean and understand why these messages are given. It is emphasized that it is important to first gain the ability to understand people in gaining media literacy (İnceoğlu, 2016). What the participants expressed in the interviews with the mothers after the program was that the methods and materials used in the education program were remarkable, that they had enabled learning by doing and experiencing that they had got excited like a child during the games and wanted to finish them as soon as possible, showing that they had improved their skills in understanding and questioning media messages by ensuring active participation in the program.

Media literate individuals are expected to gain evaluation skills after Comprehension, Evaluation, in the most general sense. It means, they are able to determine the meaning, accuracy and timeliness of the messages given thorough different media channels with evaluation. A media literate individual filters the messages that are tried to be presented to them and separates important, necessary and correct information from unimportant, unnecessary and incorrect information. In order to gain this skill, the messages given in the media must be discussed separately (Kutoğlu, 2016). During the education, mothers in the experimental group were made to write newspaper news, and different cartoons and news were discussed with the mothers. It is thought that this situation increased the post-test scores of the mothers, and the fact that the mothers stated that they had developed awareness and a critical perspective towards media messages with the program confirms these thoughts.

Analysis in media literacy is defined as dividing a text into smaller pieces and realizing the underlying meaning. It is stated that examining the media texts or contents discussed in the analysis skill with the brainstorming technique will provide this skill (Algan, 2016). In this context it is thought that discussing the underlying purpose of newspaper news, cartoons and advertisements with the mothers in the education program within the group is effective on the analysis. The statement that mothers will be able to examine more media texts as the education program is longer supports this idea.

As a result of the research, which examined whether the reflection of the education received by mothers of the children and whether the inclusion of children in the program in some activities had an effect on the children, a significant difference was found in the Media literacy scale post-test results of the children in the experimental and control groups in favor of the experimental group. There are also research results showing that the participation of parents, and especially mothers, in informative activities so that children are not affected by the negative effects of media tools is effective with children (Ferguson et al., 2021; Hobbs, 2019; Jie & Zixi, 2015; Uyar & Beydağ, 2022). As in the research results, it is thought that the education programs organized for mothers are also effective with children. As a matter of fact, in the post-program interviews with the mothers, the mothers stated that there were positive changes in their children, and that in addition to regulating the children's own use of media tools, they also warned people around them and their siblings, confirming this idea.

As a result of the study, it was determined that the children's media literacy scale post-test scores increased. The aim of the education program is to ensure that the harmful effects of the media are understood and to help mothers realize the messages in the cartoons and advertisements that children prefer. For this purpose, in the educational program, cartoons that children enjoy watching are watched together with the children, what is happening in the cartoon and what is said is explained to the children, and questions are asked to help the children think about the points they cannot use or that they may see incorrectly. In particular, the questions asked in the study, about the candy featured in the advertisements, which they stated that they liked very much, enabled children to develop a perspective on advertisements. The methods and techniques used in the education program responded to the developmental needs of children in early childhood. As it is known, the techniques that are effective in helping children in early childhood learn something new are playing games, moving and spending quality time with their mothers (Aral & Kadan, 2018). Children take their mothers and teachers as examples and internalize their behaviors (Gander & Gardiner, 2015; Sağlam, 2017). It is thought that the examples of home activities given to mothers after each session during the education program strengthen the relationships between parents and children and that musical dance and game activities with puppets facilitate learning by meeting the developmental needs of children. The importance of play for children in early childhood supports the idea that children regulate their lives and emotions through play and acquire many features and skills that need to be learned (Durualp & Aral, 2015). Examining cartoons combined with games with children is important in raising media awareness in children in early childhood (Namy & Waxman, 2015). These activities implemented with children include learning by doing and experiencing, as stated by the mothers in the post-program interviews, it enabled them to internalize what they had learned and their post-test scores increased, but the continuity of this increase could not be observed in the measurement tools applied to both mothers and children four weeks later.

In the results of the permanence test applied to the mothers four weeks after the implementation of the training program, it was determined that there was no significant difference in the comprehension sub-dimension, but there was a significant difference in the other sub-dimensions, a decrease was observed in the mean scores, and the permanence test scores of the children also decreased and a significant difference occurred. It was found that the effect of the education given to mothers continued in the comprehension sub-dimension, while the determined effect decreased in the evaluation and analysis sub-dimension. Since evaluation and analysis in media literacy require higher level skills (Kutoğlu, 2016), continuity in these skills may not have been achieved. It is known that time and detailed examination of different media texts are play an important role in realizing these skills.

However, it is thought that the fact that education is carried out online due to the COVID-19 pandemic, the occurrence of internet and connection problems as stated by the mothers, and the shortness of the process may be effective in the lack of continuity in the analysis and evaluation sub-dimension, and this may be effective in the permanence of children's media literacy. Repetitions, learning experiences, and problem situations have an important place in learning (Duman & Peker-Ünal, 2017). The problems experienced in distance education have led to little repetition and lack of detail. These, in turn, may have affected continuity in the learning situations of both parents and children. In addition, although the mothers in the control group did not receive any training, it was determined that there was a significant difference in favor of the post-test between the media literacy scale pre-test and post-test mean scores. It is thought that the COVID-19 pandemic process had an important impact on the increase in the post-test scores in the control group. During the COVID-19 pandemic, the closure of schools, the implementation of quarantines, the children staying at home for a long time, the restriction of their movements, and the provision of media tools to them in order to prevent problem behaviors caused by this have further increased the existing interests of children (Çaykuş & Mutlu-Çaykuş, 2020; Gümüşgül & Aydoğan, 2020; Tarkoçin et al., 2020). This increasing interest

of children has also affected the complaints of mothers about this issue. It has been revealed in research (Pembecioğlu, 2020; Sarman et al., 2020; UNICEF, 2020) that mothers attend online conferences and events organized to protect their children from the negative effects of the media in response to these complaints. The interest of the mothers in the control group in such programs may have contributed to their awareness of media literacy. However, it is also seen that there is no significant difference between the pre-test and post-test scores of the children in the control group on the media literacy scale, and this difference seen in the mothers is not reflected in the children. As a result, it can be said that the lack of any training for the children and their families in the control group did not raise awareness in the children.

## 5 Conclusion

In line with the results obtained:

- conducting longer-term and applied studies,
- preparation and implementation of training programs in which fathers will be involved,
- it may be suggested to apply the media literacy family education program to different samples and evaluate the results.

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# Media Literacy In Higher Education: “Know-Where” and “Know-Whether” ... Know-Why to Know Better?

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## ABSTRACT

With the objectives of the Grünwald Declaration (1983), the Alexandria Proclamation (2006), the UNESCO Paris Agenda (2007) and the concept of media literacy (alias understanding and using mass media in either an assertive or non-assertive way, including an informed and critical understanding of media, the techniques they employ and their effects) on mind, it goes without saying that any communication takes place in a certain context (set of facts and circumstances surrounding a media text for the purpose of its interpretation as defined by Wilson et al., 2011, p. 182). Having media literacy on mind, “know-where” to search for information and “know-whether” such researched information identifies facts imply in our understanding media and literacy, respectively. Then, know-why corresponds with our perception of the context (Wilson, 2011), and know better conveys “to know or understand the truth about something” (Merriam-Webster, n.d.). The perspective of Haider & Sundin (2022) is the one that the purpose of information literacy is to support people’s knowledge, competencies and resources for their proficient engagement with information (incl. finding, evaluating, producing, and communicating situated information in context-appropriate ways). On the one hand, literacy is a conceptual entity in the context of educational sciences; on the other hand, information literacy (just like media literacy) merely specifies media or information, data, digital, or artificial intelligence (AI) as an entity for literacy to latch onto. In the global survey – addressed to UNESCO networks of Associated Schools and university Chairs in May 2023 slightly over one-tenth of 450 institutions (of which 44% were from Europe) confirmed that they have developed institutional policies and/or formal guidance concerning the use of generative AI applications. Curriculum delivery at higher education institutions adheres to Bloom’s taxonomy (Bloom, 1956), which can be applied in two alternative modes: the traditional approach or the flipped approach, in a variety of cultural backgrounds. The aim of our paper is to map the awareness of media (and information) literacy among higher education students at the University of Economics in Bratislava with instruction either in the Slovak language or in the English language. Findings reveal gaps in recognition of sponsored content just like relatively low awareness of generally respected fact-checking online sites with remarkable discrepancies between the cohort studying in the Slovak language and the cohort studying in the English language.

## KEY WORDS

“Know-Where”. “Know-Whether”. Know Better. Know-How. Know-What. Know-Why. Media (and Information) Literacy Education.

# 1 Introduction

With the spread of rumors and the distortion of facts, the boundary between true and false has become blurred. [...] In this deluge of information, we need more reference points and more rational thinking. And that is why media and information literacy is such a key skill for the education of 21st-century citizens. (Azoulay, 2023a)

On the occasion of the 2023 Global Media and Information Literacy Week, UNESCO Director-General Audrey Azoulay highlighted UNESCO's commitment in line with its mandate "to ensure that fact-checking becomes a reflex for everyone" (Azoulay, 2023b) in the global village. The author of the latter term, the Canadian philosopher and media theorist McLuhan (1964, in Gordon, 1971) reminds us of the contrast between a reader in earlier times and a contemporary cyberspace viewer (alias digital native).

On the one hand, there has been a trend towards "prefixing literacy" with prefixes such as *media*, *information*, *data*, *digital*, etc. to distinguish them; on the other hand, "prefixed literacies" seem to be applied interchangeably, subject to context (Bawden, 2008). With *media literacy* dating back to the 1960s and 1970s (Tuominen et al., 2005), media literacy in terms of curriculum content followed in the late 1970s (Bulger and Davison, 2018). Established literature review on media literacy is provided by Potter (2013), where the author himself speaks about "a large complex patchwork of ideas" mapping a wide variety of complementary approaches with variations in details they cover and principles they stress. In our earlier paper (Belvončíková & Čiderová, 2022b) we referred to an earlier interpretation of media literacy by The National Association for Media Literacy Education (NAMLE). As framed in 2023 by NAMLE, media literacy as an ability (to access, analyze, evaluate, create, and act using all forms of communication) is through *information literacy* supported by a set of skills (in terms of the ability to find, analyze, evaluate, use, and reflect on the needed information).

In theory, the compound form of media and information literacy (MIL) relates to a spectrum of foci with cognitive approaches coexisting with critical approaches: behaviourism, cognitivism, constructivism, nuances in sociocultural approaches, discourse analysis, practice theory, media studies, library and information studies, the educational sciences, psychology, sociology, etc. (see, e.g., Sundin, 2008; Limberg et al., 2012; Erstad and Amdam, 2013; Johansson and Limberg, 2017). In practice, MIL as a "moving target" or rather "aiming at a moving target" relates to three forms of acceleration: technical acceleration, acceleration of social change, and acceleration of the pace of life (see, e.g., Livingstone et al., 2008; Little, 2018; Livingstone, 2018). Albeit media and information literacy (MIL) appears as a joint concept, there have been claims that the media part of MIL has been more voiced in both policy (Berger, 2019) and research (Livingstone et al., 2008).

All in all, MIL has been regarded as a composite concept, framed by UNESCO in the so-called Law 5 of MIL as follows: "Media and information literacy is not acquired at once. It is a lived and dynamic experience and process. It is complete when it includes knowledge, skills and attitudes, when it covers access, evaluation/assessment, use, production and communication of information, media and technology content" (Azoulay, 2019, in *Global standards for media and information literacy curricula development guidelines*, n.d., p. 15). We agree that MIL has a potential beyond mere acquisition of proficiency in the use of certain technologies (Table 1).

<b>Digital Literacy</b>	A subset of media literacy that focuses on the <b>knowledge, skills, and attitudes</b> necessary <b>to understand how digital tools interact with and impact society.</b>
<b>Social-Emotional Literacy</b>	Social-emotional literacy often falls under categories of social-emotional learning (SEL). Both social-emotional literacy and social-emotional learning focus on <b>developing healthy identities by helping learners manage emotions and make positive social connections.</b>
<b>Critical Media Literacy</b>	An <b>inquiry-based media literacy practice</b> concerned specifically with critically examining structures, systems, ideologies, representations, and power.

**TABLE 1:** *Digital literacy, social-emotional literacy, and critical media literacy among core principles of media literacy education glossary of terms*

Source: NAMLE (n.d.-a)

The latest 2023 update of the NAMLE Glossary defining “Core Principles of Media Literacy Education” (Table 1) emphasises *critical media literacy* as an “inquiry-based media literacy practice concerned specifically with critically examining structures, systems, ideologies, representations, and power” (NAMLE, n.d.-a, “Critical Media Literacy” section). Literature points out a seeming schism between two different ideals: on the one hand, an informed citizen (in an individual relation to the society); on the other hand, a rational consumer of information (with the individual’s own responsibility concerning information selection and consumption). Next, we proceed to the personalised *communication mix*.

## 1.1 Personalised Communication Mix

It goes without saying that all “generations” of media are relevant in practice and the role they individually play represents a personalised communication mix. Alternative prefixed forms of information imply an intention behind the claims (e.g. Wardle and Derakhshan, 2017; Søre, 2018): firstly, *misinformation* alias “false information that is passed on without the intention of spreading lies”; secondly, *disinformation* alias “false information that is spread purposely, and the person passing it on is aware of it being false” (Haider & Sundin, 2022, p. 30); and thirdly, *malinformation* “is correct in itself, yet it is taken out of context and given new meaning in a way that makes it intentionally misleading and potentially harmful” (Haider and Sundin, 2022, p. 31). Starbird et al. (2019) wonder about the intention of a bot, of an algorithm, or of a computer program, bearing in mind their automated intention to maximise data extraction by exploiting engagements: “at best it is collateral entertainment, at worst collateral damage” (Haider & Sundin, 2022, p. 31). Thus, the spread of disinformation on social media depends on the one hand by default on the way many of such platforms are designed; and on the other hand, on people’s active participation.

The latest World Economic Forum (WEF) *The Global Risks Report 2024* presents the findings of the Global Risks Perception Survey (GRPS) based on insights from approx. 1,500 global experts.

Misinformation and disinformation has risen rapidly in rankings to first place for the two-year time frame [...] No longer requiring a niche skill set, easy-to-use interfaces to large-scale artificial intelligence (AI) models have already enabled an explosion in falsified information and so-called ‘synthetic’ content, from sophisticated voice cloning to counterfeit websites. Synthetic content will manipulate individuals, damage economies and fracture societies in numerous ways over the next two years. Falsified information could be deployed in pursuit of diverse goals. (World Economic Forum, 2024, pp. 16, 18)

Both, from the stakeholder perspective (in alphabetical order: academia, civil society, governments, international organizations, private sector) and across a spectrum of age groups, “Misinformation and disinformation” were pointed out as the top-ranking global risk by severity in the short run (Figure 1).

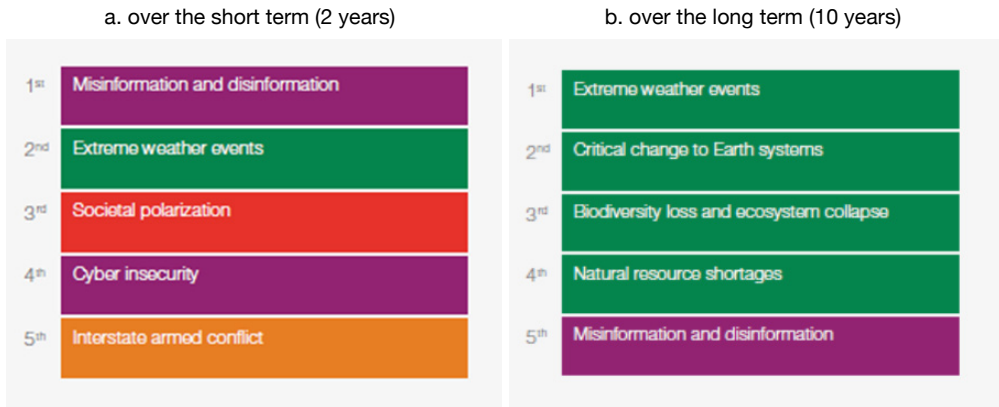


FIGURE 1: Global risks ranked by severity

Source: World Economic Forum (2024)

Second-ranking after “Misinformation and disinformation” were “Extreme weather events”, and “Societal polarization” came third. In the long run (10-year perspective), however, the environmental risk category (“Extreme weather events”) is expected to dominate (Figure 1), and the technological risk category (“Misinformation and disinformation”) will follow suit next. Therefore, let us now introduce how the European Union (EU) views the harm resulting from disinformation and misinformation:

Disinformation is false or misleading content that is spread with an intention to deceive or secure economic or political gain, and which may cause public harm. Misinformation is false or misleading content shared without harmful intent though the effects can be still harmful. (European Commission, n.d.-a, para. 1)

In this respect, Cannon et al. (2020) bring to our attention that a mere combination of knowledge-based curricula and a focus on performance “runs the risk of leaving media and information literacy out” and might compromise critical understanding, as information access has shaped both everyday life and education (Staněk et al., 2019). Hence, we are going to address taxonomy of knowledge and practical approaches to the search for information in educational settings or situations in the final part of our Introduction.

## 1.2 Constructivist Theory in Reality: Digital Native Students with Digital Tools in a Digital World

The progression from know-nothing, know-how and know-what to know-why in the concept by Zeleny (1987) is the progression from “muddling through”, through efficiency and effectiveness to explicability. Reverse sequence of know-why, know-what and know-how by Garud (1997) symbolises the shift from “understanding of the principles underlying phenomena” through “appreciation of the kinds of phenomena worth pursuing” to “understanding of the generative processes that constitute phenomena”, respectively. “What” is in the focus of DiYanni’s interpretation (2016, p. 14: “How do you ‘know what’ you know?”) of van de Lagemaat (2006, p. vi: “How do you know?”) and Markman’s (2012) “Do you ‘know what’ you don’t know?” concept self-interpreted as “You probably don’t know as much as you think you do” (Markman, 2012). While Markman’s reflection challenges the reader by claiming that the reader probably doesn’t know as much as the reader thinks, van de Lagemaat’s theory appeals to the reader that empirical knowledge acquired through the reader’s senses “cannot always be trusted, for sometimes you don’t observe things accurately. Taking the word of others

can also lead you into error when others are untruthful or mistaken” (DiYanni, 2016, p. 14). Hence, empirical knowledge relevant to implicit knowledge (i.e. procedural or tacit knowledge addressing know-how) is complementary to explicit knowledge (know-what and know-why in terms of facts and science, respectively) as communicated by Belvončíková and Čiderová (2022a).

In our earlier paper (Belvončíková & Čiderová, 2022b) we referred to Bloom’s taxonomy for curriculum delivery at higher education institutions in two modes. The bottom-up (Bloom, 1956) traditional approach rests on the facilitator’s initial introduction of new material to students (stages 1-2) for their follow-up *laissez-faire* individual completion of assignments. The top-down (Erasmus+ Project, 2015) flipped *laissez-moi faire* approach initially lets students familiarize themselves with the new material (stages 1-2) to engage then in elucidatory discussion with the facilitator (stages 3-6). Whereas traditional frontal teaching assigns the facilitator the role of an “authoritative truth-teller”, students’ own enquiry and self-directed learning turn the facilitator into a mentor or supervisor, as Haider and Sundin (2022) put it. (Proud of) being digital natives, students navigate with digital tools in the digital world, and though there may be a difference between public service news media and commercial news media in terms of funding, both of them still seek to be seen and to be accessible on the same commercial platforms that are beyond their control. The ever more complex settings have been characterized by parallel asymmetries (Staněk et al., 2019): firstly, asymmetry between information providers and information users; secondly, asymmetry between information holders and information vendors; thirdly, asymmetry between those who process information and those who utilise information. The growing numbers and relevance of fact-checking organisations in the New Millennium (Graves & Amazeen, 2019) relate to the spread of new ways of publishing, sharing, and circulating information (including the social media); critical information literacy is then targeted at developing critical consciousness (Elmborg 2006).

Having identified a research gap and with MIL on mind, “know-where” to search for information and “know-whether” such researched information identifies facts imply in our understanding media and literacy, respectively. Then, know-why corresponds with our perception of the context (alias the set of facts and circumstances as defined in the op. cit. Wilson, 2011), and know better conveys “to know or understand the truth about something” (Merriam-Webster, n.d.).

Although research in this area in Slovakia was attracting attention of researchers mostly in the last decade, to name mainly Kosturková (see, e.g., 2021; 2016a; 2016b; 2014, in Bodoríková et al., 2023), followed by e.g. Novotná and Petrasová (2021), Bodoríková et. al (2023), the main research objects were either predominantly educational students preparing for their professional careers, or secondary school students. The aim of our paper is to map the awareness of media and information literacy among higher education students at the University of Economics in Bratislava. Our research addresses students of economics/business/management and/or tourism, with MIL not being in their core focus. Still, they should resort to critical thinking in their academic writing practices. Additionally, a group of native students studying in the Slovak language (alias Slovak students) is complemented with a group of international students studying in the English language.

Structure of the paper is as follows: Introduction has already presented theoretical backround to the topic of media and information literacy and fact-checking together with the aim of the paper. This is followed by Methodology specifying both cohorts of students where MIL was researched. The Results section then presents how higher education students display their (lack of) familiarity with biased and unbiased sources of information, primary and secondary sources, and their knowledge about fact-checking sites, too. Discussion dwells on NAMLE principles linked to five fundamental questions related to newswriting in terms of their applicability in practice across cultures in order to improve MIL and its awareness. Conclusion represents a digest of various interpretations of the taxonomy of knowledge, summarises key research findings and outlines future recommendations for MIL education.



## 2 Methodology

Research of the students' media (and information) literacy awareness in terms of familiarity with sources and fact-checking was implemented in the course "Intercultural Communication" taught in English and Slovak at the University of Economics in Bratislava. Similarly, research on critical thinking of Slovak university students was carried out earlier by e.g. Kosturková (2014, in Bodoríková et al., 2023), Novotná and Petrasová (2021), but the research sample was university students of educational studies, not students of economics/business/management and/or tourism. Our research therefore adds to the existing research from a different disciplinary background.

The respective "Intercultural Communication" course seeks to address Blackler's taxonomy of knowledge (Tallinn University, n.d.) structured into:

- Embrained knowledge (knowledge dependent on conceptual skills and cognitive abilities);
- Embodied knowledge (action-oriented, i.e. acquired by doing and rooted in specific contexts);
- Encultured knowledge (in search of shared understandings in cultural context);
- Embedded knowledge (associated with systemic routines);
- Encoded knowledge (information is conveyed by signs and symbols: "To the traditional forms of encoded knowledge, such as books, manuals and codes of practice, has been added Information encoded and transmitted electronically" (Tallinn University, n.d., "Blackler's taxonomy of knowledge" section, para. 2).

Hence, the "Intercultural Communication" course is designed to facilitate to students' abilities to address the multidimensional nature of cultural intelligence; to acquire knowledge of verbal and non-verbal communication; and to follow trends in intercultural communication as a prerequisite for further development of qualification. In terms of skills, students focus on a holistic approach to the ethical, societal and economic context of cultural intelligence, and through effective participation in teamwork they apply and develop their individual intercultural competence in practice. The conducted anonymous opinion survey was inspired by the UNESCO Dynamic Coalition Initiative, a founder and one of the partners of the Open Educational Resources Dynamic Coalition initiated in reaction to the massive disruption of education due to the COVID-19 pandemic. Eighteen questions structured into two thematic blocks dealt with media (and information) literacy including Internet/online fact-checking; the thematic scope of this paper addresses for the most part Internet/online fact-checking. Individual questions of the thematic blocks were entirely new to students. An online questionnaire, with all questions closed, compiled in Google forms was applied as a suitable research tool and Google form software was used to support the analysis. In contrast, previous research (Novotná & Petrasová, 2021; Kosturková, 2016) on critical thinking in general used standardized Watson Glaser test.

In order to complete an anonymous opinion survey we preferred available selection (Švec, 1998), which was determined by the possibilities of the researchers and the willingness of the respondents to participate in the research. The sample consisted of three groups of native (Slovak) students and one group of international students, in total 88 students in the bachelor level of study. It is important to note that the formation of study groups into those of Slovak students and the one of international students was caused exclusively by timetable limits and the effort to avoid overlapping of courses that would make the implementation of Learning Agreements of international students impracticable. The period of data collection was February 2023, the overall response rate was 69% (with identification of the respective group of students while observing individual anonymity). We are able to identify differences among Slovak and international students as Slovak students answered online questionnaire in the translated Slovak version, while the international group of students in the English language. When relevant, we compare our current results from the academic year 2022/23 with our previous sample of students in the predecessor course titled "Communication across Cultures" with data collection for 2021/22 academic year on

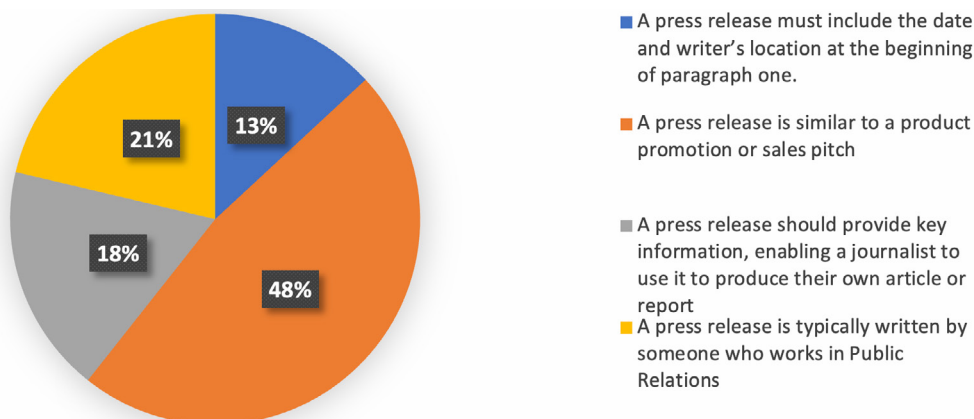
the sample of 91 students (Belvončíková & Číderová, 2022a; 2022b). When relating it to Novotná and Petrasová (2021), they analysed the critical thinking level in two consecutive academic years (2017/18 with the sample of 92 students and 2018/19 with 50 students); the researched cohort of Kosturková (2014, in Bodoríková et al., 2023) comprised 116 university students.

### 3 Results

Media literacy has never been as important as it is today. It enables citizens of all ages to navigate the modern news environment and take informed decisions. Media literacy concerns different media and distribution methods. It is a crucial skill for all citizens regardless of age, as it empowers them and raises their awareness. It also helps to counter the effects of disinformation campaigns and fake news spreading through digital media. (European Commission, n.d.-b)

Media (and information) literacy awareness in terms of familiarity with primary and secondary sources and fact-checking mainly via using online tools available on the Internet was the main focus of the online anonymous opinion survey. Our interest in students' awareness of primary and secondary sources of information rests on the fact that they are crucial for students' seminar papers and final theses throughout their studies at a higher education institution.

The questionnaire addressed primary sources and a press release when we inquired "which statements about press release students deliberate as false" (Figure 2). Almost half (48%) of the students view the statement that "a press release is similar to a product promotion or sales pitch" to be false, and this is correct.



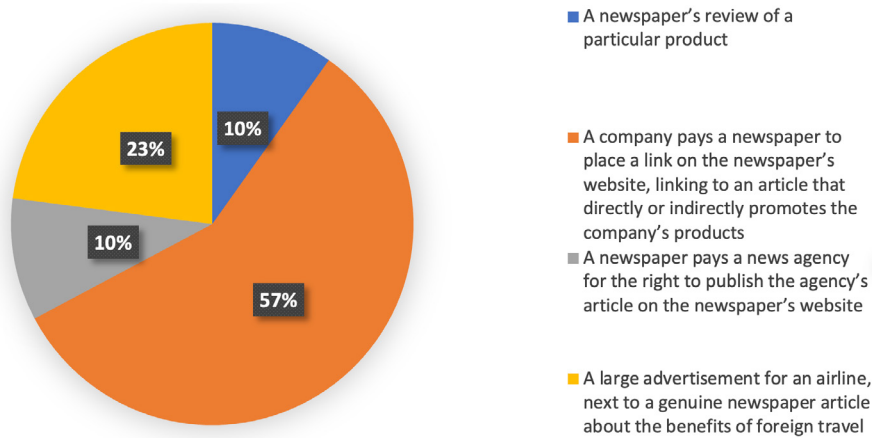
**FIGURE 2:** Indicate which one of the following statements about press releases is false

Source: own processing, 2023

A press release may be promoting something (such as an event, product, or service), but it will lose credibility if it reads like a marketing pitch. The second least favoured option (18% of the sample) stated that press release should provide key information, enabling a journalist to use it to produce their own article or report. Nevertheless, this statement is true, not false as a press release should include core information about "who, what, where, when, why" (5Ws), and "how" of any particular story. In the case of Slovak students, this was the second most opted answer (24%), while in the case of international students it was the least favoured option (11%).

The skill "to distinguish sponsored content" ought to be deemed of crucial importance for the awareness that mainly prominent features of a product or a service tend to be advertised. Among some examples of sponsored content (Figure 3), the only correct case was the one

preferred by 57% of students in total, i.e. when “a company pays a newspaper to place a link on the newspaper’s website, linking to an article that directly or indirectly promotes the company’s products and this should be labelled as such on the web page” (out of which 52% correspond with Slovak respondents; and up to 64% are associated with international respondents).

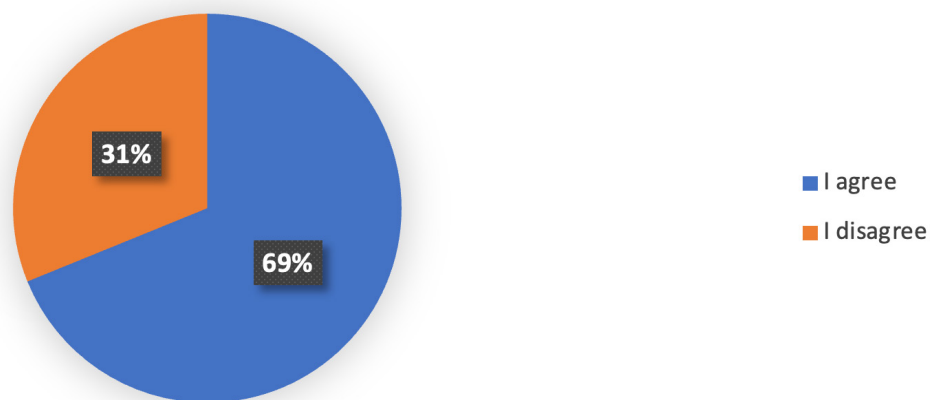


**FIGURE 3:** Which of the following is an example of “sponsored content”?

Source: own processing, 2023

Another very resembling option was the one of “a large advertisement for an airline next to a genuine newspaper article about the benefits of foreign travel”; yet, the real sponsored content occurs when the advertisement acts as if it was a newspaper article. Major discrepancy was observed when the figure registered in the responses of Slovak students exceeded a double (30%) documented in the answers of international students (14%). This at first sight similarly appearing option confused almost one-fourth of respondents.

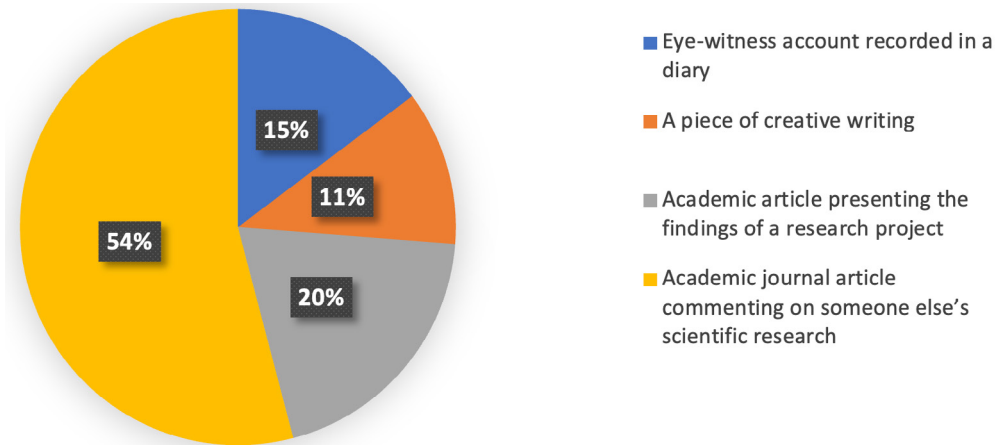
A question “whether a biography belongs to the primary sources of information” was posed. A bit more than two-thirds of the respondents consider it a primary source (Figure 4); still, there is a remarkable difference between Slovak respondents (64%) and international respondents (75%). Not being a primary source according to the UNESCO Dynamic Coalition Initiative, it stands for a secondary source because it is not written by the person who is the subject of the biography (albeit autobiography is a primary source); so only one-third of the students was right.



**FIGURE 4:** Do you agree or disagree with the statement “A biography is an example of a primary source of information.”?

Source: own processing, 2023

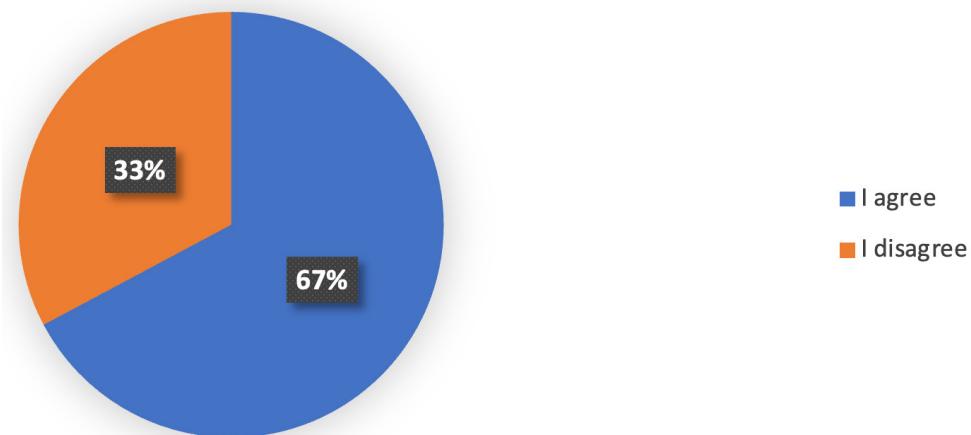
Next, the respondents were asked to recognise “the secondary source of information” among four options. The highest percentage of them (over one-half) properly answered that it is an academic journal article commenting on someone else’s scientific research (Figure 5). Nonetheless, international respondents (61%) outnumbered Slovak respondents (49%). The second most frequent option considered (20%) was an academic article presenting the findings of a research project to be a secondary source; this is, undoubtedly, a primary source together with eyewitness account recorded in a diary, and a piece of creative writing.



**FIGURE 5:** Which of the following is a secondary source of information?

Source: own processing, 2023

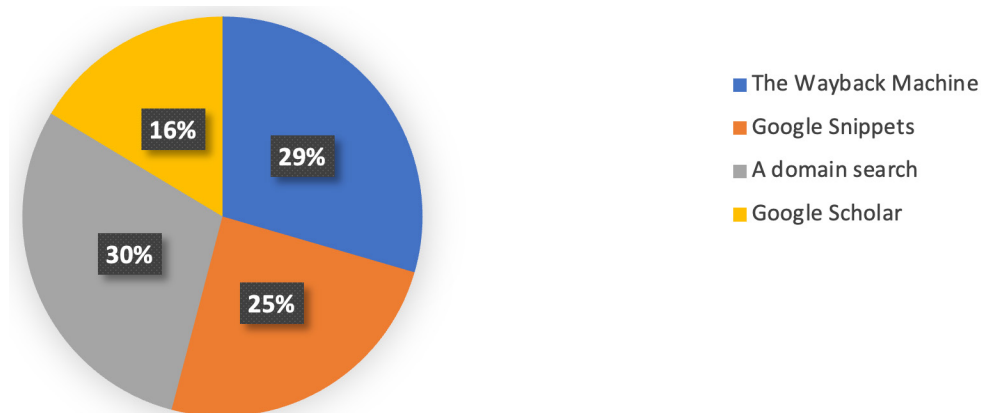
Bearing in mind that quotations are essential when preparing literature review or in the various sorts of academic texts, one of the questions was devoted to sources of quotations (Figure 6). Unlike three-quarters in the previous cohort (2021/22), slightly above two-thirds of the students correctly expressed their consent with the statement “Google Books is a good starting point for checking the real source of quotations”.



**FIGURE 6:** Do you agree or disagree with the statement “Google Books is a good starting point for checking the real source of quotations.”?

Source: own processing, 2023

With the fact that Internet sites often change and develop on mind, the next question addressed “the tool for monitoring these changes”. Among four options (Figure 7), just one was correct: The Wayback Machine with almost one-third of the respondents being familiar with its existence and function (out of which Slovak respondents with 21% represented roughly one-half of those provided by international respondents). In accordance with the respective provider archive.org, such tool “enables to capture, manage and search collections of digital content without any technical expertise or hosting facilities [...] A person could capture a web page as it appears now for use as a trusted citation in the future” (Belvončíková & Čiderová, 2022a, p. 17). Evenly distributed were two other incorrect options: Google Scholar and Google Snippets in the case of Slovak respondents while the figure for Google Snippets matched the answers of international respondents. On the year-on-year basis, the total score of one-quarter in favour of Google Snippets combining Slovak and international respondents corresponds in the 2022/23 cohort with the 2021/22 cohort.

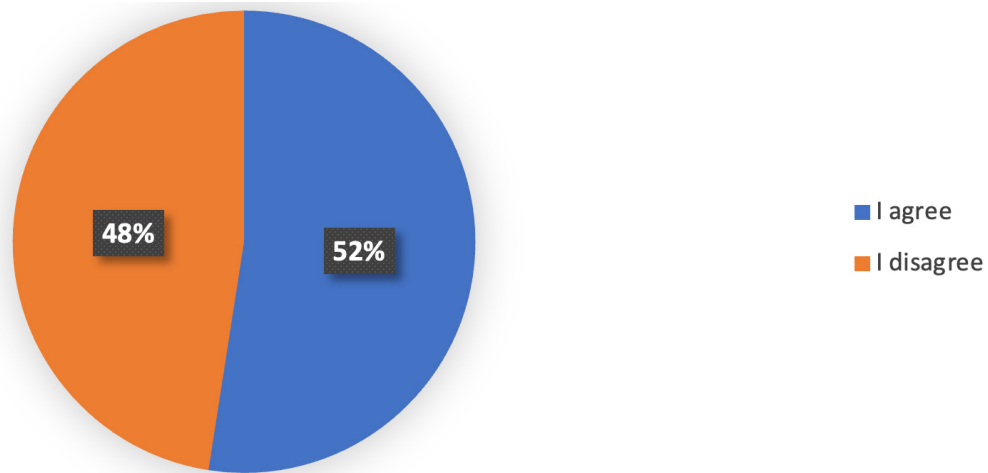


**FIGURE 7:** You can check for web page changes and disappearances over time using which of the following tools?

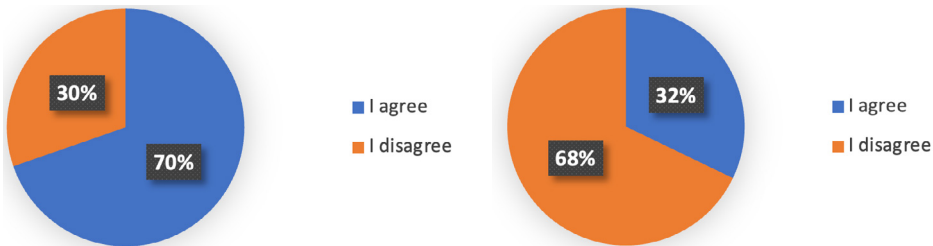
Source: own processing, 2023

In the information age a tremendous number of information appears minute by minute; in this respect, we adhere to the view that “AI will not be a panacea for the many deep-seated problems and challenges facing journalism and the public arena. Technology alone cannot fix intractable political, social, and economic ills.” (Simon, 2024, p. 39). With an ongoing information deluge (since the Covid-19 era also referred to as “infodemic” or “information explosion”) often to be misrepresenting (misinformation) or even intentionally misleading (disinformation), (fact-) checking sites have become of the essence. Wondering whether the respondents are familiar with the respected Internet fact-checking site (“go-to source what is true and what is not”), the question was if “it is true that Spoke.com is a well-respected fact-checking site”. About one-half (by 9 pp less than in the previous edition) of the students disagreed with the statement, as shown in Figure 8a. A startling outcome of the survey is the mirror effect observed when comparing both groups of respondents (Figure 8b-8c), given that the spot-on identification of the fact-checking website is Snopes.com (not Spoke.com).





**FIGURE 8a:** Do you agree or disagree with the statement "Spoke.com is a well-respected fact-checking site."?



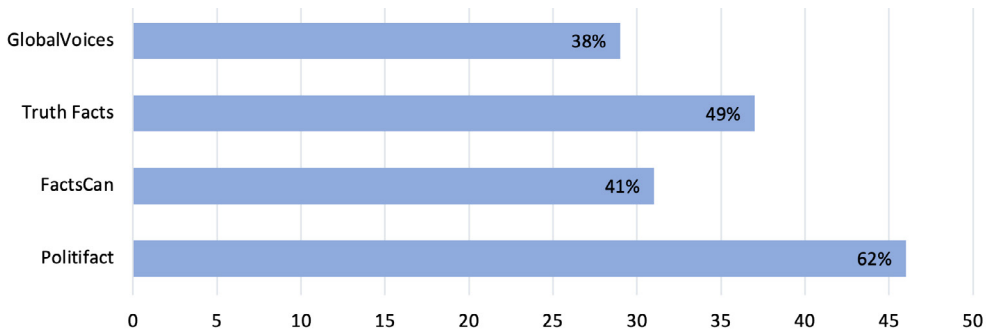
**FIGURE 8b:** Slovak respondents

**FIGURE 8c:** International respondents

**FIGURE 8b-8c:** Do you agree or disagree with the statement "Spoke.com is a well-respected fact-checking site."? (2022/23 Slovak and 2022/23 International cohort)

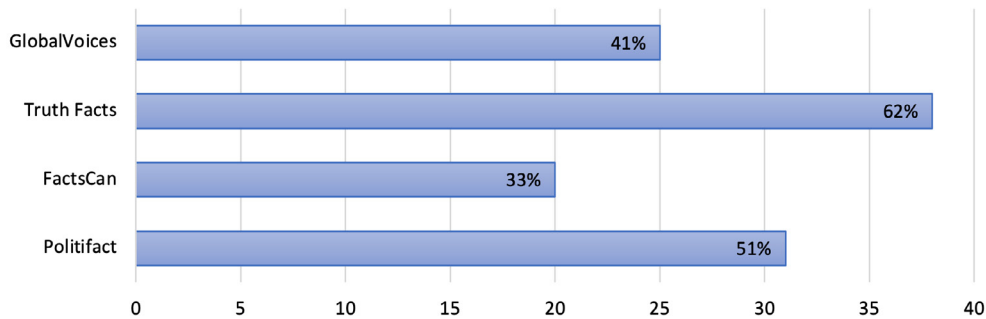
Source: own processing, 2023

Following the initial well-respected fact-checking site the students were asked "about other respected fact-checking sites that they might have knowledge of". Even though we bear in mind that not all sites listed among the multiple choices offered in the previous 2021/22 edition (Figure 9a) were linked to correct answers, the most selected one and also the correct one was Politifact (a site for US news with total 62% of the respondents across the whole cohort). Conversely, in the current 2022/23 edition (Figure 9b), the preference of respondents shifted from the Politifact site to the Truth Facts site with mirror-effect score: the Truth Facts site (total 62% of the respondents across the whole cohort) option was followed by the Politifact site (total 50% of the respondents across the whole cohort). In fact, however, the Truth Facts site as a humorous site is not the correct answer.



**FIGURE 9a:** Which of the following are generally regarded as reputable fact-checking sites (2021/22 edition)?

Source: own processing, 2023



Note: numbers on the x-axis represent frequency of answers

**FIGURE 9b:** Which of the following are generally regarded as reputable fact-checking sites (2022/23 edition)?

Source: own processing, 2023

The remaining ones are FactsCan (41% and 33%, respectively) as a fact-checking site relevant to Canadian federal politics, and GlobalVoices (38% and 41%, respectively) as a site for citizen journalists.

## 4 Discussion

[P]eople should consume media more critically. Media literacy is a “game changer” in addressing negative content dimensions of media, including media manipulation, misinformation, disinformation. (European Commission, 2023).

Founded in 1944 in the tradition of the world’s first news agency Havas established in 1835, Agence France-Presse (AFP) represents the only European one among the world’s three major news agencies. Mission of AFP is “to provide rapid, comprehensive, impartial and verified coverage of the news and issues that shape our daily lives” (Agence France-Presse, n.d.-a, para. 1). With the world’s leading fact-checking network comprising 140 journalists working on five continents in 26 languages, AFP addresses directly the general public through its own AFP Fact Check site (Agence France-Presse, n.d.-b).

Furthermore, based on its slogan “Anyone can share misinformation, anyone can call prey to disinformation...” AFP designed a set of tips to avoid the traps of misinformation, which we linked to our own interpretation of the five fundamental questions related to newswriting:

- WHO? Does the article you are reading provide at least one source of information?
- WHAT? Is the title consistent with the details in the article?
- WHERE? Always check where an image comes from

- WHEN? Remember to check the publication date
- WHAT-ABOUTS? Check any comments that may appear below the article or publication.

At this moment, let us reiterate our reflections introduced in our earlier paper:

The vast and multiplying amount of information available on the Internet challenges the humankind in confrontation with (mis)information; as Specht (2018) commented, one needs to refer to common sense when dealing with news reports, to reflect on the reliability of a source and to consider whether other media report the same issue/news. Know them, know that, know how, know where, *know why*, and *know whether* have been explored mainly since the beginning of the 20<sup>th</sup> century. Procedural or tacit knowledge (know-how) can be, according to Britannica (n.d.), transferred with difficulties to another person and is related to “how to accomplish something, as opposed to know-what (facts), know-why (science), or know-who (communication)”. (Belvončíková & Čiderová, 2022a, p. 20)

Focus of this paper now brings us to the “Key Questions to Ask When Analyzing Media Experiences” by NAMLE (Table 2a).

Authors and Audiences	
Authorship	Who made this? When was this made?
Purposes	Why was this made? What does this want me to do? Who is the target audience?
Economics	Who paid for this? Who makes money from this?
Messages and Meanings	
Content	What could someone learn from this? What meanings, values and perspectives are obvious, and what are implied? What is left out that might be important to know?
Techniques and Format	Where or how was it shared with the public? What techniques are used to communicate meaning, and why?
Reflections and Evaluations	
Interpretation	What is my interpretation? How might different people understand this message differently?
Responses	How does this make me feel? How do my emotions influence my interpretation of this? If I feel the need to respond, what actions could I take that would feel productive?
Credibility	Is this fact, opinion, or something else? How credible is this (and how do you know)? How do I know I can trust this source to give me credible information about this topic?

**TABLE 2a:** Key questions to ask when analyzing media experiences by NAMLE

Source: NAMLE (n.d.-b)

As mentioned earlier, Bloom’s taxonomy for curriculum delivery at higher education institutions is feasible in two modes: the bottom-up traditional approach and the top-down flipped approach. By the same token, the progression from know-nothing, know-how and know-what to know-why in the concept by Zeleny (1987) mirrors the reverse sequence of know-why, know-what and know-how by Garud (1997). Such a perspective inspired us to consider the 5Ws from a “traditional” and a “flipped” point of view (Tables 2b-2c).

Table 2b	Press release	Sponsored content	Biography	Secondary source of information	Table 2c
Authors and Audiences	Who? When?	Who?	Who? When?	Who?	Authors and Audiences
Authorship					Who made this? When was this made? <b>Biography</b> (including eye-witness account recorded in a diary)
Purposes					Why was this made? What does this want me to do? Who is the target audience? <b>Primary and secondary sources of information</b> (including academic journal articles)
Economics					Who paid for this? Who makes money from this? <b>Sponsored content</b>
Messages and Meanings	What? Where?	What?	What? Where?	What?	Messages and Meanings
Content					What could someone learn from this? What meanings, values and perspectives are obvious, and what are implied? What is left out that might be important to know? <b>Press release</b>
Techniques and Format					Where or how was it shared with the public? What techniques are used to communicate meaning, and why? <b>Source of quotations</b> <b>Internet site changes' monitoring</b>
Reflections and Evaluations	What- abouts?	What- abouts?	What- abouts?	What- abouts?	Reflections and Evaluations
Interpretation					What is my interpretation? How might different people understand this message differently? <b>Intercultural communication</b> <sup>1</sup>
Responses					How does this make me feel? How do my emotions influence my interpretation of this? If I feel the need to respond, what actions could I take that would feel productive? <b>Communication</b> (including mass communication <sup>2</sup> ; interpersonal communication <sup>3</sup> ; organisational communication <sup>4</sup> ) <b>Primary and secondary sources of information</b> (including a piece of creative writing)

<sup>1</sup> Authors' note: Term introduced in Belvončíková and Čiderová (2022b).

<sup>2</sup> Authors' note: Term introduced in Belvončíková and Čiderová (2022b).

<sup>3</sup> Ibidem.

<sup>4</sup> Ibidem.

Credibility					Is this fact, opinion, or something else? How credible is this (and how do you know)? How do I know I can trust this source to give me credible information about this topic? <b>Fact-checking site Spoke.com<sup>5</sup></b> <b>Other fact-checking sites:</b> <b>GlobalVoices, Truth Facts<sup>6</sup>, FactsCan, Politifact</b>
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**TABLE 2b-2c:** *Traditional (Table 2b) and flipped (Table 2c) approach applied to key questions to ask when analyzing media experiences by NAMLE*

Source: own processing according to NAMLE (n.d.-b)

Any media user tends to consider all types of media experiences related not only to media text (“the message”), but also to both the physical and the technological environment of the message. Firstly, in Table 2b we linked 5W questions to the main headings specified by NAMLE, namely: Authors and Audiences (Who? When?); Messages and Meanings (What? Where?); and Reflections and Evaluations (What-about?). A press release compared with a sponsored content just like a biography compared with a secondary source of information necessitate a more complex coverage as not all questions may relate to each media experience. Secondly, in Table 2c we matched categories of the questions included in our questionnaire with subheadings clustered into the main headings (Authors and Audiences; Messages and Meanings; Reflections and Evaluations) specified by NAMLE, with individual or multiple occurrences. Thirdly, let us outline also an eclectic adaptation of the “Key Questions to Ask When Analyzing Media Experiences” by NAMLE (n.d.-b) with reference to additional categories of concepts in the following structure:

- Alias know-what:

What meanings, values and perspectives are obvious, and what are implied?

What is left out that might be important to know?

What does this want me to do?

- Alias know-that:

What is my interpretation?

What could someone learn from this?

- Alias “know-when”:

When was this made?

- Alias “know-where”:

Where or how was it shared with the public?

- Alias know-why:

Why was this made?

What techniques are used to communicate meaning, and why?

- Alias know-who:

Who made this?

Who paid for this?

Who makes money from this?

- Alias know-them:

Who is the target audience?

How does this make me feel?

How do my emotions influence my interpretation of this?

<sup>5</sup> Authors' note: Question introduced in Belvončíková and Čiderová (2022a); real fact-checking site is Snopes.com.

<sup>6</sup> Authors' note: Question introduced in Belvončíková and Čiderová (2022a); in reality Truth Facts is a humorous site.



If I feel the need to respond, what actions could I take that would feel productive?

- Alias know-how:

How might different people understand this message differently?

- Alias “know-whether”:

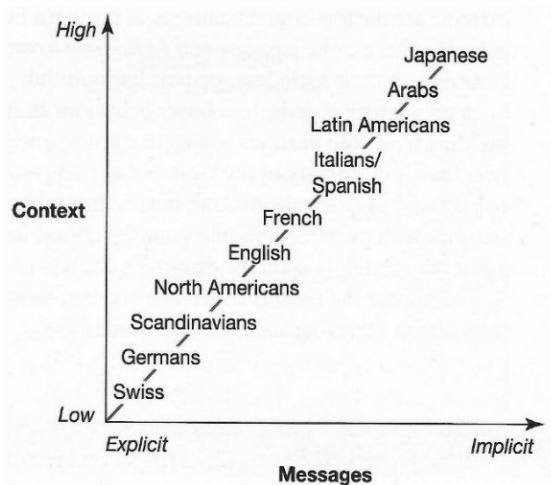
Is this fact, opinion, or something else?

How credible is this (and how do you know)?

How do I know I can trust this source to give me credible information about this topic?

Still, additional questions/answers might arise or additional occurrences may be relevant. Selected core principles of media literacy education (MLE) by NAMLE are attached in Appendix A and while we are aware that these could be further elaborated into additional questions to be included in the listed categories of concepts above, this would be beyond the scope of the paper. What is important to note is that any media experience should motivate to investigate for evidence.

Haider and Sundin (2022) appeal that the “notion of fact provides an air of objectivity, suggesting a statement can be either right, which makes it a fact, or wrong, which means it is not a fact” (p. 44). For the purpose of cultural contextualisation, let us consider the so-called emic or “insider” perspective, and the so-called etic perspective of an objective “outsider” (Kim, 2012). Emic studies of cultural communication examined e.g. the cultural meaning of the word “communication” in some American speech (Katriel & Philipsen, 1990), and etic studies of cross-cultural communication such as e.g. Okabe’s (1983) study of verbal messages focused on direct, explicit messages being more common in the United States of America (USA). Furthermore, Hollensen’s (2011) contextual continuum in communication reveals North American inclination to low context and explicit messages (Figure 10) on the trajectory stretching from low to high context and explicit to implicit message.



**FIGURE 10:** A contextual continuum in communication: low/high context & explicit/implicit message

Source: Hollensen (2011)

Thus, in the context of a US-centric approach to fact-checking pointed out by Haider & Sundin (2022) we would like to add that European fact-checking sites coexist with the North American ones. Examples include:

- Storyzy (n.d.) verifying quotes with the use of AI;
- United Kingdom-based Full Fact (n.d.) charity monitoring news related to primary concerns of citizens according to the established IPSON MORI Issues Index and cooperating with government departments; and

- Factmata project (Credibility Coalition, n.d.) assisting in detection and verification of media information.

In the context of the “infodemic” mentioned earlier, it is interesting to look at European citizens – their capacity to identify fake news and to check the frequency of fake news occurrence. In the Standard Eurobarometer surveys editions (European Commission, 2021; 2022; 2023), two-thirds *totally agree* or *tend to agree* that they often come across news or information that they believe misrepresent reality or are even false, thus results are stable within observed period (oscillation of 2 pp). Similarly, six in ten find it easy to identify news or information that they believe misrepresent reality or are even false in contrast with one-third of those who *tend to disagree* or *totally disagree*. When having a closer look at individual countries, 80% of Slovak respondents in the Standard Eurobarometer 98 (2023) edition *totally agree* that existence of news or information that misrepresent reality or is even false is a problem in the country. Even though the percentage in the case of Slovakia remains the same (80%) and it positions Slovakia above the EU average, when compared with the previous Standard Eurobarometer 96 (2022), the situation in the country has worsened regarding its rank: 9<sup>th</sup> in the EB98 instead of 13<sup>th</sup> in the EB96.

To improve media literacy, several initiatives addressed both to the general public and to higher education students have been launched in the Slovak Republic. Particularly in the context of audiovisual media, cooperation of the Creative Centre of the public broadcaster Rozhlas a televízia Slovenska with the education sector (e.g. the Faculty of Mass Media Communication at the University of Ss. Cyril and Methodius in Trnava, the Catholic University in Ružomberok) has been established. In the context of the European Digital Media Observatory, we wish to highlight the Central European Digital Media Observatory with eight partners and four subcontractors led by the Charles University (Czech Republic), including the international news agency Agence France-Presse (AFP), the University of Ss. Cyril and Methodius in Trnava (Slovakia) and the Kempelen Institute for Intelligent Technologies (KlnIT, Slovakia). In synergy, the Czech team and the Slovak team initiated a comparative study analyzing educational projects on misinformation; additionally, the KlnIT team has developed an educational digital game called Factology Checker providing players with the opportunity to learn how to analyze and evaluate certain types of media news reports (*Communication from the Commission guidelines pursuant to Article 33a(3) of the audiovisual media services directive on the scope of Member States' reports concerning measures for the promotion and development of media literacy skills 2023/C 66/02*, 2023).

## 5 Conclusion

Consider the task of baking bread. Data are like basic elements: atoms and molecules of starch, H<sub>2</sub>O, bacteria of yeast, etc.; no trace of “bread” anywhere. Information is like ingredients: flour, sugar, water, spices; still no trace of the intended outcome (but one cannot make a beer out of it anymore). Having all such ingredients does not imply that a knowledge of how to make bread exists: one can still end up with a tasty crust, black cinder or gluey mush. Knowledge involves relations: recipes and their contextual interpretations. Further, having the know-how for making bread does not imply that one actually should make bread and why. Wisdom goes beyond knowledge because it allows comparisons (judgments) with regard to know-what and know-why. It is a long way from data to wisdom. (There is one additional step beyond wisdom: enlightenment – enriching the still value-free wisdom by the dimension of “truth”.) (Zeleny, 1987, p. 59-60)

When approached with the question “What does media literacy have to do with intercultural dialogue?”, Pérez Tornero (2014) reacts that “...media literacy deals with the study of cultures and looks at the problems relating to hybridization, interconnection and cross-cultural issues between societies and peoples. In other words, media literacy is all about intercultural dialogue” (p. 5).

Griswold in her *Cultures and Societies in a Changing World* (2004) states that in the European ethnic heritage that is of relevance also for a number of American institutions, bread connotes security, frugality, family – all in all life itself, adding that: “We further recognize that although bread may be ubiquitous in American kitchens, it is by no means universal. Human beings eat different grains in different places: Many Chinese depend on rice, Senegalese on millet, and Mexicans on corn” (Griswold, 2004, p. 15).

The know-what, know-why, and know-who considerations relate to knowledge structures, competencies and skills just like the flow of information-processing tasks in terms of the media literacy concept (Potter, 2005) oriented on cognitive structures that are employed when processing media content. As framed by Lundvall and Johnson (1994) cited by Tallinn University, the taxonomy of knowledge relates to:

- know-what (facts and feasibility of their analysis);
- know-why (knowledge about causality);
- know-how (skills or the capability: knowledge about who knows what and who knows to do what);
- know-who (social skills enabling cooperation and communication with co-workers and collaborators see also Merkel et al. (2024).

Thus, in the context of the taxonomy of knowledge by Zeleny (1987), bread as a “cultural object” (Griswold, 2004) is a “construct” built on “data” (elements: H<sub>2</sub>O, yeast bacteria, starch molecules), “information” (ingredients: flour, sugar, water, spices, fixed recipe for bread only), “knowledge” (choose among different recipes for bread), and “wisdom” (Why bread and not croissant?). In doing so, Zeleny (1987) outlines a trajectory from “muddling through” (i.e. know-nothing), through efficiency (i.e. know-how) and effectiveness (i.e. know-what) to explicability (i.e. know-why).

In line with critical media literacy as an inquiry-based media literacy practice, NAMLE (n.d.-a) formulated media literacy concepts oriented on an effective media analysis as follows:

- Evidently, all media messages are constructed.
- It goes without saying that media messages are produced for particular purposes.
- Needless to say, all media messages contain values and points of view.
- By nature, people use their individual skills, beliefs as well as experiences to interpret their own meanings from media messages.
- By all means, media, just like media messages, can influence beliefs, attitudes and behaviors.

According to the European Union: “Large-scale disinformation campaigns are a major challenge for Europe and require a coordinated response from EU countries, EU institutions, online platforms, news media and EU citizens” (European Commission, n.d.-a, para. 3). Let us now summarise major findings arising from our awareness-mapping survey:

1. The questionnaire addressed primary sources and a press release when we inquired “which statements about press release students deliberate as false”. Nearly one-half (48%) of the students view the statement that “a press release is similar to a product promotion or sales pitch” to be false, which is correct. The true statement that “a press release should provide key information, enabling a journalist to use it to produce their own article or report” appeared as the second least favoured option (18% of the total cohort, within which one-tenth of international respondents contrasts with one-quarter of Slovak respondents).

2. When asked “Which of the following is a secondary source of information?”, over one-half of the total cohort of respondents correctly marked that it is an academic journal article commenting on someone else’s scientific research; in this respect, international respondents (61%) outnumbered Slovak respondents (49%).
3. More than one-half of the students in total correctly indicated that the statement “a company pays a newspaper to place a link on the newspaper’s website, linking to an article that directly or indirectly promotes the company’s products and this should be labelled as such on the web page” is a “sponsored content”. The second most frequently indicated, but incorrect, option (“a large advertisement for an airline next to a genuine newspaper article about the benefits of foreign travel”) was confusing for the respondents to a different degree: its preference among Slovak students scored more than a double (30%) in comparison with answers of international students (14%).
4. Almost one-third of the respondents were familiar with the existence and function of The Wayback Machine as a tool for monitoring changes of Internet sites. More specifically, Slovak respondents with 21% represented roughly one-half of answers provided by international respondents.
5. In reaction to the question if “it is true that Spoke.com is well-respected fact-checking site”, the mirror effect observed when comparing the cohort of Slovak respondents and the cohort of international respondents, provided that the spot-on identification of the fact-checking website is Snopes.com (not Spoke.com).
6. In the current 2022/23 edition, the preference of respondents shifted from the Politifact site to the Truth Facts site with mirror-effect score: three-fifths of respondents considered the (seemingly *nomen omen*) Truth Facts site to be a fact-checking site despite the fact that it is a humorous site.

With focus on critical thinking of education students in Slovakia, the research of Kosturková (2014, in Bodoríková et al. 2023) seeking an analogy with similar studies carried out in the Czech Republic and in the UK revealed that the UK students performed the best, followed by the Czech students, and Slovak students ranked third. Yet, the fact that the Czech students were students of management, and Slovakia was represented by education students, would not facilitate an adequate in-depth analysis. Still, based on her research results, Kosturková presents concise recommendations for the teaching practice of future educators, which Bodoríková et al. (2023) consider very stimulating for instruction of future teachers as well:

- Change the type of lectures and seminars from memorization (encyclopedic knowledge) to a masterclass (lectures in individual courses should be conducted in the form of metacognitive strategies, and in the framework of seminars, a series of tasks would be assigned to activate students);
- Assign analysis-oriented and problem-solving tasks;
- Provide room for communication and speech cultivation;
- Reinforce practical exercises aimed at organising and planning one’s own workflow;
- Train flexibility in thinking (e.g. by asking questions);
- Encourage learning to accept constructive criticism;
- Reinforce training of personal development (patience, self-control, practical thinking...);
- In this context, higher education teachers are encouraged to design strategies and activities in a more systematic and thoughtful manner aimed at developing students’ critical thinking in everyday teaching;
- In this context, higher education teachers are encouraged to link theory with practice in their teaching;
- In this context, higher education teachers are encouraged to support research and its analysis, which will reveal the reserves, shortcomings of the real status quo of critical thinking, and to explore other possibilities for effective education of future educators.

Resting on a combination of explicit knowledge (book smarts: know-what as facts, know-why as science, or know-who as communication), and implicit knowledge (street smarts: know-how), our recommendation advocates embeddedness of various aspects of critical thinking in the curriculum of the University of Economics in Bratislava where feasible or relevant. To conclude, embeddedness of explicit knowledge in the curriculum of the University of Economics in Bratislava has the potential to facilitate its upgrade in terms of continuous development of implicit knowledge.

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#### **Appendix A: Selected core principles of media literacy education (MLE) by NAMLE**

1. Expands the concept of literacy to include all forms of media and integrates multiple literacies in developing mindful media creators and consumers.
2. Envisions all individuals as capable learners who use existing knowledge, skills, beliefs, and experiences to create meaning from media experiences.
- 2.1 MLE teaches that all messages are constructed and prepares people to engage in critical analysis and reflection of these experiences.
- 2.5 MLE views media analysis as a process of evidence-based, open-ended exploration, rather than one through which single "correct" or pre-determined media interpretations are revealed.
3. Promotes teaching practices that prioritize curious, open-minded, and self-reflective inquiry while emphasizing reason, logic, and evidence.
- 3.1 MLE recognizes that how we teach matters as much as what we teach.
- 3.2 MLE uses co-learning and constructivist pedagogies in which teachers learn from learners and vice versa.
- 3.3 MLE asks learners to consider how emotions evoked through media experiences can be examined within frameworks of reason, evidence, logic, and metacognition.
- 3.4 MLE uses group discussion and analysis of media experiences to help learners understand and appreciate different perspectives and points of view.
4. Encourages learners to practice active inquiry, reflection, and critical thinking about the messages they experience, create, and share across the ever-evolving media landscape.
- 4.3 MLE teaches learners to ask questions that will enable them to gain a deeper and/or more sophisticated understanding of media experiences.
5. Necessitates ongoing skill-building opportunities for learners that are integrated, cross-curricular, interactive, and appropriate for age and developmental stage.
- 5.2 MLE involves an ever-evolving continuum of skills, knowledge, attitudes, and actions.
- 5.3 MLE provides learners with numerous and diverse opportunities to develop and practice skills of analysis and expression.
6. Supports the development of a participatory media culture in which individuals navigate myriad ethical responsibilities as they create and share media.
- 6.3 MLE helps learners develop mindful and healthy media habits in a media-saturated world.



7. Recognizes that media institutions are cultural institutions and commercial entities that function as agents of socialization, commerce, and change.
- 7.2 MLE acknowledges that all media messages contain values and points of view.
8. Affirms that a healthy media landscapes for the public good is a shared responsibility among media and technology companies, governments, and citizens.
- 8.2 MLE calls for educational institutions to facilitate educators' efforts by actively supporting critical thinking across learning experiences.
9. Emphasizes critical inquiry about media industries' roles in society, including how these industries influence, and are influenced by, systems of power, with implications for equity, inclusion, social justice, and sustainability.
- 9.2 MLE exposes learners to media that present diverse voices, perspectives, and communities.
- 9.3 MLE amplifies historically marginalized voices by including opportunities to examine cross-cultural media and international perspectives.

Source: NAMLE (n.d.-c)

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# Main Issues of Implementing Media and Information Literacy in School Education in Central Asian Countries (The Case of Kazakhstan, Kyrgyzstan, and Uzbekistan)

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## ABSTRACT

In today's interconnected world, implementing media and information literacy (MIL) into school education is essential to equip students with the critical skills needed to navigate an increasingly complex information landscape and discern between credible sources and misinformation. By fostering a generation of media-literate individuals, students can be empowered to become responsible consumers, creators, and contributors in the digital age, thus safeguarding democratic principles and promoting informed civic engagement. This research paper delves into the critical challenges surrounding the implementation of MIL in school education across Central Asian countries, with a specific focus on Kazakhstan, Kyrgyzstan, and Uzbekistan. Through a comprehensive examination, the study addresses key issues such as the perceptions of MIL trainers and experts regarding its significance, exemplary approaches for integration into school education, assessment methods of MIL education programs, differences between Central Asian and global MIL programs, the impact of MIL deficiency on the educational system, and the potential consequences of neglecting its implementation. Drawing on in-depth interviews, existing literature, and comparative analyses, the paper sheds light on the complexities and implications of MIL implementation within the unique context of Central Asia.

## KEY WORDS

Central Asia. Consequences. Educational Impact. Challenges. Integration. Media and Information Literacy (MIL). School Education.

# 1 Introduction

The implementation of media and information literacy (MIL) in secondary school curricula or the organization of formal, informal classes and trainings among school-age children has already begun in many countries around the world.

Research shows that attempts to learn media education, media literacy and its implementation into education began in many countries with film education, and was then expanded across a wider spectrum (press, television, Internet, etc.).

Media Literacy is a 21<sup>st</sup> century approach to education. It provides a framework to access, analyse, evaluate and create messages in a variety of forms – from print to video to the Internet. Media literacy builds an understanding of the role of media in society as well as essential skills of inquiry and self-expression necessary for citizens of a democracy. (Thoman & Jolls, 2003, p. 21)

Today, media literacy is taught as a separate subject in the humanities in the United Kingdom and Australia. Northern Ireland (United Kingdom) has introduced media education as a stand-alone subject and in Australia, “Media Arts” is one of five subjects in the Curriculum for The Arts, while in Finland it has been included in high school curricula. In the 1990s, media literacy in the country was replaced by the concept of media education. In Sweden, it has been taught as a separate subject in educational institutions since the 1980s.

Schools in Germany began their media education practice with its integration into the required curriculum. Media education was included into the Arts, Geography, and Social Sciences. In the opinion of many modern German teachers, the study of media culture should promote the development of the civic self-consciousness of pupils and their critical thinking. Media culture is taught in the majority of German universities and in addition there are several research institutes, such as the National Institute of Film in Science (FWU). It publishes literature and teaching aids for schools (videos, leaflets, brochures, etc.) (Fedorov, 2014). Other research centres are located at Kassel University (in München) and Humboldt University (in Berlin).

According to Yates (2004), recent research indicates that all 50 states have school curricula frameworks that contain one or more elements that call for some form of media literacy education. Such findings indicate that media literacy is slowly becoming an integral part of school curricula. However, full adoption of media literacy programs has yet to occur.

In today’s Internet age, it is important for all countries to promote MIL among young people and increase their knowledge and skills in this field. Central Asian countries have entered the process, albeit belatedly. These countries are also making their first efforts to introduce MIL in secondary school education.

Several organizations, with the support of various foreign donors, are conducting training courses for secondary school teachers, and pilot classes have been organized in schools, as well as publishing textbooks and manuals. Therefore, the study of this topic is both scientifically and practically important today.

The main aim of this research paper is to critically examine the implementation of MIL in school education within Central Asian countries, with a focus on Kazakhstan, Kyrgyzstan, and Uzbekistan.

The research questions are as follows:

RQ1: What are the perceptions and opinions of MIL trainers and experts regarding the significance of implementing MIL in Central Asia?

RQ2: What are the exemplary approaches for integrating MIL into school education in Central Asian countries?

RQ3: How do MIL education programs in Central Asian countries assess and define their success?

RQ4: In what ways do MIL education programs in Central Asian countries differ from those in other regions globally?

RQ5: How does the deficiency in MIL impact the educational framework within Central Asian countries?

RQ6: What are the potential repercussions of overlooking the integration of MIL into school education in Central Asian countries?

## 2 Literature Review

In many countries, MIL has become part of school curricula. Educators have discovered that MIL is essential and an effective, engaging way to apply critical thinking skills to a wide range of topics. Because media technologies develop rapidly and media systems are complex and ever-changing, MIL has become an essential skill all around the world (Braesel & Karg, 2018).

Alper and Herr-Stephenson (2013) argue that media literacy education is necessary for fostering informed, critical, and engaged citizens. However, an equally important consideration which has not been adequately addressed, is ensuring that the media literacy course syllabus in schools and universities are relevant to the needs and challenges of contemporary society (Salleh et al., 2019). Australia, Canada, England, South Africa, Scandinavia, Russia as among other countries in Europe, South America and Asia were among the first countries to have implemented media literacy within their school curriculum. Most of these curricula focus on educating society, especially children and teenagers, to critically scrutinize and evaluate media messages (Tselykh & Levitskaya, 2022; Leong & Kho, 2022).

Many researchers and organizations, even those advocating for media literacy education, overlook adults' media literacy needs (Livingstone et al., 2005). According to scholars, those who have recently entered adulthood also need media literacy skills and abilities (Dennis, 2004).

In different sources, media literacy skills are measured based on different criteria. Scholars also classify media literacy skills and abilities differently. Components of media literacy include knowledge of media messages, media audiences, media content, media industries, media effects, the real world, and the self (Martens, 2010; Potter, 2015; McWhorter, 2020).

Similarly, researchers report that children's writing about media characters, superheroes, and television programmes in the context of media literacy education demonstrates high levels of motivation and engagement (Alvermann et al., 1999).

The researchers found that the students who received the media literacy curriculum showed statistically significant greater gains in their ability to identify construction techniques, point of view, omitted information, comparison-contrast, and message purpose. The researchers concluded that the students who received media literacy instruction were more likely to "recognize the complex blurring of information, entertainment and economics that are present in contemporary nonfiction media" (Hobbs & Frost, 2003, p. 351).

Media literacy has also been used by second language teachers to engage learners, who have discovered that in the classroom, the use of video, news media and popular culture texts are perceived by language learners as intrinsically interesting (Mackey, 2002).

Douglas and Share (2019) provided both a theoretical framework and practical applications for educators and teacher education programs to transform education by putting critical media literacy into action in classrooms with students from kindergarten to university.

In most cases in both developed and developing nations, educators who implement media literacy programs are largely self-taught, with no formal educational training in this area. These individuals may have read books about media studies or media literacy; perhaps they have taught themselves how to use software for the design and production of multimedia. In most countries, neither classroom teachers nor youth service workers receive any basic initiation in

media analysis or media production practices and most rely on their own background knowledge, independent study, and interest in the topic (Hobbs, 2007a).

There are several methods used in foreign countries to improve the media literacy of schoolchildren, including:

- Introducing media literacy as a separate independent subject in school education;
- Improving the media literacy of students through various optional classes or training sessions;
- Incorporating and teaching media literacy competencies in other disciplines.

Pointing to the importance of activating students' prior knowledge, teachers report that learning motivation and achievement are increased when media literacy is discussed with adolescents (Hobbs, 2007b).

Many scholars have conducted research on the development of media literacy and media education in Central Asia.

Fedorov and Levitskaya (2018) analysed the development of mass media education in the CIS countries. Thereat, the authors believe that the CIS countries should not build the development of mass media education of their citizens based on confrontation and ideological propaganda.

Researcher Chelysheva (2019) analysed the development and current state of media literacy education in a number of Central Asian countries (Uzbekistan, Kyrgyzstan and Turkmenistan). The author analysed the goals and objectives, key concepts, structure, content, main stages of development, models of mass media education in Uzbekistan, Kyrgyzstan and Turkmenistan, scientific works, and practical experience in the field of media literacy education in the countries of Central Asia in the post-soviet period. The author considers the priority technologies of modern mass media education; systematization of the material under study was carried out, the main theoretical concepts of mass media education were identified, and key trends in further development were also identified.

In the *Report on the Results of the Study of the Level of Media Literacy in the Kyrgyz Republic* (a survey of the population over 16 in the Kyrgyz Republic was conducted from September 1<sup>st</sup> to November 30<sup>th</sup>, 2017, 1200 urban and rural respondents from seven regions were interviewed) states that in Kyrgyzstan the topic of media literacy is relevant and challenging. The existing activities to increase the level of media literacy as a skill and the development of media literacy as a science are both at a rudimentary stage (Eshenalieva et al., 2018).

Akhmetova with a team of authors published the collective monographs *Mediaobrazovanie v Kazakhstane [Media Education in Kazakhstan]* (2013), *Mediaobrazovanie i mediagramotnost': Teoriya, metodologiya, praktika [Media Education and Media Literacy: Theory, Methodology, Practice]* (2015), *Medijnaja i informacionnaja gramotnost': Konceptual'nye i metodologičeskie osnovanija [Media and Information Literacy: Conceptual and Methodological Foundations]* (2017), which take into account the current UNESCO recommendations on the synthesis of information and media competence of the individual.

Therefore, it is no coincidence that one of the trends in the development of media education in the CIS countries is the actualization of the development of mass forms and methods of media education activities of the population of different age and social groups (Chelysheva, 2018).

The problems of media literacy education development in Uzbekistan are being studied by many researchers. In recent decades, with UNESCO's support, several major media literacy education projects have been implemented in Central Asian countries. Their results are reflected in textbooks, dissertations, and scientific articles. For example, if we talk about media literacy education in Uzbekistan, one of the key textbooks is *Uzbekistan na puti razvitija mediaobrazovanija [Uzbekistan on the Way of Media Education Development]* (Mamatova & Sulaimanova, 2015), where MIL is viewed as a tool of democracy, including all media resources (media, libraries, archives, etc.).



The works of these researchers consider the process of development of an integrated media education approach in the study of several academic disciplines that were born in the wake of the creation of educational films, and have been further developed at the present stage, proving the effectiveness of integration of media literacy education not only in achieving the learning objectives of the material, but also in the development of information and communication competence.

Among the main challenges facing media literacy education in Central Asian countries, Ablazov (2013) singled out problems associated with the expansion of the media field of modern society, increasing the level of media security of the younger generation.

This research includes the study of scientific resources in English, Russian and Uzbek, monitoring the activities of organizations engaged in teaching and promoting media literacy in Central Asia, and the analysis of relevant news on their websites. The monitoring identified and analysed several projects designed for schoolchildren and organized with the help of foreign donors. The scientific novelty of this research is determined by the comparative study of the work carried out on the introduction of MIL to the school education system in Central Asia in recent years, the role of foreign aid in this regard, and suggestions and conclusions put forward in accordance with the requirements of the time.

### 3 Methodology

This research article aims to explore the main issues of implementing MIL in school education in Central Asian countries. To achieve this goal, a mixed methods approach will be employed, combining qualitative research techniques.

The author conducted a comprehensive review and analysis of relevant scholarly articles, books, reports, and policy documents related to MIL education in Central Asian countries, alongside existing literature, to identify key issues, challenges, and best practices in implementing MIL in school education in Central Asia.

During the research the author of the article organized and interpreted survey data to identify trends, patterns, and correlations related to MIL implementation in Central Asian countries, and tried to apply thematic coding and content analysis to identify key issues, challenges, and recommendations for improving MIL in Central Asian school education.

While writing this article the researcher performed qualitative analysis of open-ended survey responses and extracted meaningful themes and insights.

An in-depth interview was chosen as one of the main methods used in the research. Overall, 16 interviews were held in various forms and formats with funds, NGOs, project managers and media trainers working directly with projects and grants from the three countries of Central Asia: Kazakhstan, Kyrgyzstan, and Uzbekistan.

Conducting in-depth interviews, coding, and thematically analysing the responses were guided by the principles outlined in *Conducting In-Depth Interviews: A Guide for Designing and Conducting In-Depth Interviews for Evaluation Input* by Boyce and Neale (2006).

Ethical guidelines were meticulously adhered to throughout the research process to safeguard the confidentiality and anonymity of participants. Informed consent was diligently obtained from all participants before their involvement in the study, and their prerogative to withdraw from the study at any point was unequivocally respected.

The number of experts whose opinion was studied directly in the in-depth interviews is reflected in the following table (Table 1):



#	Experts / Interviewees	Number	Coding
1.	Program Director – Media Support Centre Foundation (Kyrgyzstan)	1	R1
2.	Project coordinators, project assistants and media trainers (Kyrgyzstan)	4	R2 – R5
3.	Regional Media Literacy Adviser of Internews in Kazakhstan	1	R6
4.	Project coordinators, project assistants and media trainers (Kazakhstan)	2	R7 – R8
5.	Co-founder and Deputy Director of the NGO Centre for the Development of Modern Journalism, Uzbekistan	1	R9
6.	Director, NGO New Media Education Centre (Uzbekistan)	1	R10
7.	Project coordinators, project assistants and media trainers (Uzbekistan)	6	R11 – R16

**TABLE 1:** *Experts conducted in-depth interviews*

Source: own processing, 2024

The combination of qualitative data from interviews and a thorough review of literature forms the foundation of this research, enabling a nuanced analysis of the main issues hindering effective MIL education in the region. Through this methodological approach, this paper strives to contribute valuable insights and recommendations for enhancing MIL initiatives within the educational landscapes of Central Asian countries.

## 4 Analysis and Results

### 4.1 The Analysis and Results of the In-Depth Interviews

During the research, in-depth interviews were conducted with 16 MIL experts and media trainers from Central Asia. Interviews were organized in the formats of email and mobile phone communication, plus face-to-face conversation. In the interviews, respondents were asked “How would you define MIL?”, “What competencies does MIL play in the formation of individuals?”, “How do you rate the significance of implementing MIL in Central Asia?”, “What are your suggestions and recommendations for improving the efficiency of MIL projects?”

Several MIL trainers and experts from Central Asia provided insightful perspectives on the significance of implementing MIL in the region:

One of the respondents (R14) emphasized the importance of media literacy initiatives, citing the establishment of “Media Literacy Houses” in Tajikistan, Kazakhstan, and Kyrgyzstan. These initiatives cater to various segments of the population, demonstrating the relevance of MIL across different societal roles and age groups. “These media initiatives are serving the population in the direction of media literacy to the best of their ability. For example, ‘Media Literacy Houses’ have been established in Tajikistan, Kazakhstan, and Kyrgyzstan, where people of different ages are taught the effective aspects of using the media (for example, how to use the technological capabilities of smartphones for the elderly, how to earn income by recommending cooking products to housewives through an online store). This practice shows that MIL is important to different representatives of the population, no matter who they are – a cook, a housewife, a driver or a scientist” (R14).

Another interviewer (R11) highlighted the existence of small-scale projects for media literacy development but criticizes the lack of methodological support and competent management from the Ministry of Education. This indicates a gap in the institutional framework necessary for the effective integration of MIL into education systems.

The next respondent (R12) suggested practical measures to broaden the scope of MIL, such as increasing the availability of interactive mobile games tailored to the local audience, expanding MIL initiatives in educational institutions like kindergartens and schools, and promoting educational manuals and scientific research in the field.

“In order to widen the field of MIL, I would recommend increasing the number of interactive, mobile games for different ages, adapting them to the Uzbek segment, and widening them in kindergartens and schools. Also, it is desirable to increase special games, activities, and training for adults. Creation and popularization of educational manuals, increase of scientific research works and other initiatives” (R12).

One respondent (R13) advocated for the inclusion of MIL as a core subject in preschool, secondary, and higher education curricula, highlighting the importance of starting MIL education at an early age and integrating it throughout the educational journey. While another media trainer (R15) recommends a holistic approach to MIL education, emphasizing the need for collaboration with schools, continuous training, practical exercises across all grade levels, leveraging online platforms for outreach, and establishing MIL clubs within communities to foster ongoing development.

“MIL should be taught from childhood. For this, it is necessary to establish cooperation with schools, conduct continuous training and practical exercises among students from the 1<sup>st</sup> to the 11<sup>th</sup> grade, make presentations on social networks using various online platforms, and open clubs that help to develop MIL separately in the neighbourhoods” (R15).

Overall, these responses underscore the multifaceted importance of MIL in Central Asia, ranging from its practical applications in everyday life to its critical role in educational and societal development. They also highlight the need for comprehensive strategies and institutional support to effectively implement MIL initiatives across the region.

The analysis of the in-depth interviews revealed several key themes and perspectives regarding the integration of MIL into the school curriculum in Central Asian countries:

1. Importance of MIL in education: The experts unanimously emphasized the crucial role of MIL in the education system. One expert (R1) stated, “MIL is essential for equipping students with the skills to critically analyse and evaluate media content in today’s digital age”.
2. Challenges and barriers: The analysis also brought to light the challenges and barriers faced in integrating MIL into the school curriculum. A media trainer (R13) expressed, “One of the major challenges is the lack of resources and trained educators to effectively implement MIL programs in schools”.
3. Cultural relevance: The interviews highlighted the significance of considering cultural relevance in designing MIL curriculum. An expert (R2) remarked, “It’s essential to tailor MIL initiatives to the cultural context of Central Asian countries to ensure its effectiveness and resonance with students”.
4. Collaboration and training: Collaboration between educational institutions and media organizations emerged as a crucial factor in the successful integration of MIL. Furthermore, the need for comprehensive training programs for educators to adeptly teach MIL was emphasized.

The results of the in-depth interviews with media trainers and MIL experts underscore the following key findings:

1. Support for integration: The majority of experts expressed strong support for the integration of MIL into the school curriculum, citing its potential to empower students and enhance their critical thinking abilities.
2. Call for policy implementation: There was a consensus among the interviewees regarding the need for policy-level implementation to ensure the effective integration of MIL into the education system. One expert (R16) emphasized, “Government support and policy frameworks are essential to drive the successful adoption of MIL in schools”.
3. Empowerment of students: The results indicated a shared belief in the transformative impact of MIL on students, enabling them to navigate the complex media landscape and become discerning consumers and creators of media content.

4. Continued advocacy: The interviews revealed a collective call for continued advocacy and awareness campaigns to highlight the importance of MIL and garner support for its integration into the school curriculum.

In conclusion, the analysis and results of the in-depth interviews with media trainers and MIL experts provide valuable insights into the perspectives, challenges, and recommendations concerning the integration of MIL into the school curriculum in Central Asian countries. These findings serve as a foundation for further research and policy initiatives aimed at advancing MIL education in the region.

## 4.2 Survey Results

### 4.2.1 The Key Points About the MIL Curriculum in Kyrgyzstan

MIL education has been developing in Kyrgyzstan, with initiatives by organizations like the Media Support Center Foundation and the Media Sabak Foundation (Chelysheva, 2019; UNESCO, 2021; Deutsche Welle, 2022).

The MIL curriculum in Kyrgyzstan focuses on developing critical thinking skills to verify information from different sources, analyse media content, and understand concepts like propaganda, stereotypes, and fact-checking (Deutsche Welle, 2022; Zach, 2023).

MIL training is a mandatory curriculum component for 7<sup>th</sup> grade high school students in Kyrgyzstan, and all Kyrgyz teachers are trained in the subject (Deutsche Welle, 2022).

There are also efforts to integrate MIL into Islamic universities (madrassas) in Kyrgyzstan in 2022 – 2023. The Media Sabak Foundation offered MIL classes for 71 students at Kyrgyzstan's Islamic universities (madrassas), teaching them to critically analyse both news reports and Islamic teachings (Zach, 2023).

However, challenges remain in terms of lack of funding to train teachers and provide equipment, as well as the need for a more dedicated MIL curriculum in schools and universities (Chelysheva, 2019; UNESCO, 2023).

According to Chelysheva in Kyrgyzstan, despite the development of MIL education, the inclusion of media education in educational programs at all levels remains an open question (2019).

For 18 years, the Media Support Centre Foundation in Kyrgyzstan has continued to actively promote MIL at the country and Central Asian levels. Now it can be admitted that it is the leading organization in this field in Central Asia. As Chelysheva admitted “Kyrgyzstan has the strongest position in terms of practical accents in mastering media literacy” (2019, p. 7).

The Foundation has been implementing several MIL projects, including the project “MediaSabak: Development of Media and Information Literacy in the School System of the Kyrgyz Republic”, implemented in partnership with the Ministry of Education and Science of the Kyrgyz Republic and the Kyrgyz Academy of Education.

Within the framework of the project, the resource book on MIL for teachers was developed and recommended by the Ministry of Education and Science of the Kyrgyz Republic. The book was published and distributed to all schools in the Kyrgyz Republic. Also, the Foundation has developed a multilingual educational (Russian, Kyrgyz, Tajik, and Kazakh) portal [www.mediasabak.org](http://www.mediasabak.org), which consists of animation and video lessons, practical exercises, multiple choice questions and literature on MIL. The training site is constantly updated with MIL content.

The Media Support Centre Foundation will continue to support the development of critical thinking, competent consumption of information in Kyrgyzstan through teaching the basics of media information literacy to teachers and students. It is also planned to create a network of media literate schoolteachers.

Another project “MediaSabak” includes lessons on MIL for grades 9-11 and digital literacy for grades 5-6, a program “People and Society” with an MIL component for grades 7, a resource book for a teacher and much more. As part of the BRYCA project, the online training platform [www.mediasabak.org](http://www.mediasabak.org) is being supplemented, and multimedia lessons can be found on MIL in Russian, Kyrgyz, Kazakh, Tajik and Uzbek.

In addition, the Foundation organized Media Laboratories for schoolteachers, a summer camp for Democracy and MIL for high school students from all regions of the country, and in 2019, for the first time, a national competition was held for the best design of lessons with MIL elements among schoolteachers.

So, in summary, the MIL curriculum in Kyrgyzstan aims to develop critical thinking, media analysis, and information verification skills among students, teachers, and the general public, though more work is needed to fully integrate it into the education system.

#### **4.2.2 Attempts at Integrating MIL into the School Curriculum in Kazakhstan**

The first textbook on MIL for schoolchildren in Kazakhstan was approved by the state expert commission and recommended for use in educational institutions.

According to the expertise of the Republican Scientific and Practical Center “Textbook” under the Ministry of Education and Science of the Republic of Kazakhstan, the educational and methodological manual on MIL, developed in the Internews project by the International Center for Journalism MediaNet with the support of the United States Agency for International Development (USAID), is recommended for use in educational institutions of Kazakhstan. The content of the textbook corresponds to modern scientific ideas about the media and media sphere – from the official conclusion of the Center “Uchebnik” (Khodoreva, 2021).

A team of experts from Kazakhstan, Kyrgyzstan, Russia, Ukraine, and Lithuania has developed a textbook for students in grades 9-11 (12), as well as a methodological guide for schoolteachers in Kazakh and Russian. They are both available in electronic format on the Internet. Students will master the concepts of media literacy, critical thinking skills, recognition of fakes and manipulations, and learn how to safely use the Internet. Recall that in the United States, Europe and many other countries, MIL is a compulsory component of secondary education.

In 2019, the textbook for schoolchildren was tested in schools in Kazakhstan, and in 2020 it was revised in accordance with the state education standard of the Republic of Kazakhstan and supplemented with a methodological guide for teachers.

This educational and methodological complex was prepared by the Public Foundation “International Center for Journalism MediaNet” in the framework of the Central Asian program MediaCAMP, implemented by Internews with financial support USAID.

#### **4.2.3 Attempts at Integrating MIL into the School Curriculum in Uzbekistan**

Uzbekistan has been actively working to integrate MIL into its school curriculum in recent years. Uzbekistan has recognized the importance of MIL education and has taken steps to incorporate it into the national curriculum (Chelysheva, 2019). The country has developed a national curriculum framework that emphasizes the development of critical thinking, creativity, and digital literacy skills among students (MoPSE, 2021).

Key efforts include:

- Involving teachers, professors, and education experts in the development of the new national curriculum, which includes a focus on MIL competencies such as critical thinking, information evaluation, and media production (MoPSE, 2021);
- Aligning the curriculum with international MIL frameworks and standards, such as the UNESCO MIL Curriculum for Teachers, to ensure a comprehensive and up-to-date approach (Muratova et al., 2019);
- Providing training and professional development for teachers to equip them with the knowledge and skills to effectively teach MIL in the classroom (Chelysheva, 2019);

- Collaborating with international organizations like UNICEF and USAID to access technical expertise and resources for MIL curriculum development and implementation (UNICEF, 2023).

Overall, Uzbekistan is making significant strides in integrating MIL into its national education system in order to provide students with the critical 21<sup>st</sup> century skills needed to navigate the digital information landscape. The country's focus on teacher training and aligning with global MIL frameworks suggests a commitment to delivering high-quality, impactful MIL education.

In Uzbekistan, the partners of the project "Centre for the Development of Contemporary Journalism" are currently working on the development of media literacy. Since 2015, the UNESCO office, as well as a number of international organizations, have also been working in this area. Although MIL has not yet been introduced into the system of preschool, school and higher education, the first steps have already been taken in the field of education for journalists – training is carried out, certain topics such as critical thinking, the concept of stereotypes and fact-checking are included in the curriculum.

There were good projects in Uzbekistan as well. Recognized projects for journalism, posters, and MIL classes for schoolchildren.

According to Saida Sulaimonova, director of the Center for the Development of Modern Journalism in the Republic of Uzbekistan, media educator and media expert, from the point of view of press and information literacy, Uzbekistan is learning from the experience of neighbouring countries, and MIL in our country is not yet included in the education system. We are currently in the initial stages of this process, but it is highly active and encouraged by government agencies (Pastukhova, 2021). The organization represented by the authors is actively involved in this process, and a number of projects on this topic are being implemented. The BRYCA project aims to increase youth MIL through gaming technology (the "Qlever" educational game platform is being developed, through which youth can increase their critical thinking and media literacy).

"DW\_MIL.UZ" project is also dedicated to the introduction of media literacy in the education system of Uzbekistan. "Legal Clinic" and other projects are aimed at developing legal literacy among journalists, bloggers, and journalists (Pastukhova, 2021).

The goal of the "DW\_MIL.UZ" project is the phased introduction of MIL as a separate independent discipline in the education system of Uzbekistan at all its levels. In the first year, the project stakeholders will be trained – representatives of state authorities, on which decisions related to the goals and objectives of the project depend. In addition, a preliminary study will be carried out to determine the baseline level of MIL among teachers and students at pilot schools in Tashkent city and the Tashkent region. Based on the research results, a training program for the MIL group will be developed from among the teachers at the pilot schools ("Pjat' voprosov o proekte DW\_MIL.UZ" ["Five questions about the DW\_MIL.UZ project"], 2021).

#### **4.2.4 The Best Practices for Implementing MIL in School Education in Central Asian Countries**

Some successful examples of MIL education programs in Central Asian countries include:  
In Kyrgyzstan:

- The MIL curriculum developed by the "Promoting media plurality, balance and media literacy in Central Asia" project has been accepted by the Ministry of Education in Kyrgyzstan and is now taught in schools across the country (ERIM, 2019);
- 322 schoolteachers in Kyrgyzstan participated in MIL training of trainers' workshops as part of this project (ERIM, 2019).

In Kazakhstan:

- Internews in Kazakhstan has conducted research on the low media literacy levels in the country and the vulnerability of the population to Russian propaganda, especially during the Russia-Ukraine conflict (Cabar.asia, 2022);

- Activists in Kazakhstan have demanded the government shut down the broadcasting of Russian state TV channels, highlighting the need for independent tools to counter propaganda (Cabar.asia, 2022).

Regionally:

- ERIM (Equal Rights and Independent Media) has worked across Central Asia, including in Kazakhstan, Kyrgyzstan, and Tajikistan, to develop MIL training manuals and provide training to educators (ERIM, 2019);
- UNESCO has supported several large-scale MIL projects in the region, including surveys and the development of methodological tools (Dadakhonov, 2024);
- “Media Literacy Houses” have been established in Tajikistan, Kazakhstan and Uzbekistan, and today they are promoting MIL training courses and other useful initiatives for school-aged students among representatives of different ages (Xabar, 2022).

These examples demonstrate that while MIL education efforts in Central Asia are still relatively new, there are promising initiatives underway to integrate MIL into school curricula and train educators across the region.

Based on the results of the study, the best practices for implementing MIL in school education in Central Asian countries are summarized in the following table (Table 2):

#	The best practices	Evidence from sources
1	<b>Developing MIL Curricula and Teaching Materials</b>	Developing comprehensive MIL training manuals and teaching materials for schools, universities, and librarians in local languages (Russian, Kyrgyz, Kazakh, Tajik) (ERIM, 2019). Integrating the MIL curriculum into the national education system, as has been done in Kyrgyzstan where the MIL curriculum is now taught in schools (ERIM, 2019).
2	<b>Training Educators</b>	Providing MIL training via trainers’ workshops for high school teachers, university professors, and librarians to equip them with the skills to teach MIL (ERIM, 2019). Building a pool of trained MIL educators who can then cascade the training to more teachers (ERIM, 2019).
3	<b>Raising Awareness and Engagement</b>	Developing online MIL tools and resources in local languages to reach a wider audience (ERIM, 2019). Engaging with government officials to gain support and commitment for scaling up MIL education (Cabar.asia, 2022). Supporting local independent media to strengthen the information landscape (Cabar.asia, 2022).
4	<b>Measuring Impact</b>	Conducting cross-country studies to measure the media literacy levels in the region and track progress over time (Zadorin et al., 2023).

**TABLE 2:** *The best practices for implementing MIL in school education in Central Asian countries*

Source: own processing, 2024

The key is a comprehensive, multi-stakeholder approach that develops MIL curricula, trains educators, raises public awareness, and measures impact – all with strong government support and commitment.

#### 4.2.5 Issues of Measuring the Efficiency of MIL Projects in the Region

Based on the analysis of the reported documents of various stakeholders, it can be said that successful MIL education programs in Central Asian countries measure their success through various key indicators. These indicators were summarized in the following table (Table 3).



#	Key indicators	Explanation
1.	Curriculum Integration	The successful integration of MIL curricula into the national education systems, as has been done in Kyrgyzstan and Kazakhstan where the MIL curriculum is now taught in schools.
2.	Educator Training	The number of educators, including schoolteachers, university professors, and librarians, who have received MIL training and are equipped to teach MIL skills
3.	Reach and Engagement	The development of online MIL tools and resources in local languages to reach a wider audience. The level of engagement and support from government officials for scaling up MIL education.
4.	Impact on Media Literacy Levels	Assessments of the population's vulnerability to misinformation, propaganda, and disinformation, especially during international conflicts and in various emergency situations. Cross-country studies by several foreign aid project holders that measure the media literacy levels in the region and track progress over time.

**TABLE 3:** Key indicators of successful MIL education programs in Central Asian countries

Source: own processing, 2024

The key is to have a comprehensive monitoring and evaluation framework that looks at both the implementation of MIL programs (curriculum, training, resources) as well as the actual impact on improving media literacy levels across the Central Asian countries.

Sustained commitment from policymakers and governments is crucial for these MIL education initiatives to be successful and scalable in the long run.

#### 4.2.6 Overview of the Findings

Studies and analyses have shown that the development of media literacy in the secondary school system in Central Asian countries is in its infancy. So far, the following work has been done in this regard:

- Training sessions for schoolteachers were organized by several national organizations with the help of international donors;
- In Central Asia, mainly in Kyrgyzstan, practical work has been done to introduce media literacy in school education. Textbooks have been published; a special website has been created. Kazakhstan has developed a textbook for high schools and is about to introduce it in school education. In Uzbekistan and Tajikistan, training courses in this field were organized by participants and grant holders in Kyrgyzstan and Kazakhstan;
- To improve the media literacy of schoolchildren in Uzbekistan, there is a need to introduce this subject in secondary schools.

In Central Asia, the formation of MIL competencies in schoolchildren is largely at the expense of foreign donors. As a result, training was initially provided. In the case of Kyrgyzstan and Kazakhstan, significant work has been done in this regard.

Efforts have been made to determine the level of MIL of school-age children based on many important criteria, such as bullying on social networks, the channels through which they receive daily news, and their ability to sort and analyse the flow of information.

## 5 Discussion

### 5.1 The Difference Between the MIL Education Programs of Central Asian Countries and Those in Other Regions

There are a few key differences between MIL education programs in Central Asian countries compared to other regions:

1. Slower development: Some researchers indicated that while media education is well-developed in many Western countries, it is still relatively young and maturing across Asian societies, including Central Asia. This is likely due to the later adoption of digital media and the internet in these regions (Tibaldo, 2022).
2. Western influence: The initial media education approaches in Central Asian countries, as well as other parts of Asia, were heavily influenced by Western models and pedagogies, such as the protectionist approach. Experts from Western countries like Canada and the UK have played prominent roles in shaping media education in Asia (Tibaldo, 2022).
3. Integration into existing curricula: Similar to Western countries, MIL education in some Central Asian nations like Uzbekistan is integrated into existing subjects like the English curriculum, rather than being a standalone course.
4. Challenges with infrastructure and resources: The search results suggest that Central Asian countries face more significant challenges in terms of the economic and technological infrastructure to support independent media and robust media literacy education, compared to more developed regions. Lack of funding and access to quality journalism education can be considered as the crucial barriers.

In summary, the search results highlight that MIL education in Central Asia is still emerging and faces unique contextual challenges compared to more established programs in other parts of the world.

### 5.2 The Lack of MIL Affects the Education System in Central Asian Countries

Timotheou et al. (2023) discuss the issue of “Impacts of digital technologies on equality, inclusion and social integration” in their research and wrote the following opinion: “Although most of the reviewed studies focused on the impact of ICTs on students’ knowledge, skills, and attitudes, reports were also made on other aspects in the school context, such as equality, inclusion, and social integration” (Timotheou et al., 2023, p. 6702).

The deficiency in MIL within the education systems of Central Asian countries poses significant challenges. Without adequate MIL skills, students may struggle to critically evaluate information, discern fact from fiction, and navigate the digital landscape effectively. This deficiency hampers their ability to engage with diverse perspectives, undermines their capacity for informed decision-making, and leaves them vulnerable to misinformation and manipulation. Consequently, it undermines the overall quality of education and fails to prepare students for the complexities of the modern world.

The lack of effective MIL education in Central Asian countries has several negative impacts on their education systems:

1. Vulnerability to disinformation and propaganda: Without critical media literacy skills, students remain susceptible to false narratives, especially during times of geopolitical tensions. This can undermine their ability to think critically and engage meaningfully with information (Cabar.asia, 2022; Dadakhonov, 2024; Zadorin et al., 2023).

2. Polarization and conflict within schools: The absence of MIL has led to students living in “different information bubbles” and taking hardline stances on issues without understanding diverse perspectives, raising the risk of conflicts within the education community (Baú, 2023).
3. Undermining of civic education and engagement: Poor MIL hinders students’ capacity to access reliable information, participate in public discourse, and develop the skills needed for active citizenship and democratic participation (ERIM, 2019; Zadorin et al., 2023).
4. Lack of localized teaching resources and curriculum: The dearth of MIL curricula and materials in local languages limits the ability of teachers to effectively integrate media literacy into their instruction across the region (Cabar.asia, 2022; ERIM, 2019).
5. Insufficient teacher training and support. The limited availability of systematic professional development for educators teaching MIL constrains the education system’s capacity to deliver quality media literacy education (ERIM, 2019; Deutsche Welle, 2022).

In summary, the absence of comprehensive, government-supported MIL programs in Central Asian schools perpetuates students’ vulnerability to manipulation, inhibits their civic engagement, and undermines the overall quality and relevance of the education system in the digital age.

### 5.3 The Challenges of Implementing MIL in School Education in Central Asian Countries

Implementing media and information literacy (MIL) in school education in Central Asian countries faces various challenges. These may include a lack of resources such as trained educators, suitable curriculum materials, and technological infrastructure. Additionally, cultural and linguistic diversity within the region can present obstacles to developing standardized MIL programs that address the needs of all students. Furthermore, limited awareness and prioritization of MIL by educational policymakers and stakeholders may hinder efforts to integrate it effectively into the curriculum. Overcoming these challenges requires comprehensive strategies that encompass teacher training, curriculum development, and community engagement to promote MIL skills and foster critical thinking among students.

The key challenges to implementing media and information literacy (MIL) in school education across Central Asian countries have been identified through research by numerous scientists and stakeholder reports:

1. Low baseline of media literacy among the general population: Experts have noted a lack of critical thinking and vulnerability to false information, propaganda, and disinformation, especially during COVID -2019, and international conflicts (Chelysheva, 2019).
2. Lack of MIL curriculum and teaching materials in local languages: While some MIL training manuals have been developed in Russian, Kyrgyz, Kazakh and Tajik (ERIM, 2019), more comprehensive curriculum and resources are still needed across the region.
3. Limited integration of MIL into national education systems: Although Kyrgyzstan has accepted an MIL curriculum into its national school system (ERIM, 2019), most Central Asian countries have not yet fully incorporated MIL into their standard school curricula (Chelysheva, 2019).
4. Insufficient training and support for teachers to effectively teach MIL: While some training of educators has occurred, more systematic and widespread professional development is required to build a cadre of teachers capable of delivering quality MIL instruction (Dadakhonov, 2024; Deutsche Welle, 2022).
5. Lack of long-term, sustainable funding and government support for MIL programs: Many current MIL initiatives in the region rely on foreign donor funding, which raises questions about their long-term viability and integration into national education priorities (Dadakhonov, 2024; Cabar.asia, 2022).

To sum up, the key challenges are the low baseline of MIL, limited localized teaching resources, incomplete integration into national education systems, inadequate teacher training, and unsustainable funding models.

## 5.4 The Potential Consequences of not Implementing MIL in School Education in Central Asian Countries

The failure to implement MIL in school education in Central Asian countries can lead to detrimental consequences. Without MIL skills, students are vulnerable to misinformation, propaganda, and manipulation, which can undermine their ability to make informed decisions and participate effectively in society. This can perpetuate social divisions, hinder democratic processes, and impede economic development. Furthermore, the lack of MIL can exacerbate existing challenges such as digital inequality and cultural erosion. Overall, neglecting MIL education deprives students of essential tools for navigating the complexities of the information age, hindering their personal growth and the progress of their communities. Without critical media literacy skills, the population remains susceptible to false narratives, especially during times of geopolitical tensions and conflicts like the Russia-Ukraine war (Cabar.asia, 2022; Zadorin et al., 2023; Dadakhonov, 2024).

The lack of MIL has led to people living in “different information bubbles” and choosing sides on issues without hearing each other out, raising the risk of open conflict within communities and countries (Cabar.asia, 2022; Zadorin et al., 2023).

Poor media literacy can hinder citizens’ ability to access reliable information, think critically, and participate meaningfully in public discourse and decision-making (Cabar.asia, 2022).

MIL is crucial for navigating the modern information landscape and developing the skills needed for the digital economy and society. Neglecting it can limit opportunities for progress (Dadakhonov, 2024).

Continued reliance on foreign-funded MIL initiatives rather than sustainable, government-supported programs is also one of the important issues in this case. The current donor-driven model raises questions about the long-term viability and national ownership of media literacy efforts (Cabar.asia, 2022; Dadakhonov, 2024).

In summary, the failure to systematically implement MIL education in Central Asian schools could perpetuate the region’s vulnerability to misinformation, deepen social divisions, undermine democratic participation, and constrain overall development, unless concerted action is taken.

## 5.5 Recommendations for Future Action

Moving forward, it is imperative that Central Asian countries prioritize MIL as a fundamental component of their educational systems. Policymakers should develop and enforce regulations that support MIL integration and encourage cross-border collaboration to share resources and expertise. Teacher training programs should be expanded to equip educators with the necessary skills to impart MIL effectively.

The implementation of MIL in Central Asian school education is a complex endeavour with its own unique challenges and opportunities. Despite these challenges, the region has seen promising initiatives that can serve as models for others. By addressing linguistic diversity, digital access, and fostering international cooperation, Central Asian countries can make significant strides in nurturing a digitally literate and informed citizenry.

Implementing MIL in the school education system of Central Asian countries requires a thoughtful and strategic approach. The following table shows some optimal ways (Table 4):

#	Way of implementing	Explanation
1.	<b>Curriculum Integration</b>	Integrate MIL into the national curriculum as a core subject, ensuring that it is taught at all educational levels. Develop age-appropriate content and learning materials that align with local cultures and languages.
2.	<b>Teacher Training</b>	Provide comprehensive training for teachers on MIL concepts and pedagogical techniques. Encourage ongoing professional development to keep educators updated on the evolving media landscape.
3.	<b>Digital Infrastructure</b>	Invest in digital infrastructure, including internet access and devices, to bridge the digital divide and ensure equitable access to MIL education, especially in remote areas.
4.	<b>International Collaboration</b>	Collaborate with international organizations, such as UNESCO, to access resources, share best practices, and learn from global experiences.
5.	<b>Public Awareness</b>	Launch awareness campaigns for parents and communities to emphasize the importance of MIL in the digital age and their role in supporting children's education.
6.	<b>Media Literacy Projects</b>	Support and fund media literacy projects, including partnerships with media organizations, to provide real-world context and experiences.
7.	<b>Assessment and Evaluation</b>	Develop standardized assessments to measure MIL competencies and evaluate the effectiveness of MIL programs.
8.	<b>Research and Data Collection</b>	Encourage research on MIL to better understand local challenges and develop evidence-based strategies.
9.	<b>Cross-Disciplinary Approach</b>	Promote the integration of MIL concepts across various subjects, not limited to media studies, to emphasize its importance in critical thinking and decision-making.
10.	<b>Civic Engagement</b>	Incorporate lessons on responsible digital citizenship, media ethics, and the role of information in a democratic society.
11.	<b>Local Content Creation</b>	Encourage students to create their own media content, fostering critical thinking and creativity in the digital realm.
12.	<b>Partnerships with Tech Companies</b>	Collaborate with technology companies to develop tools and resources that facilitate MIL education, including fact-checking tools and platforms for responsible content sharing.
13.	<b>Policy Development</b>	Create and enforce policies that support MIL integration and establish a regulatory framework to address misinformation and disinformation.
14.	<b>Feedback Mechanisms</b>	Establish channels for feedback from educators, students, and parents to continuously improve MIL programs.
15.	<b>Inclusivity</b>	Ensure that MIL programs are inclusive, catering to the needs of diverse groups, including children with disabilities and those from marginalized communities.
16.	<b>Measuring Impact</b>	Regularly assess the impact of MIL education on students' ability to critically evaluate and use media and information.
17.	<b>Long-Term Commitment</b>	Recognize that MIL is an ongoing skill, and commit to its integration as a long-term educational goal.

**TABLE 4:** *Ways of implementing MIL in the school education system*

Source: own processing, 2024

By following these strategies, Central Asian countries can effectively implement MIL into their education systems, fostering digitally literate and responsible citizens capable of navigating the complex media landscape of the 21<sup>st</sup> century.

## 6 Conclusion

The main issues in implementing MIL in school education in Central Asian countries are as follows:

- The low overall level of MIL among the population in Central Asia – during the interviews, the MIL experts noted a lack of critical thinking and vulnerability to false information, propaganda, and disinformation, especially during different conflicts in international arena. This highlights the need to improve MIL education.
- Lack of MIL curriculum and teaching materials in local languages – while some MIL training manuals have been developed in Russian, Kyrgyz, Kazakh and Tajik, more comprehensive curriculum and resources are still needed across the region.
- Limited integration of MIL into national education systems – although Kyrgyzstan has accepted an MIL curriculum into its national school system, most Central Asian countries have not yet fully incorporated MIL into their standard school curricula.
- Insufficient training and support for teachers to effectively teach MIL – while some training of educators has occurred, more systematic and widespread professional development is required to build a cadre of teachers capable of delivering quality MIL instruction.
- Lack of long-term, sustainable funding and government support for MIL programs – many current MIL initiatives in the region rely on foreign donor funding, which raises questions about their long-term viability and integration into national education priorities.
- In summary, the key challenges are the low baseline of MIL, limited localized teaching resources, incomplete integration into national education systems, inadequate teacher training, and unsustainable funding models.
- MIL and media education are extremely important areas in today's information age. They teach people to keep up with the times and technology. Therefore, it is observed in the world that it is taught to people of all ages. As a result of our research and observations, we have reached the following conclusions:
- Extensive experience in the development of MIL and its introduction into the education system in countries around the world, in particular in the United States and Europe;
- The development of MIL in Central Asia has been based on various long-term and short-term projects and grants of some non-governmental organizations with the support of foreign donors;
- After 2015, the number of MIL projects in Central Asia has increased dramatically, and more projects are implemented every year, and this continuity is in a sense bearing fruit;
- One of the main achievements of the MIL projects is the organization of a series of trainings, first for schoolteachers, and then for schoolchildren;
- Today, Kyrgyzstan and Kazakhstan have made great strides in introducing MIL in school education. Negotiations with the Ministries of Education have begun in Uzbekistan;
- MIL allows schoolchildren to effectively use the achievements of the time and technology, to protect against various screen bullying, attacks and threats on the Internet and social networks, to analyse media news, to develop a number of information age competencies.

In the process of conducting this research, we put forward the following recommendations:

- MIL in Central Asia should be raised to the level of long-life learning and various projects should be launched in this regard;
- MIL should be taught as a separate subject in kindergartens, schools and higher education;
- In the formation of MIL skills in school-age children, it is necessary to include topics that shape MIL skills in various subjects, information and computer technology, art, native language, and foreign languages.



## 6.1 Limitations

Despite the thorough methodology employed in this research, several limitations merit acknowledgment. Firstly, the study's reliance on in-depth interviews with 16 MIL experts may introduce potential biases due to the subjective nature of individual perspectives. Additionally, the sample size may not fully capture the diversity of opinions and experiences within the broader MIL education landscape of Central Asian countries.

Furthermore, while extensive literature review supplemented the empirical data, the availability and accessibility of relevant scholarly articles, books, reports, and policy documents may have been constrained, potentially limiting the depth of analysis in certain areas.

Moreover, contextual factors, such as cultural differences and political dynamics, within the Central Asian region may influence the generalizability of findings beyond the specific contexts of Kazakhstan, Kyrgyzstan, and Uzbekistan.

Finally, the dynamic nature of MIL education and evolving socio-political contexts necessitate a recognition that the issues identified in this study may continue to evolve, requiring ongoing research and evaluation to address emerging challenges and opportunities.

Despite these limitations, this research contributes valuable insights into the main issues surrounding the implementation of Media and Information Literacy in school education in Central Asian countries, serving as a foundation for future investigations and policy interventions in the field.

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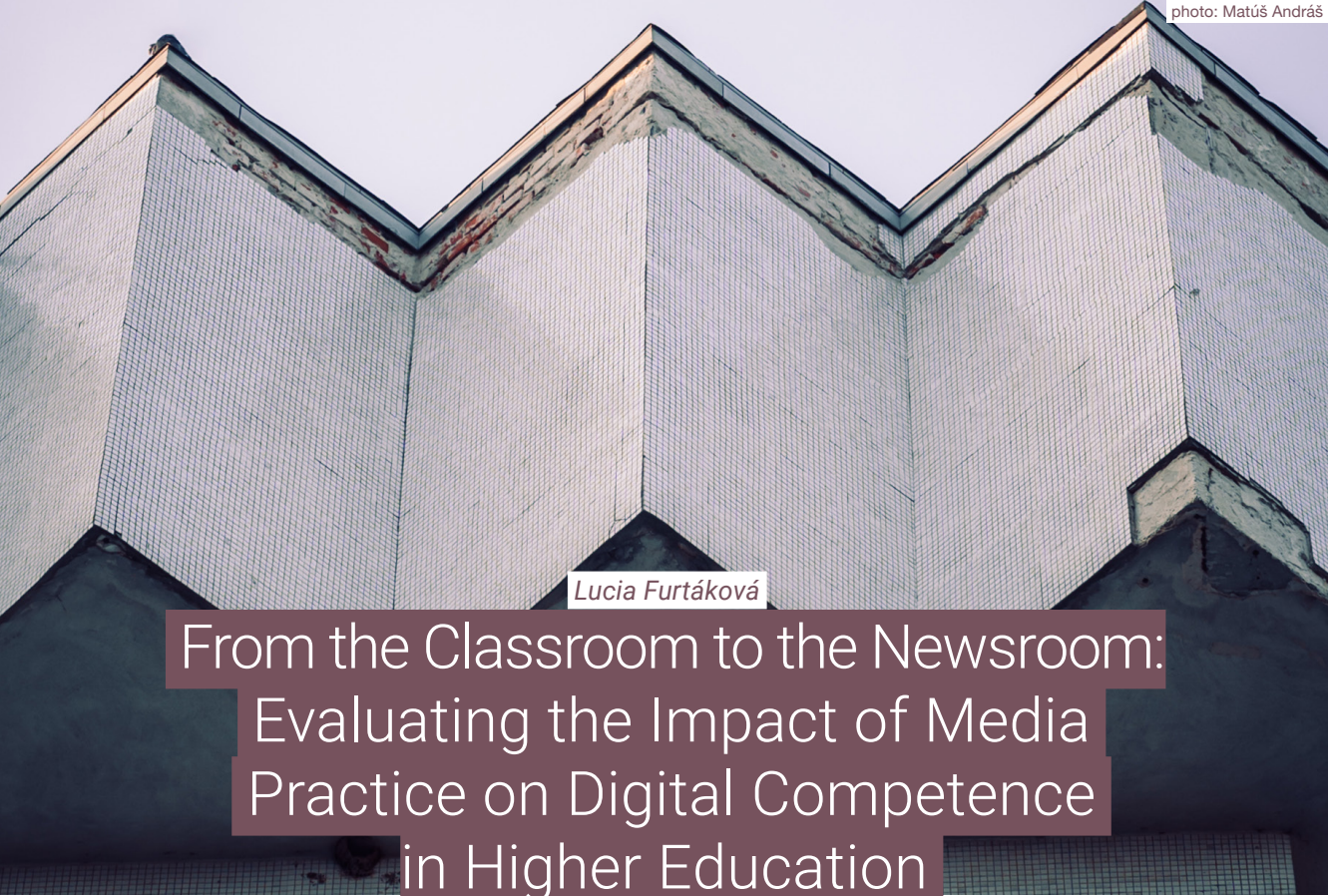


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# From the Classroom to the Newsroom: Evaluating the Impact of Media Practice on Digital Competence in Higher Education

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## ABSTRACT

Digital literacy and related digital competences are now an integral part of media work. Changes in technology and audience consumption habits have forced media professionals to acquire a wide range of digital skills. These include not only technical skills, such as mastery of digital tools and platforms, but also the ability to communicate and present content effectively in a digital environment. The aim of this study is to explore the level of digital competences of students who work in university media, compared to those who study at the faculty but are not part of its media. It also focuses on identifying the level of each of the DigComp framework's digital competence areas that future media workers should develop in order to remain competitive. Research has shown that students working in university media have a higher total score in digital competence (75%) than students not working in (university) media (65%). It was also found that the most developed area for both groups of students is Communication and collaboration, followed by Information and data literacy. In contrast, the weakest area for both groups is Digital content creation. In terms of specific competencies, both groups have the same most developed competency, Netiquette, and the least developed competency, Programming. In general, however, students not working in (university) media have a total score in digital competence as well as in individual areas at the same level as the Generation Z average, and students working in university media are above the Generation Z average in all areas, confirming that working in media alongside media studies has a positive impact on raising levels of digital competence.

## KEY WORDS

DigComp. Digital Competences. Digital Competence Wheel. Digital Literacy. Journalism Students. Media and Communication Students. Media Workers.

# 1 Introduction

In the current era of digital transformation, digital competences are becoming essential pillars for the successful integration of individuals into modern social and working life. Digital competences, including the ability to use technology effectively to access information, communicate, create content and solve problems, emphasise critical thinking, online safety and the ethical use of digital tools. The importance of these skills continues to increase as technological innovation transforms all aspects of our lives. Being digitally competent is not just about technical skills; it is a broad understanding of how technology influences culture, communication and politics, enabling individuals to participate in a digitally oriented labour market and social life.

The importance of these skills is clear, as they open doors to new opportunities for personal and professional development, while providing the tools to critically evaluate information and navigate the digital environment safely. In an ever-changing technological environment, where new applications and tools emerge every day, the ability to learn and adapt quickly to new technologies is essential. In this context, it is important that digital competences are continuously developed and adapted to meet the current and future needs of society. Understanding and improving these skills is therefore a priority for educational institutions, policy makers and societies as a whole, to ensure that everyone can contribute effectively and thrive in a digital world.

A literature review on digital competence reveals different perspectives on its definition and components. Some authors emphasise the technical skills required to use digital tools (see, e.g., Bawden, 2001; Virkus, 2003; Buckingham, 2010), while others focus on the cognitive and social skills that enable individuals to use technology effectively in different contexts (see, e.g., Ala-Mutka, 2011; Ng, 2012; Lankshear & Knobel, 2015). Soby (2015) explains that the term *digital competence* has established itself as an umbrella term to understand the complex relationships between individuals, organisations, ICTs and society.

## 1.1 DigComp Framework

In 2006, the European Parliament and the Council published a recommendation identifying eight key competences for lifelong learning. These competences include literacy competence; multilingual competence; mathematical competence and competence in science, technology and engineering; digital competence; personal, social and learning to learn competence; citizenship competence; entrepreneurship competence; cultural awareness and expression competence. According to this document, digital competence includes the confident and critical use of information society technologies for a variety of purposes (*Recommendation of the European parliament and of the council of 18 December 2006 on key competences for lifelong learning (2006/962/EC)*, 2006). This document has been studied by several theorists, including Ala-Mutka (2011), Janssen and Stoyanov (2012), and Ferrari (2013). They have expanded the concept of digital competence beyond basic tools and computer applications to encompass more advanced knowledge, skills, and attitudes. They also emphasise the significance of reflecting on and integrating these competences to evaluate one's own abilities and environment. The authors stress the importance of responsibility and safety in the use of digital technologies. This was given less attention in the 2006 document. I believe that due to the influence of these studies, the evolution of the technology itself and the increasing demands for competences, the Council of the European Union in 2018 updated the definition of digital competence to its current form:

Digital competence involves the confident, critical and responsive use of, and engagement with digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, digital content creation (including programming), safety, (including digital well-being and competences relating to



cyber security), and problem solving. (Council recommendation of 22 May 2018 on key competences for lifelong learning (Text with EEA relevance) (2018/C 189/01, 2018, p. 9)

Based on the above, the author would like to note that digital competence is a 'loose' concept – it is not clearly defined, it is still evolving and its meaning varies according to different approaches. In this context, the European Union and the European Commission have also issued recommendations on digital competences – the *European Digital Competence Framework for Citizens* (DigComp), which is one of the most up-to-date and comprehensive frameworks currently developed in relation to digital competences.

DigComp was initiated by a group from the European Commission's Joint Research Centre and the Institute for Prospective Technological Studies under an agreement with the Directorate-General for Education, Youth, Sport and Culture. The aim of the project was to identify definitions of digital competences and, on the basis of these definitions, to build consensus at European level on the components of digital competence, by developing a conceptual framework. In developing the framework, the working group analysed 15 case studies and held discussions with 17 experts in a workshop. A first draft was then commented on by around 40 stakeholders (Ferrari, 2013).

The European Commission first published the *European Framework of Digital Competences for Citizens* in 2013 under the name DigComp (Ferrari, 2013), later referred to as DigComp 1.0. In 2016, a revised version of DigComp, called DigComp 2.0 (Vuorikari et al., 2016) was published. A year later, version 2.1 was released (Carretero et al., 2017), and the most recent version, DigComp 2.2, was published in 2022 (Vuorikari et al., 2022). DigComp provides a comprehensive framework for describing digital literacy today. It defines digital competence as the set of knowledge, skills, and attitudes needed to use digital technologies effectively, critically, and safely (Vuorikari et al., 2022).

DigComp serves as a basis for national learning frameworks, assists in the development of professional courses and provides a 'guide' for the assessment and recognition of digital competences. Its detailed structure allows organisations and individuals to identify specific areas for development or improvement. It is based on 21 competence descriptors grouped into 5 key areas:

Competence areas	Competence descriptors
<b>Information and data literacy</b>	Browsing, searching and filtering data, information and digital content.
	Evaluating data, information and digital content.
	Managing data, information and digital content.
<b>Communication and collaboration</b>	Interacting through digital technologies.
	Sharing through digital technologies.
	Engaging citizenship through digital technologies.
	Collaborating through digital technologies.
	Netiquette.
	Managing digital identity.
<b>Digital content creation</b>	Developing digital content.
	Integrating and re-elaborating digital content.
	Copyright and licences.
	Programming.
<b>Safety</b>	Protecting devices.
	Protecting personal data and privacy.
	Protecting health and well-being.
	Protecting the environment.

<b>Problem solving</b>	Solving technical problems.
	Identifying needs and technological responses.
	Creatively using digital technology.
	Identifying digital competence gaps.

**TABLE 1:** List of digital competencies grouped into key areas

Source: own processing, 2024

The DigComp framework has also established skill levels for these competences, which are used to define and measure the progression of an individual's digital skills. They help to identify what individuals should know and be able to do at different stages of their digital learning. The model provides clear objectives for training programmes, allows curricula to be personalised according to individual needs, and also serves as a tool for employers to assess the digital skills of job seekers. The levels thus ensure consistent measurement and comparison of digital skills in different contexts, from education to the workplace.

The most recent version of the framework defines four overall levels – foundation, intermediate, advanced and highly specialised, which are then graded into eight granular levels according to their cognitive difficulty, the complexity of the tasks and the individual's autonomy in completing the tasks (see Table 2). Carretero et al. (2017) explain that the overall levels are inspired by the structure and vocabulary of the *European Qualifications Framework* and are written as a combination of learning outcomes, using one active verb per learning outcome.

Overall levels	Granular levels	Complexity of tasks	Autonomy	Cognitive domain
Foundation	level 1	simple tasks	with guidance	remembering
	level 2	simple tasks	autonomy and with guidance where needed	remembering
Intermediate	level 3	well-defined and routine tasks, and straightforward problems	on my own	understanding
	level 4	tasks, and well-defined and non-routine problems	independent and according to my needs	understanding
Advanced	level 5	different tasks and problems	guiding others	applying
	level 6	most appropriate tasks	able to adapt to others in a complex context	evaluating
Highly specialised	level 7	resolve complex problems with limited solutions	integrate to contribute to the professional practice and to guide others	creating
	level 8	resolve complex problems with many interacting factors	propose new ideas and processes to the field	creating

**TABLE 2:** Levels for measuring an individual's digital competences

Source: Carretero et al. (2017), own processing, 2024

Černý (2019) explains that the “complexity of tasks” dimension talks about how problems range from simple with a clear solution to complex with an open solution. Digital competence is presented in this context as something that one must be able to apply to real-world problems. Its difficulty also increases with a person's role in society. The higher the position one occupies, the higher the level of social responsibility one is expected to have. Another dimension is the “level of autonomy”. Levels 1 and 2 rely on the help of others, while levels 3 and 4 involve working independently. From level 5, the individual becomes a helper or guide for others. At the highest level, level 8, the person is expected to lead others in a given competence and contribute to the transformation of their own field of interest or science. Competence is manifested not

only in what one knows or understands, but also in concern for the common good. The third dimension is the “cognitive domain”, i.e. how cognitively demanding the activity is. Just as in the case of autonomy, the granular levels 1 to 4 focus on the individual themselves and 5 to 8 on his or her role in society, in the case of cognitive demandingness, the bottom four levels relate to remembering and understanding, and the top ones to creativity.

## 1.2 Level of Digital Competence in the World and in Slovakia

In 2021, the European Commission published a survey on the level of digital skills of people aged 16-74, which is called the Digital Skills Indicator. The proportion of people in European Union countries who have basic or above basic overall digital skills was at 53.92%. Looking at individual European countries, this proportion was highest in Iceland (80.99%), followed by Finland (79.18%) and the Netherlands (78.94%). The lowest proportion was found in Albania (23.8%), followed by Romania (27.82%) and Turkey (30.12%). The level of digital skills of individuals in Slovakia was just above the European Union average of 55.18%. Among the countries surrounding Slovakia, the highest level of digital competence was found in Austria (63.33%), followed by the Czech Republic (59.69%), Hungary (49.09%) and Poland (42.93%) (Eurostat, n.d.-a).

In 2023, the percentage of digital skills at European Union level increased to 55.51%. An increase was also observed for the Central European countries: Czech Republic 69.11%, Austria 64.68%, and Hungary 58.89%. The exceptions are Poland (44.3%) and Slovakia (51.31%), where the level of digital competence has decreased compared to 2021 (Eurostat, n.d.-b), with Slovakia currently below the average of European Union countries. The author believes that this is partly related to the fact that in 2021, during the COVID-19 pandemic, people were forced to use digital technologies to a greater extent, which was also reflected in the survey results. The results of this indicator also show that in 2021, the average digital competence of students in EU countries was 76.83%, but it decreased to 75.25% in 2023. As for Slovak students, the level of their competence was 75.38% in 2021 and increased to 78.79% in 2023 (Eurostat, n.d.-c). However, it should be noted that these results only refer to the above basic level, so it is not entirely clear what the level of Slovak students is in relation to the DigComp framework.

Khan and Vuopala (2019) investigated the level of digital competence (based on the DigComp framework) of different generations in Finland. Their research shows that Generation Z (in their research, individuals born between 1995 and 2003) had an average digital competence level score of 64%, corresponding to a granular level of 4 and an overall level of intermediate. In terms of the individual areas of the framework, Information and data literacy was the second highest scoring Generation Z area, with an average score of 73%. The Communication and collaboration area was the highest rated Generation Z area, with an average score of 74%, the Digital content creation area had a score of 59%, the Safety area was at 54%, and the Problem solving area came out as the lowest rated Generation Z area, at 53%.

## 1.3 Digital Competence and Media Professionals

As well as having a huge impact on our daily lives, new technologies are also having a huge impact on the way we work. Devices and software used in the workplace are constantly evolving to make them more efficient and easier to use. These changes require the increased use of information and communication technologies in the workplace. Research by Matić and Perković showed that most Serbian journalists are aware of the importance and impact of digitalisation on the functioning of the media, but training for new professional roles has been slow, sporadic and unorganised. The research found that journalists are most proficient in

digital competencies related to working with information, communicating digitally with other people, browsing websites, searching for and organizing the information they find, and critically evaluating the reliability of Internet sources and information. However, they also found that digital skills specific to journalistic work, such as creating stories for different platforms and using mobile technology to produce news, ranked lower on the list of mastered competencies. The skills of fact-checking and photo authentication, which are crucial for combating misinformation, were the least developed competencies in this group (Matić & Perković, 2021). Today, journalists face many challenges, such as misinformation and fake news (see, e.g., Francistyová & Višňovský, 2023), and digital competencies are key to effectively combating these challenges. Journalists must be able to identify and verify the veracity of the information they receive, and be able to use digital tools to check sources and facts.

Similarly, Černý (2019) points out that digital competencies are now essential for journalists and journalism in general, as it is digital technologies and online tools that enable journalists to gather information, communicate with audiences and publish their work quickly and efficiently. At the same time, journalists can use new technologies and platforms to present their work in innovative ways; for example, the use of virtual reality or interactive graphics can help journalists bring their stories closer to the audience and enhance the reading experience. However, this rapidly changing dynamic of the journalism profession creates a question: How are journalists keeping up with the digital revolution?

To answer this question, the International Center for Journalists (ICFJ), in collaboration with the Communication, Culture, and Technology program at Georgetown University, launched a survey on the adoption of digital technologies in newsrooms around the world. More than 2,700 newsroom staff and managers from 130 countries were surveyed as part of the State of Technology in Global Newsrooms Survey (ICFJ, 2017a). General findings from the survey showed that newsrooms still face a deep technology divide, with only 2% of newsrooms employing technical specialists and 1% employing analytical editors. Another finding was that of the 23 digital skills listed in the survey questions, journalists use a limited range of digital skills, with the majority of newsrooms primarily using five: posting stories and commenting on social media (72%), taking digital photos (61%), engaging audiences on social media (58%), distributing content across multiple platforms (56%), and using analytics and web statistics to measure audience engagement (50%). Less than a third of newsrooms are using advanced digital skills such as data journalism (32%), live video (32%), using analytics and web statistics to drive the news agenda (31%), cybersecurity (29%), creating or adapting digital tools/apps for use in the newsroom (26%), or creating podcasts (21%). A notable finding is that more than half of journalists globally had no experience with digital media when they started their jobs. Surprisingly, although 71% of journalists use social media to find story ideas, only 11% use tools to verify this data. It is also interesting to point out that in most regions of the world, traditional media outperform newsrooms using only digital and hybrid technologies. The leader in newsrooms working only with digital technologies is Eurasia (or the countries of the former USSR), where 55% of newsrooms fall into this category (ICFJ, 2017a, 2017b).

This research also shows that while the classic qualities of “good journalism” such as research, writing and reporting skills are still highly valued in newsrooms, journalists are now expected to bring a diverse set of skills to the newsroom. Of all newsroom staff worldwide, 53.8% said they knew how to work with digital media when they joined the newsroom. Publishing across platforms was known by 48.8%, using data analytics by 23.3%, transforming data into visual form by 19.4% and 15.5% admitted to having none of the skills listed (ICFJ, n.d.). These data vary according to profession, part of the world and type of education.

In 2019, the ICFJ updated and expanded the study to 14 languages, based on the responses of 4,111 respondents from 149 countries around the world. The results show that newsrooms are still not investing in sufficient technical staff or in adequate training for their staff. Only 4% of newsroom staff are technical experts, up from 2% in 2017. The report also found that

while the number of newsrooms using a mix of traditional and digital formats is on the rise, the growth in the number of newly established digital newsrooms has remained steady (with the exception of East and Southeast Asia), suggesting that fewer online newsrooms are starting to emerge. The biggest declines in the number of digital-only newsrooms were in North America (from 33% to 22%) and Eurasia/former USSR (from 55% to 45%). At the same time, there were changes in the most used digital skills of journalists: posting stories and commenting on social media increased to 77%, researching competitors came in second (from 64% to 73%), and engaging audiences on social media increased to 68%. In addition to these skills, newsrooms have increasingly started to use fact-checking tools, and many newsrooms have increased the security of their communications. When it comes to using digital tools to secure communications and ensure the accuracy of information, the results show that more than two-thirds of journalists and newsrooms secure their communications, up from less than 50% two years ago. Europe leads the way in securing communications with 92%. More than half of the journalists said they regularly use digital tools to check facts. While only 11% used tools to check information on social media in 2017, this has more than doubled in 2019, with a quarter of journalists saying they use these tools at least once a week. A third of news organisations have dedicated fact-checkers on their staff. In addition, 44% of newsrooms and 37% of journalists have increased their fact-checking activities in the past year. Interestingly, journalists and their employers disagree on the specialised training needed in newsrooms. While newsrooms mostly offer training in video and audio production, journalists want more training on topics such as cybersecurity, podcasting, fact-checking tools and social media job promotion. The gap between demand and availability is greatest for the use and understanding of artificial intelligence (AI): 42% of journalists want AI training, but only 5% of newsrooms offer it (ICFJ, 2017b, 2019). In terms of the challenges that remain, the report states that:

As the global news landscape continues its relentless transformation, journalists and their newsrooms are stepping up. Of course, there's still a ways to go. But if the improvements of the last two years are any indication, the trend is positive, despite the formidable challenges facing the industry. (ICFJ, 2019, p. IV)

It is clear from the above data that newsrooms have several gaps in digital competences, which not only affects the professional work of newsroom staff, but can also affect their employment prospects. Although journalists and their newsrooms are constantly striving to strengthen their position in the changing global (news) environment while improving their digital skills and adapting to new professional roles, it would be preferable for them to have these digital skills when they join the newsroom. Research by Hart Research Associates (2015, in Bauman & Lucy, 2019) has shown that there is a significant gap between students' perceptions of their job readiness and employers' assessment of recent graduates. For example, 59% of graduates believe they can apply their knowledge and skills in a real-world situation, while only 23% of employers agree with this self-assessment. When it comes to analysing and/or solving a complex problem, 59% of students think they can, but only 24% of employers agree. Another gap is observed in the area of information retrieval: while 64% of students surveyed said they can find, organise and evaluate information, only 29% of employers agree.

Therefore, it is necessary for (media communication and journalism) students to increase their awareness of (their) digital competences. For this reason, Slovak educational institutions should adopt a new approach to educating our future media professionals. The traditional model based on knowledge transfer and memorisation needs to be replaced by other methods that enable students to acquire knowledge, skills and attitudes that are applicable and relevant to them in the new digital working environment. The development of digital competencies in media and communication studies students is essential to the success of the educational process, as it will help them to progress in academic, personal and professional environments. An example is the Faculty of Mass Media Communication of the University of Ss. Cyril and

Methodius in Trnava, whose students work in the university's media – Atteliér magazine, Radio Aetter and FMK TV. Since the newsrooms of these media operate on the same principle as “real” newsrooms, students of the faculty acquire not only the necessary digital competencies, but also all the skills needed to work in the media.

## 2 Methodology

The aim of this study is to explore the level of digital competence of students who work in university media (Atteliér magazine, Radio Aetter and FMK TV), compared to those who study at the faculty but are not part of its media. The research sample consists of full-time students of the Faculty of Mass Media Communication at the University of Ss. Cyril and Methodius, study programme Mass Media Communication. I measured the level of digital competence of 70 students, and this number is based on the total number of students who work in the university media (35), which we complemented with an equal number of students who do not work in any media (more precisely, do not participate in the university or other media outside the university), while studying in the same year.

My research is based on quantitative analysis. It was chosen because such research can tell us about large units and provide generalisable findings that represent the whole population (Sedláková, 2014) or, as in our case, a specific group. The research is based on the DigComp framework, as several experts emphasise that DigComp provides a common language and terminology for talking about and designing new digital competence projects in all kinds of areas. The framework has introduced a generic, some call it “soft” or “cross-cutting” definition of digital competence that is complementary and compatible with other more specific, sectoral or “hard” definitions (Kluzer & Priego, 2018).

The core research tool is a competency model called *The Digital Competence Wheel* (n.d.). This model was developed by The Center of Digital Dannelsen, which has been working on digitalisation and digital learning since 2009. Its purpose is to identify an individual's level of digital competence (Hensler et al., 2021). It was originally created to enable Danish residents, employees and students to better assess their own level of digital competence and their advantages and disadvantages in this regard. DigComp served as the theoretical inspiration for the creation of this online tool. The starting point for the development of *The Digital Competence Wheel* consisted of 300 different aspects of digital competence originally taken from the DigComp framework. The team working on its development included 54 aspects of digital competence that can be measured in the final version of the tool (Kluzer & Priego, 2018). Essentially, it is a polar diagram that visually represents the strength of digital competence, with each element examined being represented from 0% to 100%. The higher the score, the stronger the mastery of that competency. The Digital Competence Wheel is made up of 63 scale-type questions, using a Likert scale for scoring. This scaling is based on the division of granular levels specified in DigComp 2.1. Respondents indicate their level: (I have mastered the competence) 1 – to a very small degree, 2 – to a small degree, 3 – to a lesser extent, 4 – partially, 5 – to some extent, 6 – to a large extent, 7 – to a very large extent.

Based on the responses, the research tool then assesses the overall level of digital competence of the students surveyed, as well as the level of each competence area and the level of each competency:

- Level 1 (Foundation) – 0-37%;
- Level 2 (Foundation) – 38-51%;
- Level 3 (Intermediate) – 52-59%;
- Level 4 (Intermediate) – 60-68%;
- Level 5 (Advanced) – 69-76%;
- Level 6 (Advanced) – 77-82%;



- Level 7 (Highly specialised) – 83-90%;
- Level 8 (Highly specialised) – 91-100%.

Acknowledging the aim and purpose of the study, the author seeks answers to the following research questions:

RQ<sub>1</sub>: What is the level of digital competence of students working in university media?

RQ<sub>2</sub>: Which areas of digital competence are most and least developed in students working in university media?

RQ<sub>3</sub>: What is the most and least developed digital competency of students working in university media?

RQ<sub>4</sub>: What is the level of digital competence of students who are not part of university media or working in other media?

RQ<sub>5</sub>: Which areas of digital competence are most and least developed in students not working in university media?

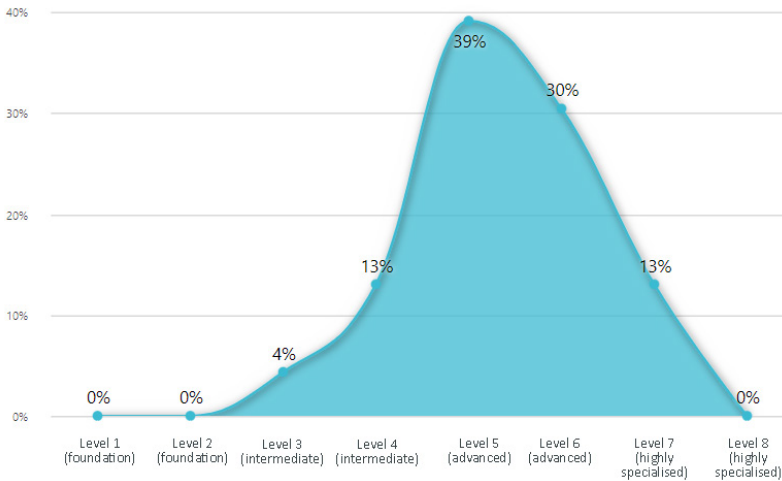
RQ<sub>6</sub>: What is the most and least developed digital competency of students not working in university media?

### 3 Results

The research was carried out in March and April 2024. 70 students were involved, 35 working in university media and 35 not working in any media. Regarding the distribution across years: 12 students are from the 1<sup>st</sup> year of a Bachelor's degree, 22 students are from the 2<sup>nd</sup> year of a Bachelor's degree, 16 students are from the 3<sup>rd</sup> year of a Bachelor's degree, 18 students are from the 1<sup>st</sup> year of a Master's degree and 2 students are from the 2<sup>nd</sup> year of a Master's degree. The individual numbers are based on the distribution of students who work in university media (6, 11, 8, 9, and 1) and were then matched with an equal number of students from each year who do not work in media.

#### 3.1 Students Working in University Media

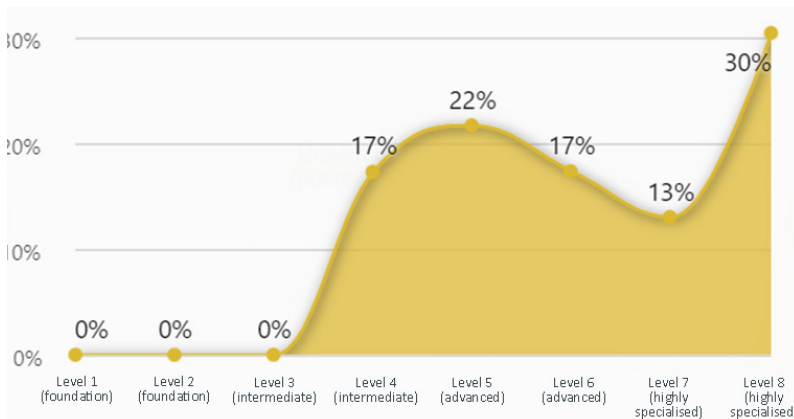
The total score of digital competence of the students working in the university media at FMK UCM is **75%**, which corresponds to a granular level of **5** and an overall level of **advanced**. This means that these students are able to perform many different tasks and guide others in doing the same. They can also solve most problems on their own. In terms of individual students' scores at each level (Figure 1), the total score of the majority (39%) corresponds to this result, but there were students who scored above average – 30% at level 6, 13% at level 7; as well as below average – 13% at level 4, 4% at level 3. At the same time, we can see that none of the students working in media have digital competence at levels 1 and 2, i.e. foundation, although none of them have reached the highest possible level, i.e. 8.



**FIGURE 1:** Total score of digital competence of students working in university media – by levels

Source: own processing, 2024

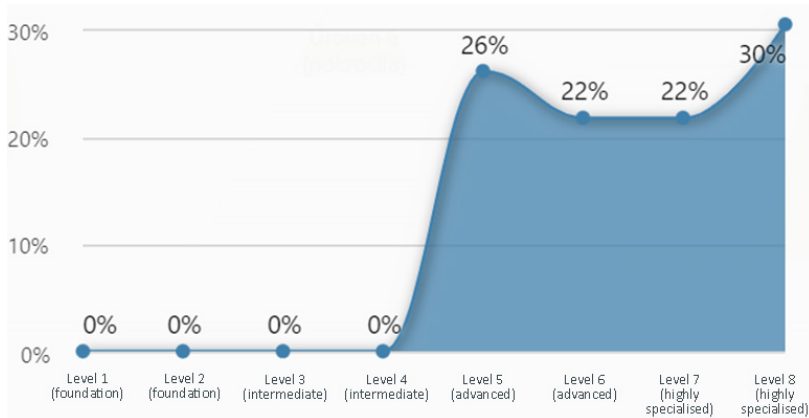
Regarding the individual areas of competence, I have to say that these students have them at a relatively high level, while e.g. the Communication and collaboration area is 9 percentage points above this result. In the area of Information and data literacy, they scored 81%, which corresponds to a granular level of 6 and an overall level of advanced. As can be seen in Figure 2, most students have competence in this area at level 8 (30%), which is probably due to the fact that they are constantly searching for and processing information, whether in written, audio or audiovisual form.



**FIGURE 2:** Digital competence of students working in university media in area information and data literacy by levels

Source: own processing, 2024

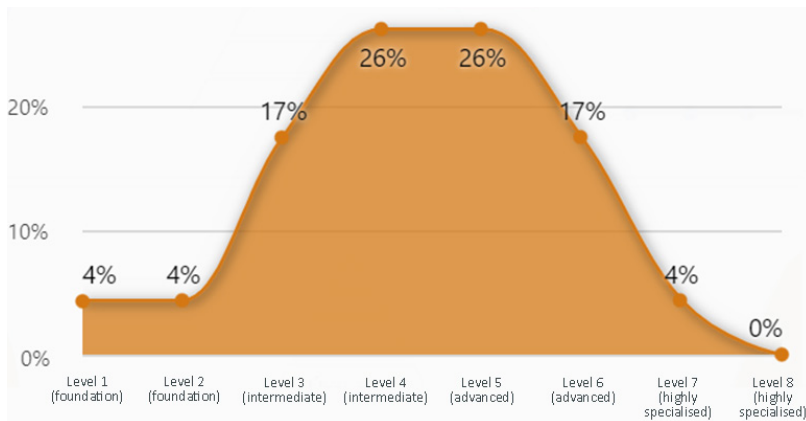
In the area of Communication and collaboration they scored 84%, which corresponds to a granular level of 7 and an overall level of highly specialised. The levels achieved by individuals show a more or less balanced distribution in the higher levels: 26% of students have this area at level 5, a consistent 22% each at levels 6 and 7, and the majority, 30%, have achieved level 8.



**FIGURE 3:** Digital competence of students working in university media in area communication and collaboration by levels

Source: own processing, 2024

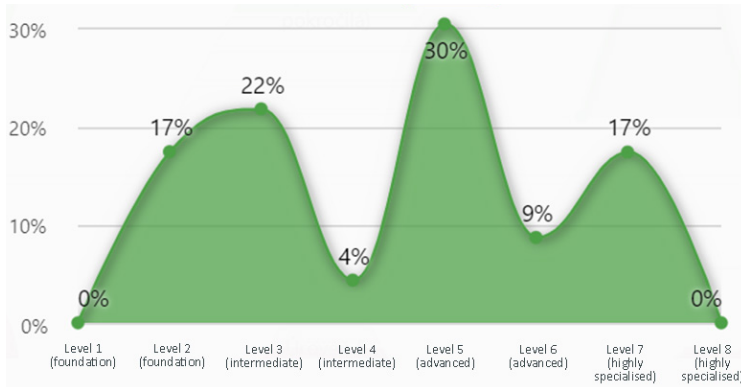
In the area of Communication and collaboration they scored 67%, which corresponds to a granular level of 4 and an overall level of intermediate. The results for individual students show that the “middle” levels dominate and this gradually decreases towards the edges.



**FIGURE 4:** Digital competence of students working in university media in area digital content creation by levels

Source: own processing, 2024

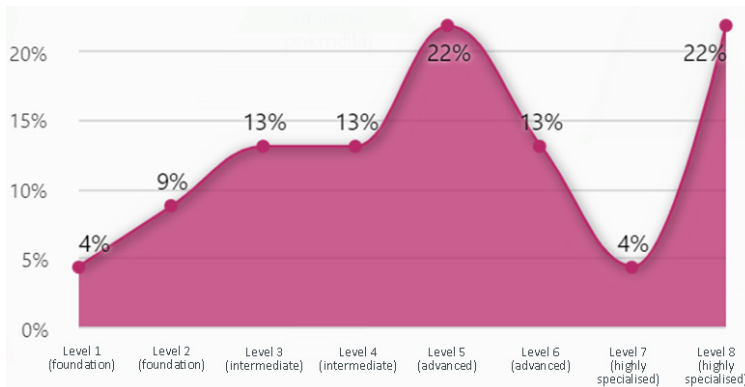
For Safety, the students scored 68%, which corresponds to a granular level of 4 and an overall level of intermediate. Note that this result is only one percentage point away from level 5, the final level of total score. As far as the individual results are concerned, we can see a sinusoidal character of the levels achieved. Most of the students surveyed (30%) are at level 5, 17% are at levels 2 and 7, 9% are at level 6 and 4% have reached level 4.



**FIGURE 5:** Digital competence of students working in university media in area safety by levels

Source: own processing, 2024

Lastly, in the area of Problem solving, students scored 72%, which corresponds to a granular level of 5 and an overall level of advanced, as well as the total score of this group of students. In this area, students are represented at every level (see Figure 6).

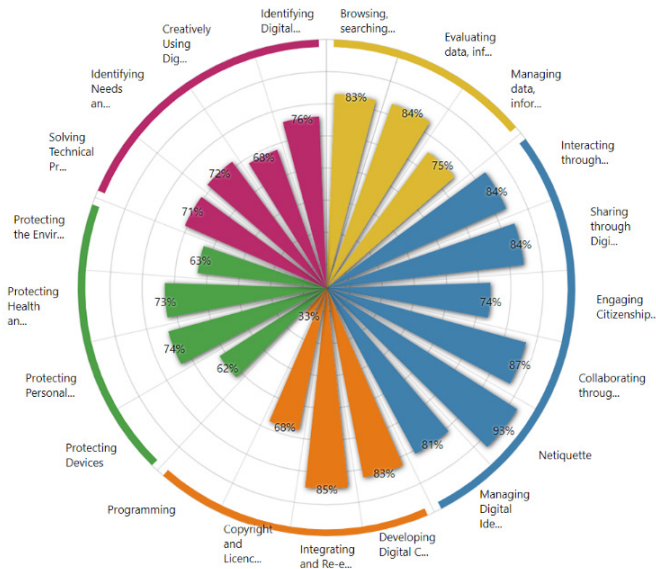


**FIGURE 6:** Digital competence of students working in university media in area problem solving by levels

Source: own processing, 2024

In terms of each competency, students working in university media are most competent in Netiquette, followed by Collaborating through digital technologies and Integrating and re-elaborating digital content (Figure 7). In Netiquette they scored 93%, which corresponds to a granular level of 8 and an overall level of highly specialised. Interestingly, 61% of the 35 students surveyed scored a level 8, 35% a level 7 and only 4% scored a level 5. None of the students were rated at any other level. In Collaborating through digital technologies they scored 87%, which corresponds to a granular level of 7 and an overall level of highly specialised. In the assessment of this competency, most students are ranked at level 8 (52%), 17% each at levels 4 and 7, 9% of students are ranked at level 5 and 4% are at level 6. It should be noted that both competencies – Netiquette and Collaborating through digital technologies – belong to the area of Communication and collaboration, which is also the area in which these students have the most developed or highest scores. The third highest rated competency is Integrating and re-elaborating digital content, in which they scored 85%, corresponding to a granular level of 7 and an overall level of highly specialised. Also in this case the range of individual assessments is wider, as 43% of students have level 8, 30% level 7, 9% have reached level 5, 13% level 4 and 4% is at level 3. We find it (almost) paradoxical that this competency was ranked third, given that it falls within the area of Digital content creation, which is the lowest

ranked of all. On the other hand, this may be related to the fact that in each medium, students edit and integrate new information and content into existing ones to a high degree, thus creating new and relevant content.



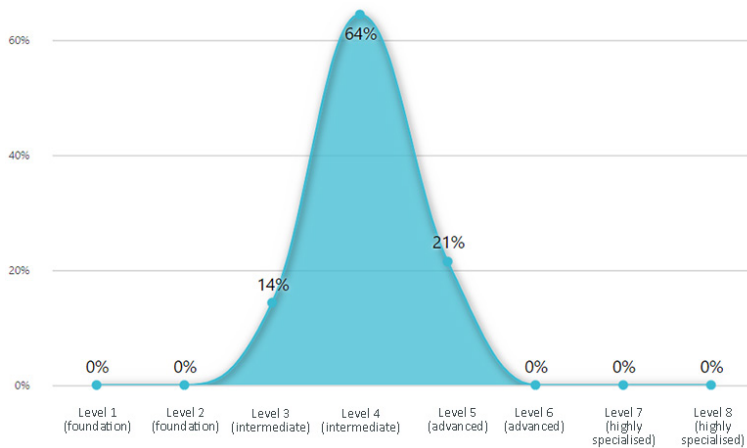
**FIGURE 7:** Digital competence level of students working in university media – by competencies

Source: own processing, 2024

On the other hand, the weakest ratings were obtained in Programming, followed by Protecting devices and Protecting the environment (Figure 7). In Programming they scored 33%, which corresponds to a granular level of 1 and an overall level of foundation. 52% of student scored at level 1, 35% at level 2 and a matching 4% of students reached levels 4, 5 a 7. The second lowest scoring competency is Protecting devices, in which surveyed students score 62%, which corresponds to a granular level of 4 and an overall level of intermediate. In general, a score of 62% is not low, but 60% of students score in the bottom range (17% – level 1, 13% – level 2, 4% – level 3, 26% – level 4), which may create a risk in safeguarding devices from threats and unauthorized access. Protecting the environment is the next lowest competency by one percentage point. Students scored 63% in it, which corresponds to a granular level of 4 and an overall level of intermediate. Within this competency, the scores are almost the same for all levels at 9%, with the exception of level 2, where 30% of the students scored, and levels 5 and 6, where 13% of the students scored. Based on these results, it can be concluded that students are generally aware of the environmental impact of digital technologies and their use, but are less likely to adopt practices that would mitigate this impact.

### 3.2 Students Not Working in (University) Media

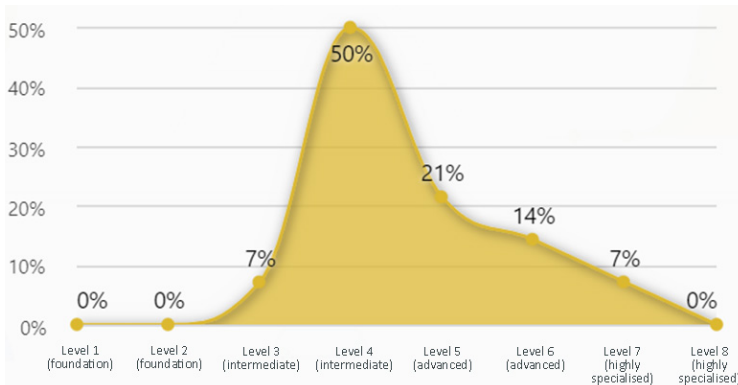
The total score of digital competences of the students not working in the (university) media at FMK UCM is **65%**, which corresponds to a granular level of **4** and an overall level of **intermediate**. This means that these students are able to perform well-defined tasks independently and they can solve non-routine problems on their own. When looking at the individual results you may notice that the majority of this group of students also has an individual result of total score at level 4, and the remaining scored one level lower or higher (see Figure 8).



**FIGURE 8:** Total score of digital competence of students not working in (university) media – by levels

Source: own processing, 2024

With regard to the levels achieved in the individual areas, it should be noted that these results are also either in line with the total score or just above or below average. In the area of Information and data literacy, they scored 69%, which corresponds to a granular level of 5 and an overall level of advanced. It is worth noting that a score of 69% is the lower limit of this level, which means that the final score is quite close to the total score. In terms of individual performance, half of the students surveyed recorded level 4, which corresponds to the total score of this group of students, but most of the remaining half scored above average in this area (see Figure 9). Only 7% scored below average, but only by one level.

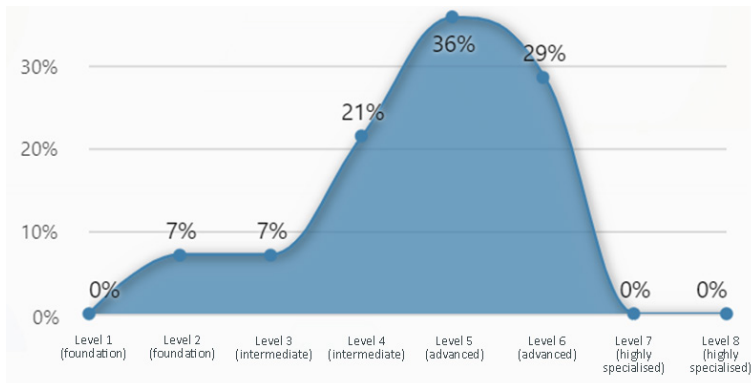


**FIGURE 9:** Digital competence of students not working in (university) media in area information and data literacy by levels

Source: own processing, 2024

In the Communication and collaboration area, students scored the same as in the previous area – 69% (granular level 5, overall level advanced). Looking at Figure 10, we can see that the range of individual scores is between levels 2 and 6, with most students scoring at level 5, followed by level 6, 21% at level 4, and levels 2 and 3 at 7% each. As the largest representation of individuals is at levels 4 to 6, I am leaning towards the view that the total score in this area is more towards level 5 and the corresponding skills.

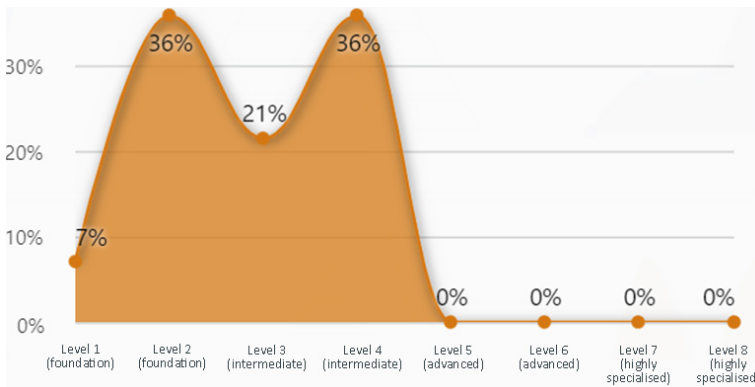




**FIGURE 10:** Digital competence of students not working in (university) media in area communication and collaboration by levels

Source: own processing, 2024

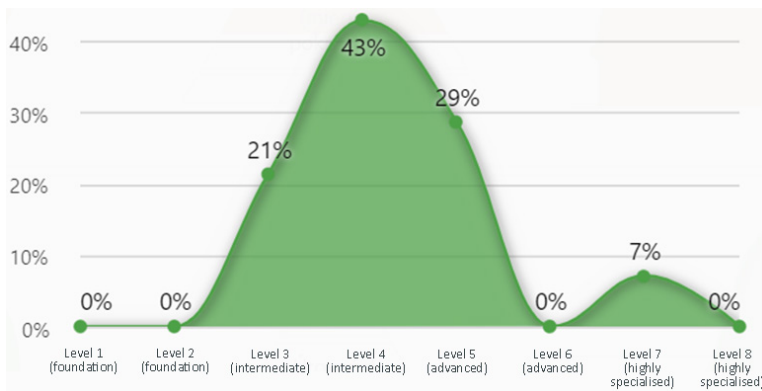
For Digital content creation, the students scored 53%, which corresponds to a granular level of 3 and an overall level of intermediate. The scores achieved by individuals also show a relatively low mastery of digital competence within this area, being at the lower end of the range of levels.



**FIGURE 11:** Digital competence of students not working in (university) media in area digital content creation by levels

Source: own processing, 2024

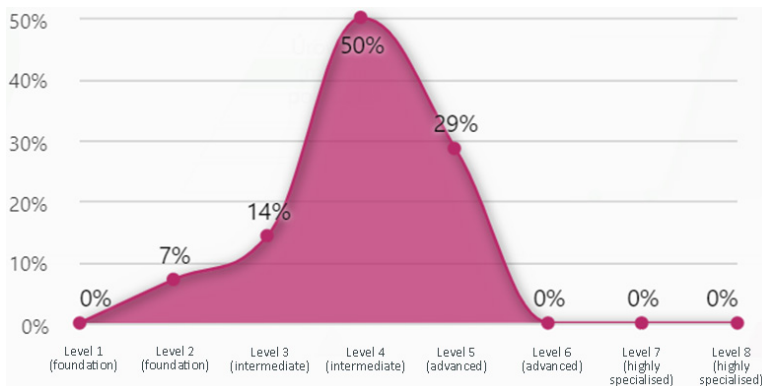
In the Safety area, the students scored 66%. Interestingly, while in the previous areas there were quite large differences in scores between groups of students (between 12 and 15 percentage points), but in this area the difference is only 2 percentage points. Thus, both groups are at a granular level of 4 and an overall level of intermediate. Looking at the results for individuals, we see a strong concentration of results in the middle part of the scale (see Figure 12), which is also in line with the average for this area. The exception is the 7% of students who score at level 7, which is considerably higher than the group average.



**FIGURE 12:** Digital competence of students not working in (university) media in area safety by levels

Source: own processing, 2024

Finally, in the Problem solving area this group scored 65%, which is only one percentage point lower than the previous area. This result corresponds to a granular level of 4 and an overall level of intermediate. Contrary to the previous group, where students were represented at all levels, in this case we can see a dominance of results at the middle bottom of the scale, with half of the students having competencies at level 4, which corresponds to the average for the whole area. This is followed by level 5, which 29% of the students have, 14% have level 3 and 17% have level 2.

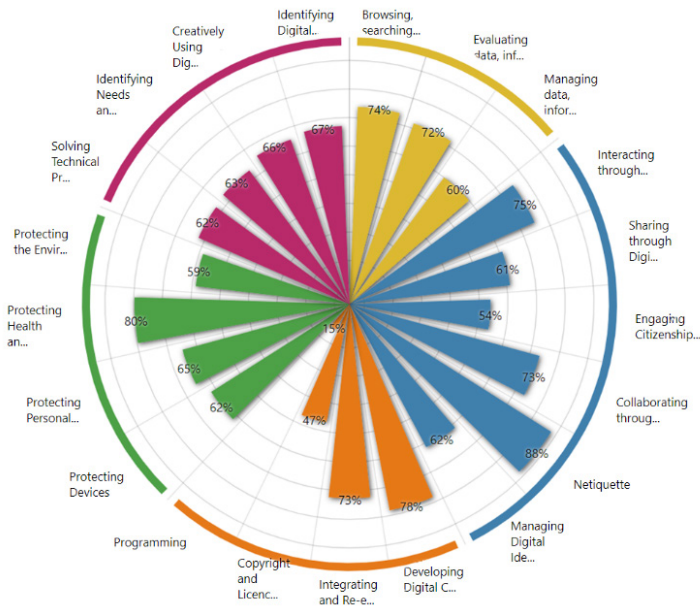


**FIGURE 13:** Digital competence of students not working in (university) media in area problem solving by levels

Source: own processing, 2024

In terms of each competency, students not working in media (at university or otherwise) are most competent in Netiquette, followed by Protecting health and well-being and Developing digital content (Figure 14). In Netiquette they scored 88%, which corresponds to a granular level of 7 and an overall level of highly specialised. It should be added that this score is well above the total score, with individual respondents scoring at levels 5 to 8 (14% at levels 5 and 6, 29% at level 7, 43% at level 8), i.e. all above average. The second highest rated competency is Protecting health and well-being, in which they scored 80% (granular level 6, overall level advanced). This is a relatively high score compared to the overall score in this area (66%), as well as the scores for the remaining competencies in this area (see Figure 14). On the basis of these data and the individual scores (36% at level 7, 21% at level 4, 14% at levels 5, 6 and 8), this group of students has a high level of awareness of how to avoid and protect themselves from risks to their health and physical and psychological well-being when using digital technologies. In Developing digital content the surveyed students scored 78% (granular level 6, overall level

advanced). Similarly to the previous group of students, the competency from the lowest ranked area – Digital content creation (53%) – made it into the top three, with most of the group (36%) having it as high as level 7. This is something we can only guess at, but I think it is due to the fact that young people nowadays are creating content on social media (Tiktok, Instagram, etc.) which may explain why this competence is at such a high level.



**FIGURE 14:** Digital competence level of students not working in (university) media – by competencies

Source: own processing, 2024

Programming is again the lowest ranked competency, followed by Copyright and licences and Engaging citizenship through digital technologies. In Programming, the surveyed students scored 15%, which corresponds to a granular level of 1 and an overall level of foundation, with up to 71% scoring this competency at level 1. In second place is Copyright and licences, where students scored 47% (granular level 2, overall level foundation). Here we can see a major difference between students who work in the media and those who do not, as the first group has this competence at an average level (68%, granular level 4, overall level intermediate), while students who do not work in the media have it at a low level (47%). This result confirms the fact that, as a result of theoretical education, students can identify simple rules of copyright and licences, but also that students working in the media can apply them. The next lowest rated competency is Engaging citizenship through digital technologies, where they scored 54%, which corresponds to a granular level of 3 and an overall level of intermediate. When we compare this with the result of the previous group (74%), we can see that working in the media also has an impact on such an atypical digital competency linked to participation in society and strengthening participatory citizenship. Part of this may also be influenced by the actual production of media content, because in order to fill airtime/produce articles, they need to be connected to society (especially when we are talking about a university environment).

## 4 Discussion

The need to use information and media sources competently is fundamental for future media professionals. As a result of globalisation, we are inundated with information on a daily basis, and media professionals need to be able to process this amount of data critically, objectively, ethically, and most importantly, quickly. To do this, they need to acquire a set of digital skills, as it is digital technology and internet tools that enable journalists to gather information, communicate with audiences and publish their work quickly and efficiently. However, several studies show (see, e.g., Matić & Perković, 2021; ICFJ, 2017b, 2019) that newsrooms have several gaps in digital competence, while training within newsrooms is, according to journalists, slow, sporadic and disorganised. And although journalists and their newsrooms are constantly striving to empower themselves in a changing global (news) environment, while working on improving their digital skills and adapting to new professional roles, it would be preferable for them to already have mastered given digital competencies when they join the newsroom – in other words, to have acquired them during their education in the field. It is important to note, however, that this learning should not only be theoretical but also practical. Research by Hart Research Associates (2015, in Bauman & Lucy, 2019) has shown that there is a significant gap between university students' perceptions of their work readiness and employers' assessments of recent graduates: 59% of graduates believe they can apply their knowledge and skills in a real-life situation, while only 23% of employers agree with this self-assessment.

The Faculty of Mass Media Communication at Ss. Cyril and Methodius University offers its students the opportunity to work in the university media alongside their studies. This concept of learning-by-doing (see, e.g., Vrabec & Bôtošová, 2020) allows students not only to increase their digital knowledge, skills and abilities, but also to learn what it is like to work in real media. Therefore, the aim of this study was to examine the level of digital competence of students who work in university media, compared to those who study at the faculty but do not work in its (or any other) media. It also focused on identifying the level of each of the digital competence areas of the DigComp framework that future media workers should develop. Acknowledging the aim and purpose of the study, the author has posed a set of research questions, the answers to which will fulfil the main aim of the study.

**RQ<sub>1</sub>: What is the level of digital competence of students working in university media?**

**RQ<sub>4</sub>: What is the level of digital competence of students who are not part of university media or working in other media?**

The total score in digital competence of the students working in the university media is 75%, which corresponds to a granular level of 5 and an overall level of advanced. This means that these students are able to perform **many different tasks** and **guide others in doing the same** and they can also **solve most problems on their own**. On the other hand, the total score in digital competence of the students not working in the (university) media is 65%, which corresponds to a granular level of 4 and an overall level of intermediate. This means that these students are able to perform **well-defined tasks independently** and they can **solve non-routine problems on their own**.

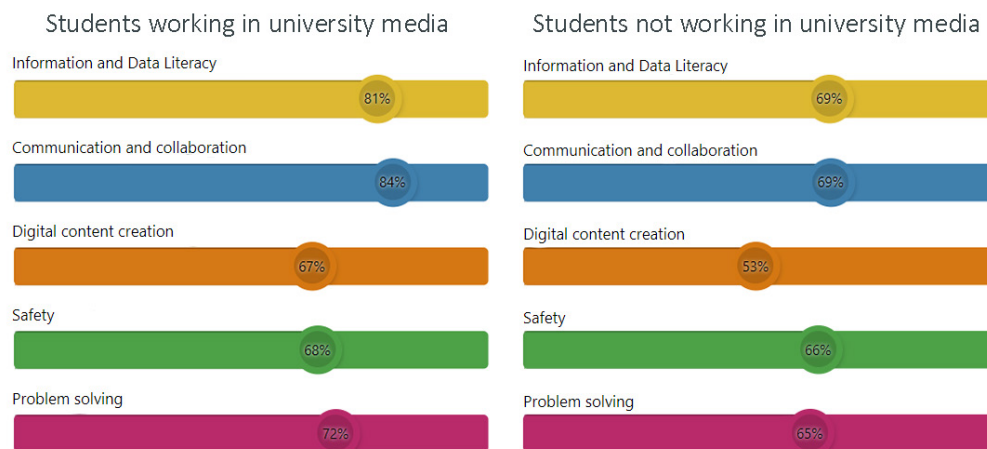
According to Khan and Vuopala (2019) the average total digital competence score of Gen Z is 64%, which means that FMK UCM students who do not work in media correspond to the standard level of digital competence for their generation. On the other hand, students who work in the media at the university have a significantly higher total score (by 11 percentage points), which means that the combination of theoretical education and practice has a positive effect on increasing the level of digital competence.

**RQ<sub>2</sub>: Which areas of digital competence are most and least developed in students working in university media?**

**RQ<sub>5</sub>: Which areas of digital competence are most and least developed in students not working in university media?**

LivePerson research has shown that the majority of interactions between 18-34 year olds are moving from “real life” to the “digital world”, with 65% interacting more digitally than in person (LivePerson Team, 2021). By 2023, according to Webex research, this figure has risen to 70% (Chat Marketing, 2023). The rise of digital communication was confirmed in my research, with Communication and collaboration being the highest ranked area in both groups. At the same time, in Khan and Vuopala’s (2019) research, this area was also the highest ranked area for Generation Z, with an average score of 74% (granular level 5, overall level advanced). In terms of levels, students who do not work in (university) media also match the average for Generation Z in this case, with a score of 69% (granular level 5, overall level advanced). On the other hand, this is the lower limit of this level, which may be due to the fact that they have a low level of competence in Engaging citizenship through digital technologies (see Figure 16). As for students working in university media, their level in this area is 84% (granular level 7, overall level highly specialised), which reflects the high need and use of competences such as interaction, communication and collaboration through digital technologies, as well as participation in society and citizenship in the newsrooms.

Students not working in (university) media also had the highest score for Information and data literacy at 69% (granular level 5, overall level advanced). The author expected this result to be higher, as students are constantly searching for and processing information as part of their education and daily lives. However, even in this case, the result is in line with the average score of Generation Z (73%, granular level 5, overall level advanced) (Khan & Vuopala, 2019). Students working in university media scored 81% (granular level 6, overall level advanced) in this area, reaffirming the positive impact of working in media on increasing digital competence.



**FIGURE 15:** Level of digital competence areas of surveyed students – by groups

Source: own processing, 2024

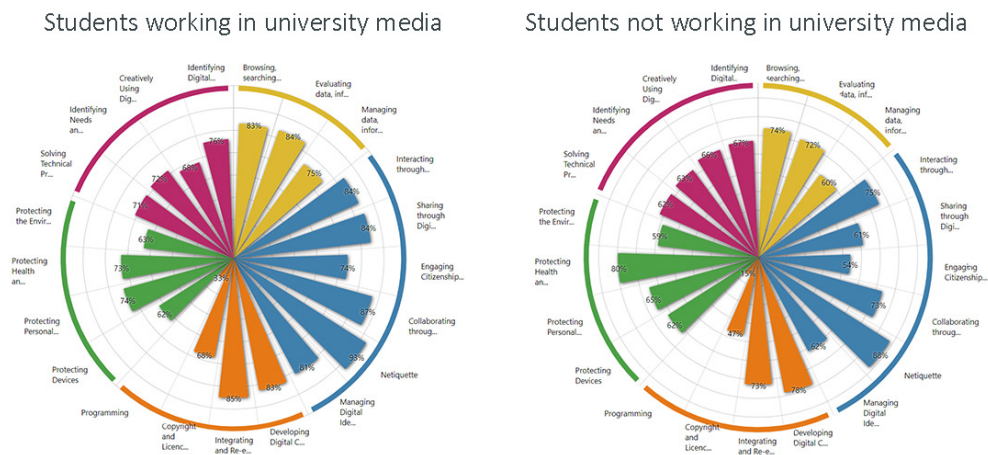
The area with the lowest score for both groups of students is Digital content creation: 67% (granular level 4, overall level intermediate) students working in university media and 53% (granular level 3, overall level intermediate) students not working in (university) media. I have to say that this result is unexpected, as 1.3 billion people from Generation Z worldwide use social media (Yaqub M., 2023) and most of them also create digital content, but the achieved level of both groups is quite low. On the other hand, Khan and Vuopala’s (2019) study recorded

a level of 59% for Generation Z in this area, which means that students who do not work in (university) media remain at the average and students who work in university media are again above the average of Generation Z in this case.

**RQ<sub>3</sub>: What is the most and least developed digital competency of students working in university media?**

**RQ<sub>6</sub>: What is the most and least developed digital competency of students not working in university media?**

The highest scoring competency for both groups is Netiquette, with students working in university media scoring 93% (granular level 8, overall level highly specialised) and students not working in (university) media scoring 88% (granular level 7, overall level highly specialised). This indicates that both groups of students are aware of the norms of behaviour and know-how when using digital technologies and interacting in digital environments, and are able to adapt their communication strategies to specific audiences. It also means that these students can create solutions to complex problems with limited definition (88%)/problems with many interacting factors (93%) which are related to digital etiquette that respects different audiences and cultural and generational diversity.



**FIGURE 16:** Level of digital competencies of surveyed students – by groups

Source: own processing, 2024

As for the lowest ranked competency, it is the same for both groups: Programming, with 33% (granular level 1, overall level foundation) of students working in university media and 15% (granular level 1, overall level foundation) of students not working in (university) media. Experts agree that Programming is the most controversial competency. They ask the question: Why should a person know how to programme? Černý (2019) explains that it is the development of algorithmic and computational thinking, i.e. the ability to identify a problem, break it down into smaller discrete parts and design a procedure to process these smaller parts. As an example, he refers to the profession of a data journalist, who needs to work with data in an automated way. At the same time, he points out that it is necessary to distinguish between programming and coding. While coding, i.e. writing a specific code using a specific programming language, is not universally needed by a media worker, knowledge of thought structures (i.e. programming) is stable and unchanging.



## 5 Conclusion

The aim of this study was to investigate whether working in university media, in addition to theoretical media studies, has an impact on the level of digital competence of future media professionals. The results show that these students achieve higher total scores in digital competence than their classmates who do not work in (university) media. This difference highlights the benefits of practice-based learning, where students can apply their theoretical knowledge in real-world contexts, thereby enhancing their overall digital skills.

The research also showed that as well as having higher overall digital competence, students working in university media also have more specific skills. Areas such as Communication and collaboration and Information and data literacy were significantly more developed in these students, suggesting that working in the media while studying media contributes to a deeper understanding and mastery of the digital competencies that fall under these areas.

For this reason, educational institutions should adopt a new approach to educating future media professionals. The traditional model based on knowledge transfer and memorisation needs to be replaced by other methodologies that enable students to acquire knowledge, skills and attitudes that are applicable and relevant to them in the new digital working environment. The development of digital competence in media and communication students is essential to the success of the educational process, as it will help them to progress in academic, personal and professional environments.

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# Navigating the Digital Landscape: Impact of Instagram Influencers' Credibility on Consumer Behaviour Among Gen Z and Millennials

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## ABSTRACT

Amidst the online advertising revolution, Instagram influencers have risen to power, exercising remarkable authority in shaping consumer behaviour in the digital media landscape. This article aims to provide an impact of Instagram influencers' credibility on three different forms of consumer behaviour i.e., purchase intention, purchase decision process, and impulse buying. The investigation extends to evaluate the comparison of Generation Z and Millennials in terms of their perceived Instagram influencers' credibility and consumer behaviour. Furthermore, it seeks to develop an understanding of the role of homophily as a mediator between influencers' credibility and consumer behaviour. In this study, authors use the Model of Credibility proposed by Ohanian (1990) and the Purchase Decision Process suggested by John Dewey (1910) to gain deeper insights on how digital media is redefining the buying patterns of consumers. For this purpose, the authors employ survey analysis and collect the data from 350 Instagram users through purposive sampling across Pakistan. The finding of this study suggests that Instagram influencers' credibility has significant positive impact on the consumer behaviour of Gen Z and Millennials. Gen Z is more likely to perceive Instagram influencers as credible and possesses stronger desire to shop or make impulsive buying decisions than Millennials. Moreover, the results elucidate that homophily partially mediates between Instagram influencers' credibility and consumer behaviour. Furthermore, this study reveals that socioeconomic status and qualification level of the Millennials and Gen Z play a significant role to shape their consumer behaviour and perceived influencers' credibility. This study contributes to the existing body of knowledge by shedding light on the changing dynamics of digital advertising within the context of online influencers.

## KEY WORDS

Consumer Behavior. Gen Z. Homophily. Instagram. Influencers' Credibility. Millennials.



# 1 Introduction

Advertising dynamics have changed dramatically over the last few years, and businesses have adopted social media as a bridge to get connected to their target audience in a better way. Among digital advertising strategies, influencer endorsement is one of the most effective, relatively new, and fastest growing techniques. In this, companies of all sizes, from big brands to small start-ups, use influencers on social media to produce positive electronic word of mouth (e-WOM) and thus advertise their products. There are a lot of different online platforms that could be used to practice digital advertising. Instagram is one of such platforms, which is considered as a famous and credible social media platform on which to follow influencers. In the current era, it is nearly impossible to scroll through an Instagram feed without encountering influencer marketing. These Instagram influencers are new age celebrities that promote different products, services, and goods using their accounts to reach potential buyers. People follow them to keep an eye on different trends based on their interests.

Gen Z and Millennials have grown up in the digital age. Their frequent interaction with online influencers qualifies them as a key subject to analyze the evolving dynamics of digital advertising. Millennial generation refers to those people who are born between the year 1981 and 1996, which means they range from age 23 to 38 years old (Dimock, 2019). It has been observed that this generation is highly educated and ambitious, with strong self-realization (Suleman & Nelson, 2011). Moreover, they are highly able to adapt to technology and advancements (Bencsik et al., 2016). On the other hand, generation Z involves people that were born between 1997 to 2012. It means they fall in the age group of 7-22 years old (Dimock, 2019). These people were born in the age of social media and technology while the other generations had to adapt to it over time (Merriman, 2015).

According to Forbes (2016), the increasing trend of influencer endorsement has caused a question regarding their credibility. To address those questions, an insight analysis of Instagram influencers' credibility and consumer behaviour is needed. Therefore, in this study, the researchers attempt to empirically analyze the impact of influencers' credibility on the purchase intention, purchase decision process and impulse buying of online consumers that belongs to Generation Z and Millennials. It also aims to address the mediating role of homophily between source credibility and consumer behaviour. Furthermore, it seeks to develop a close understanding of the differences that Gen Z and Millennials show in terms of their consumer behaviour and perceived Instagram influencers' credibility.

## 1.1 Digital Media and Advertising

Widespread use of social media has changed the dynamics of advertising and provided marketers a chance to transform their advertising plans and go with emerging trends. Therefore, businesses started to contact online influencers to promote their products, services, and ideas to their target audiences (Breves et al., 2019; Lou et al., 2019). According to Lou and Yuan (2019), a social media influencer is a person that develops ideas, executes them, possesses expertise in their area of interest, has earned a good number of followers, holds marketing value for businesses and regularly creates content for their audience.

Similarly, digital media influencers have the power and determination to manipulate, inform, and persuade the behaviour, beliefs, and attitude of their followers (Dhanesh & Duthler, 2019). Furthermore, they have been seen as a trustworthy entity to create the mindset of public for a certain idea or product (De Veirman et al., 2017). Since influencers are well-connected to their audience, therefore, in Ledbetter & Redd's (2016) point of view, brands are increasingly relying on them by employing them as a communication tool to promote their business and earn brand recognition. Also, to gain the trust of their followers, online influencers share their

daily routine, random happenings, and adventures with them and then utilize that trust to promote articles of different brands through paid content. So, basically the existence of direct and strong bonds between influencers and their followers is key for the brands to reach their target audience. De Veirman et al. (2017) observed that instead of having a talent in a specific area, it is essential for influencers to target high reach by gaining maximum followers in order to achieve success in their field.

## **1.2 Instagram Influencers' Credibility**

Instagram has a significant impact on the daily life of its users because it has over a billion monthly active users and high-level audience engagement in contrast to the other social networking sites (Wise, 2022). Due to the extensive reach of the audience, there is an emerging trend among marketers to employ Instagram for advertising purposes. Moreover, Instagram provides a good opportunity to different brands, companies, or even small businesses to promote their services, ideas, or products in a very attractive and engaging manner through stories, photos, or videos.

Rebello (2017) analysed the perception of 18 years or older Portuguese individuals on the Instagram influencers' credibility, their influence on their buying intentions and the differences, in terms of consumer behaviour, between men and women. It was found that two attributes of influencers i.e., perceived attractiveness and trustworthiness play a bigger role in changing consumer purchase intentions than influencer's perceived expertise. Moreover, it was noticed that females were more impacted by perceived trustworthiness than male consumers.

Similarly, Lee (2019) tried to review how the perceived credibility of sponsored review-based content regarding skincare articles is affected by review length, source expertise, use of promotional words and objective details on the products. The outcomes of the study showed that subject opinions based on the experience of an influencer increase the perceived credibility of the content at a higher rate than objective comments over the features of the article. If we consider the details being shared in any review, then lengthy sponsored review-based content has a positive significant impact on the perceived credibility. Moreover, a negative influence has been witnessed of promotional words on the post reliability. Lastly, the reliability of sponsored review content shared by an influencer with more perceived expertise would be high and vice versa.

## **1.3 Consumer Behaviour**

Nawal (2022) defined consumer behaviour as the analysis of "how consumers make decisions about what they need, want, and desire and how do they buy, use, and dispose of goods" (2022, "What Is Consumer Behaviour?" section, para. 2). To simplify that concept further, consumer behaviour points out what exactly stimulates customers to go for any purchase (DJ Team, 2020).

Kim and Ko explained purchase intention (PI) as the "combination of consumers' interest and the chance of purchasing a product" (2012, p. 1481). It has been noticed that now people mostly consult and rely on social media to explore the features of any product and the reviews of different influencers on that product, and then they make any purchase decision. The reason behind it is that online consumers have so much trust in the content being posted online, especially on Instagram (Brown et al., 2003; Horst et al., 2007; Harris, 2012; Racherla & Friske, 2012). Also, it is becoming very common practice since Instagram is loaded with content based on photos and videos related to different products (Bahtar & Muda, 2016). Therefore, purchase intention is a relevant indicator of an actual purchase and is employed to compute the behaviour of the consumers (Kim et al., 2008; Pavlou, 2003).



In the light of previous studies, there are plenty of factors that control purchase intention positively: perceived value, as a result of perceived price (Chang & Wildt, 1994) and perceived quality (Boulding & Kirmani, 1993; Dodds et al., 1991; Rao et al., 1999), customer satisfaction (LaBarbera & Mazursky, 1983; Yi, 1990), and attitude and preference toward the brand/product (Kim et al., 2010; Kim & Ko, 2010; Kim & Lee, 2009; Lloyd & Luk, 2010). Utilitarian and hedonics are also considered as important factors to direct the intention of the consumers for making a purchase based on any product, idea, or service (Arum & Sung, 2018).

Impulse buying is a phenomenon where a person makes a purchase that is unplanned or conscious in nature and is prompted by some external agents. Its major attributes include unconsciousness, unexpected, and external advertising (Zhang et al., 2018). Aragoncillo and Orus (2018) made a comparison between online and offline channels to identify which one is more likely to provoke impulse buying behaviour in terms of the fashion industry. They concluded that offline channels push people towards impulse buying slightly more than online channels. Secondly, encouraging agents such as variety, easy payment methods and availability of personalized recommendations are extremely helpful to accelerate impulse buying among consumers. Lastly, different interactive platforms also play a very important role to boost impulse buying. In this regard, Facebook and Instagram are considered as most powerful mediums.

## **1.4 Homophily**

In order to examine how video bloggers' fame and the purchase decisions of their followers become influenced by credibility, homophily and emotional attachment, Ladhari et al. (2020) conducted an empirical study in the domain of the beauty industry. Four different dimensions were discussed in this study that include attitude, value, background, and appearance. It has been witnessed that, except for expertise, all three aspects of homophily (appearance, attitude, and values) and emotional attachment have an influence on the vloggers' popularity. In addition, a significant impact on the purchase decision of consumers is related to vloggers fame.

Similarly, Mainolfi & Vergura (2021) assessed the part that fashion influencers play, in both modern and emerging markets, for the adoption of products and articles by consumers. Moreover, they evaluated how homophily, influencers' credibility and engagement impacts the intention of the consumers to buy fashion articles being recommended by the same influencers. It was seen that credibility of fashion bloggers and homophily have a significant impact on the engagement level of the post. Furthermore, high blog engagement and homophily is equal to strong purchase intention toward sponsored products and the viral good name of the blogger. However, while finding the influence of source credibility and influencer homophily on brand trust and perceived quality, Kuster (2017) suggested that source credibility and influencer homophily act as key factors in enhancing perceived quality and brand trust.

Some scholars have studied homophily in the context of customer value co-creation behaviour. For instance, Bu et al. (2022) checked the role of influencer-follower homophily to affect customer value co-creation behaviour. They kept customer value co-creation behaviour as a multi-mediator. However, homophily and customer participation behaviour were moderated by para social relationship. The outcomes of their study revealed that homophily not only positively impacts customer value co-creation behaviour but also positively correlates with purchase intention. Moreover, while analyzing the role of homophily to change the attitude of followers/consumers towards Instagram fashion influencers, Gomez Macias & Rungsaridworakarn (2018) concluded that at an interpersonal level, followers interact with fashion influencers after realising that they both share the same beliefs and values. Some of the respondents showed this desire to change their existing belief systems and align them to the influencer they like. Keeping the Homophily-Heterophily theory as a background to the study, it has been observed that both value and status homophily play an important role to alter the interaction level between influencers and their followers.

## 1.5 Objectives

The objective of this paper is:

1. To analyze the role of Instagram influencers' credibility in changing different forms of consumer behaviour.
2. To explore the differences that Generation Z and Millennials show in terms of their perceived Instagram influencers' credibility and consumer behaviour.
3. To evaluate the influence of consumers' demographic characteristics on their perceived Instagram influencers' credibility and consumer behaviour.

## 2 Theoretical Framework

The theoretical framework of this research paper is based on Ohanian's (1990) model of credibility and the Purchase Decision Process.

### 2.1 Ohanian's (1990) Model of Credibility

The credibility of an endorser is a key factor that can impact the consumer behaviour of the audience and amazingly, advertisers are so well-aware of the fact that they can maximize the persuasiveness of the message by employing highly credible sources (Desarbo & Harshman, 1985). The term *source credibility* is normally hired to highlight the traits of the sender that leave a great influence on the level of acceptance for the message on the receiver's end (Ohanian, 1990). Source credibility is based on three dimensions that include trustworthiness, expertise, and attractiveness (Ohanian, 1990).

Hovland, Janis and Kelley defined expertise as "the degree to which endorser is taken as a source of valid claims by the audience" (1953, p. 21). Communicators with high expertise are considered as if whatever information they are sharing is based on practical knowledge (Desarbo & Harshman, 1985). Therefore, it can be concluded that expertise of source has a high influence on the word of mouth of influencers. The recommendation of an endorser with great expertise is more powerful than that of an endorser with average expertise (Jamil & Rameez ul Hassan, 2014). McCracken stated the trustworthiness of the source as "the perceived willingness of the speaker to make valid assertions" (1989, p. 311). There are numerous studies that advocate and admire the significant role of trustworthiness in influencing the consumers' purchase intention and their buying attitudes. Lou and Yuan (2019) explored that how the effectiveness of influencer marketing is being influenced by consumer perceived trustworthiness. They found that perceived trustworthiness of the influencers has a positive impact on the trust of followers in brand-based content.

Considering attractiveness as one of the most important dimensions of source credibility, it has been very frequently employed by different researchers to measure the effectiveness of celebrity endorsements in terms of consumers' attitude and buying patterns (e.g., Djafarova & Rushworth, 2017; Joseph, 1982; Ohanian, 1990). It has been observed that the level of social media influencers' attractiveness in their display picture and feed posts are important factors that help users to decide whether or not to follow those profiles (Djafarova & Rushworth, 2017).

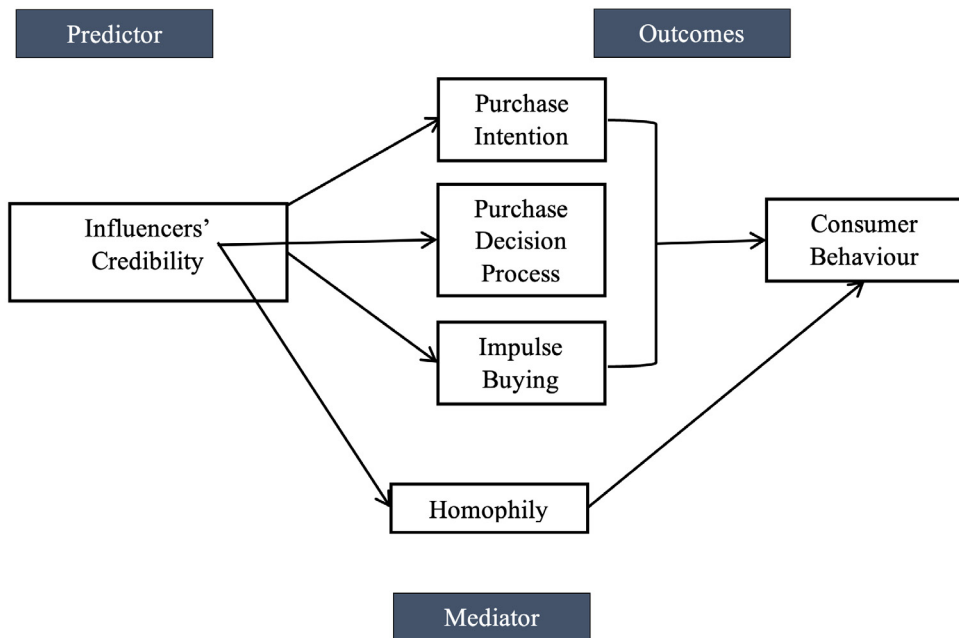
## 2.2 Purchase Decision Process

To develop a better understanding and command of the way influencers control the buying patterns of consumers in both online and offline purchases, in 1910, John Dewey first introduced five important steps that a consumer goes through while making a purchase decision. He was an American philosopher and fundamentally known as a pioneer in functional psychology (Encyclopedia Britannica Online, n.d.).

Need recognition is the first step of the purchase decision process, where consumers analyze and identify their needs and desires to determine the kind of items that would help them to achieve internal satisfaction (Park & Cho, 2012). The second step in the purchase decision process is information search. In this step, consumers utilize multiple sources to gain a detailed overview on the product specifications. Consumers enter the evaluation stage, when they successfully recognize the products and brands that would be able to satisfy their needs and desires. In this step, consumers attempt to make a comparative analysis between different features of the same products from different brands or companies such as price, warranty etc. and design their purchase decision accordingly (Park & Cho, 2012). Purchase Decision is a turning point for the consumer since they have already gathered all the necessary information. They have assessed the relevant product, analysed it from all angles and are therefore, ready to make an actual purchase decision. Before making an actual purchase, consumers have certain expectations in their mind regarding the product they intend to buy (Park & Cho, 2012). After buying that product, their experience would determine and affect their relationship with that brand in the future. For instance, if they have a great experience with a product from a particular brand, then in future they will intentionally explore more products from the same brands (Spotler, 2018).

## 2.3 Conceptual Framework

The conceptual framework designed for this research paper is explained in figure 1.



**FIGURE 1:** Model of influencers' credibility and consumer behaviour proposed for this study

Source: own processing, 2024

## 3 Methodology

In this study, the researchers have employed a quantitative method i.e., survey analysis. Since this study is aimed at demonstrating the relationship between concepts and variables, and studying different concepts quantitatively, therefore, a deductive approach has been used by the researcher. The target population of this study are Pakistani Instagram users that belongs to two categories based on their age. These categories include Generation Z and Millennials. In this study, the researcher uses a technique of non-probability sampling called purposive sampling to select potential respondents i.e., Instagram users for the purpose of data collection. In addition, the researcher has selected 350 respondents as a sample size and gathered the data from them.

In order to evaluate the influence of Instagram influencers' credibility on different forms of consumer behaviour, the researcher uses a questionnaire as a research instrument to gather the desired responses from the targeted respondents of the study. The questionnaire is designed in the light of previous literature, and Google Docs is used by Instagram users to fill it in online. At the beginning of the survey, respondents are informed about the purpose of the research and the length of the survey. They are also told that the respondent would be kept completely anonymous with guaranteed confidentiality.

### 3.1 Research Questions

RQ1: Is there a significant difference in perceived Instagram influencers' credibility and the consumer behaviour of male and female consumers?

RQ2: Does consumers' qualification level influence their perceived Instagram influencers' credibility and consumer behaviour?

RQ3: How does consumers' socio-economic status influence their perceived Instagram influencers' credibility and consumer behaviour?

RQ4: Is there any significant difference in perceived Instagram influencers' credibility and the consumer behaviour of Generation Z and Millennials?

RQ5: How does homophily play the role of mediator between Instagram influencers' credibility and consumer behaviour?

### 3.2 Research Hypotheses

To achieve the objectives, the researcher has formulated the following hypotheses:

H<sub>1</sub>: Credibility of Instagram influencers will have a significant positive impact on the purchase intention of both Generation Z and Millennials.

H<sub>2</sub>: Credibility of Instagram influencers will influence the purchase decision process of both Generation Z and Millennials in a significant positive manner.

H<sub>3</sub>: Credibility of Instagram influencers will have a significant positive impact on the impulse buying of both Generation Z and Millennials.

## 4 Results

To test each hypothesis and research question according to the objectives of the study, appropriate statistical analysis has been applied. Firstly, a description of the sample is given, followed by a reliability analysis. With that being explained, regression analysis has been discussed. Lastly, to reveal the significant differences in Generation Z and Millennials on perceived Instagram influencers' credibility and consumer behaviour, independent-sample T Tests have been used.

4.1 Reliability of the Questionnaire

The reliability of the questionnaire that the researcher obtained is given below.

Research questionnaire	
No. of items	Cronbach's alpha
31	0.76

TABLE 1: Reliability of the questionnaire

Source: own processing, 2024

4.2 Analysis of Respondents' Demographics

Measure	Items	f	Percentage
Gender	Male	147	42
	Female	203	58
Age	Generation Z	152	43.4
	Millennials	198	56.6
Qualification	Under matric	15	4.3
	Matric	16	4.6
	FA/FSc	32	9.1
	BA/BSc	128	36.6
	MA/MSc	107	30.6
	Mphil or above	52	14.9
Income status	Earning	149	42.6
	Not earning	201	57.4

TABLE 2: Demographic characteristics of the respondents (N=350)

Source: own processing, 2024

4.3 Comparison of Perceived Influencers' Credibility and Consumer Behaviour Between Male and Female Consumers

RQ1: Is there a significant difference in perceived Instagram influencers' credibility and consumer behaviour between male and female consumers?

Variables	Men		Women		t (298)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
IC	17.45	2.8	17.4	3.07	0.16	0.36	-0.57	0.68	0.01
CB	40.28	5.96	39.51	5.22	1.27	0.2	-0.41	1.95	0.13

Note: IC= influencers' credibility, CB= consumer behaviour

TABLE 3: Mean, standard deviation and t-values for men and women on influencers' credibility and consumer behaviour

Source: own processing, 2024

Table 3 showed mean differences across gender. Findings indicated non-significant mean differences in influencers' credibility with  $t(348) = 0.16, p > 0.05$ . The value of Cohen's  $d$  was .01, which indicates a small effect size. Findings indicated non-significant mean differences in consumer behaviour with  $t(348) = 1.27, p > 0.05$ . the value of Cohen's  $d$  was .13. Results showed that men ( $M = 17.45, SD = 2.80$ ) and women ( $M = 17.40, SD = 3.07$ ) exhibit almost the same scores in influencers' credibility. Results showed that men ( $M = 40.28, SD = 5.96$ ) and women ( $M = 39.51, SD = 5.22$ ) exhibited almost the same score in consumer behaviour with a slight difference.

#### 4.4 Impact of Consumers' Qualification Level on Perceived Influencers' Credibility and Consumer Behaviour

RQ2: Does consumers' qualification level influence their perceived Instagram influencers' credibility and consumer behaviour?

Qualification	Statistical Measures	Influencers' Credibility	Consumer Behaviour
Under Matric	$M$	17	41.13
	$SD$	2.69	5.47
Matric	$M$	19.06	43.18
	$SD$	1.80	6.05
FA/FSc	$M$	17.53	38.06
	$SD$	3.02	5.85
BA/BSc	$M$	16.81	39.11
	$SD$	2.97	5.60
MA/MSc	$M$	18.15	40.38
	$SD$	2.81	5.39
MPhil or above	$M$	16.98	40.19
	$SD$	3.12	4.96
	$F$	3.84	2.72
	$p$	0.002	0.02
	Post Hoc	1<2>3>4<5>6	1<2>3<4<5>6
	$\eta^2$	0.05	0.03

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**TABLE 4:** Mean, standard deviations and one-way ANOVA analysis of variance in influencers' credibility and consumer behaviour across different levels of qualifications

Source: own processing, 2024

Table 4 shows that mean, standard deviation and  $F$ -value for the different qualification categories i.e., under matric, matric, FA/FSc, BA/BSc, MA/MSc, and MPhil or above, across the variables that include influencers' credibility and consumer behaviour. Results indicate significant mean differences in influencers' credibility with  $\{F(5, 344) = 3.84, p < .05\}$  and consumer behaviour with  $\{F(5, 344) = 2.72, p < .05\}$ . The value of eta square across influencers' credibility is  $\eta^2 = .05$  that indicates a small effect size, whereas its value across consumer behaviour is  $\eta^2 = .03$  that also indicates small effect size.



## 4.5 Impact of Consumers' Socio-Economic Status on Perceived Influencers' Credibility and Consumer Behaviour

To evaluate the influence of consumers' socio-economic status on perceived influencers' credibility and consumer behaviour, the researcher has used One-way ANOVA.

RQ3: How does consumers' socio-economic status influence their perceived Instagram influencers' credibility and consumer behaviour?

Variables	Earning		Not earning		<i>t</i> (348)	<i>p</i>	95% CI		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>	
IC	18.13	2.73	16.90	3.02	3.93	0.00	0.61	1.85	0.42
CB	41.60	5.45	38.53	5.26	5.31	0.00	1.93	4.20	0.57

Note: IC= influencers' credibility, CB= consumer behaviour

**TABLE 5:** Mean, standard deviation and *t*-values for earning and not earning on influencers' credibility and consumer behaviour

Source: own processing, 2024

Table 5 shows mean differences across income status. Findings indicated significant mean differences in influencers' credibility with  $t(348) = 3.93, p < 0.05$ . The value of Cohen's *d* was 0.42 which indicates a small effect size. Findings indicated significant mean differences in consumer behaviour with  $t(348) = 5.31, p < 0.05$ . The value of Cohen's *d* was 0.57. Results showed that earning exhibited a higher score in influencers' credibility ( $M = 18.13, SD = 2.73$ ) when compared to not earning ( $M = 16.90, SD = 3.02$ ). Results showed that earning exhibited a higher score in consumer behaviour ( $M = 41.60, SD = 5.45$ ) when compared to not earning ( $M = 38.53, SD = 5.26$ ).

## 4.6 Comparison Between Generation Z and Millennials

Independent-sample T-test is employed to examine if there is any significant difference in perceived Instagram influencers' credibility and the consumer behaviour of Generation Z and Millennials.

RQ4: Is there any significant difference in perceived Instagram influencers' credibility and the consumer behaviour of Generation Z and Millennials?

Variables	Generation Z		Millennials		<i>t</i> (348)	<i>p</i>	95% CI		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>	
IC	17.79	2.94	17.14	2.95	2.06	.04	.02	1.27	0.22
CB	41.10	5.66	38.86	5.27	3.80	0.00	1.08	3.40	0.40

Note: IC= influencers' credibility, CB= consumer behaviour

**TABLE 6:** Mean, standard deviation and *t*-values for Generation Z and Millennials on influencers' credibility and consumer behaviour

Source: own processing, 2024

Table 6 shows mean differences between Generation Z and Millennials. Findings indicated significant mean differences between Generation Z and Millennials in influencers' credibility with  $t(348) = 2.06, p < 0.05$ . The value of Cohen's *d* was 0.22 which indicates a small effect size. Findings indicated significant mean differences between Generation Z and Millennials in consumer behaviour with  $t(348) = 3.80, p < 0.05$ . The value of Cohen's *d* was 0.40. Results

showed that Generation Z exhibited higher scores in influencers' credibility ( $M = 17.79$ ,  $SD = 2.94$ ) as compared to Millennials ( $M = 17.14$ ,  $SD = 2.06$ ). Similarly, Generation Z exhibited higher scores in consumer behaviour ( $M = 41.10$ ,  $SD = 5.66$ ) when compared to Millennials ( $M = 38.86$ ,  $SD = 5.27$ ).

4.7 Mediating Role of Homophily Between Influencers' Credibility and Consumer Behaviour

In order to analyze the mediating role of homophily between influencers' credibility and consumer behaviour, the researcher has applied simple mediation analysis using PROCES.

RQ5: How does homophily play the role of mediator between Instagram influencers' credibility and consumer behaviour?

Effects	B	95% CI	
		LL	UL
Total	0.75	0.57	0.93
Direct	0.51	0.34	0.68
Indirect	0.23	0.14	0.33

\*\* $p < .001$

TABLE 7: Direct and indirect effect of influencers' credibility on consumer behaviour (N = 350)

Source: own processing, 2024

Table 7 shows the total, direct, and indirect mediation effects of influencers' credibility on consumer behaviour through homophily. The  $R^2$  value of 0.09 indicates that Influencers' Credibility explained 9% variance in Homophily with  $F(1, 348) = 37.30$ ,  $p < .001$ . The  $R^2$  value of .31 indicates that influencers' credibility and homophily explained the 31% variance in consumer behaviour with  $F(2, 347) = 78.10$ ,  $p < .001$ . The  $R^2$  value of .16 indicates that the total model explains the 16% variance with  $F(1, 347) = 66.97$ ,  $p < .001$ . The indirect and direct effects confirmed the partial mediating effects of homophily between influencers' credibility and consumer behaviour.

4.8 Association Between Influencers' Credibility and Purchase Intention

Linear regression is used to investigate the association between influencers' credibility and purchase intention.

H<sub>1</sub>: Credibility of Instagram influencers will have a significant positive impact on the purchase intention of both Generation Z and Millennials.

Variable	B	$\beta$	SE	t
Constant	6.36	-	0.61	10.31
Influencers' Credibility	0.24	0.35	0.03	7.11
R2	0.12			
p-value	0.00			

TABLE 8: Regression coefficients of influencers' credibility on purchase intention

Source: own processing, 2024

Table 8 shows the impact of influencers' credibility on purchase intention. The value of beta is .35, which means that a change in the independent variable, i.e., Influencers' Credibility, by one unit, will bring about the change in the dependent variable i.e., Purchase Intention, by .35 units. Also, the value of  $p$  is 0.00, which is less than 0.05; hence we can say that there is a significant relationship between influencers' credibility and purchase intention. moreover,  $r^2$ -value is 0.12, which means that influencers' credibility causes 2% change in purchase intention.

## 4.9 Association Between Influencers' Credibility and Purchase Decision Process

In order to examine the association between influencers' credibility and purchase decision process, the author has applied linear regression.

$H_2$ : Credibility of Instagram influencers will influence the purchase decision process of both Generation Z and Millennials in a significant positive manner.

Variable	$B$	$\beta$	$SE$	$t$
Constant	12.57	-	0.87	14.36
Influencers' Credibility	0.31	0.32	0.05	6.4
R2	0.106			
p-value	0			

**TABLE 9:** Regression coefficients of influencers' credibility on purchase decision process

Source: own processing, 2024

Table 9 shows the impact of influencers' credibility on purchase decision process. The  $R^2$  value of .106 revealed that the predictor variable explained .6% variance in the outcome's variable with  $F=41.04$ ,  $p=.000$ . The findings revealed influencers' credibility positively predicted purchase decision process ( $\beta=.32$ ,  $p<0.05$ ).

## 4.10 Association Between Influencers' Credibility and Impulse Buying

In order to evaluate the association between influencers' credibility and impulse buying, the author has employed linear regression.

$H_3$ : Credibility of Instagram influencers will have a significant positive impact on the impulse buying of both Generation Z and Millennials.

Variable	$B$	$\beta$	$SE$	$t$
Constant	7.77	-	0.62	12.47
Influencers' Credibility	0.18	0.27	0.03	5.33
R2	0.076			
p-value	0			

**TABLE 10:** Regression coefficients of influencers' credibility on impulse buying

Source: own processing, 2024

Table 10 shows the impact of influencers' credibility on impulse buying. The  $R^2$  value of .076 revealed that the predictor variable explained the 7.6% variance in the outcome's variable with  $F=28.42$ ,  $p=.000$ . The findings revealed influencers' credibility positively predicted impulse buying ( $\beta=.27$ ,  $p<0.05$ ).

## 5 Discussion

In this study, researchers propose in total three hypotheses and five research questions. First, regression have been applied to observe the relationship between independent and dependent variables. Moreover, to investigate and compare the means of Generation Z and Millennials, an independent-sample T-test has been adopted by the researchers. A detailed discussion on all the research questions and hypotheses, accompanied by the respective tests that the authors have used to analyze them and their results, is given below.

The researchers aim to explore the role of Instagram influencers' credibility in changing the consumer behaviour of Generation Z and Millennials. Regarding consumer behaviour, the focus of the authors is only upon purchase intention, purchase decision process, and impulse buying behaviour. After testing the first hypotheses, it has been found that influencers' credibility has a significant positive impact on the purchase intention of the consumers. It predicts that higher levels of credibility develop a higher level of purchase intention among consumers. This result can be supported through one of the previous studies conducted by Rebelo (2017), who found that the relationship between Instagram users' perceived credibility of an influencer and their purchase intention is verified and positive. Therefore, it can be concluded that the more attractive, expert, and trustworthy an Instagram influencer is perceived to be, the more likely he or she will influence the buying intention of consumers in a positive manner. The results of the second hypothesis reveal that influencers' credibility has a significant positive impact on the purchase decision process. It indicates that the higher the consumers' perceived credibility of the Instagram influencer, the easier the process would be for them to determine what products and services will best fit their needs.

The findings of the third hypothesis indicate that there exists a significant positive relationship between impulse buying by consumers and source credibility being explained by Ohanian (1990). It means that a high level of Instagram influencers' credibility propagates high levels of impulse buying behaviours among Generation Z and Millennials. Hence, this study approves the hypothesis which claims that there is an influence of influencers' credibility on the impulse buying behaviour of consumers. The results are consistent with the findings of Wang & Gao's (2020) research, which concluded that the characteristics of influencers have a positive impact on consumers' impulse buying behaviour by exciting their emotions, whereas characteristics of influencers include their credibility, attractiveness, and professional knowledge.

The research questions investigate the significant differences of Generation Z and Millennials on their perceived influencers' credibility and consumer behaviour. For that purpose, the authors have employed an independent-sample T-test across two age groups. The results elucidate that age does have a significant impact on consumer behaviour and perceived Instagram influencer credibility. Generation Z possess higher consumer behaviour than Millennials. In addition, Generation Z perceives Instagram influencers as more credible than do Millennials. To analyze the role of homophily as a mediator between Instagram influencers' credibility and consumer behaviour, researchers performed a simple mediation analysis using PROCESS. It has been found that there exists a partial mediating effect of homophily between influencers' credibility and consumer behaviour. Therefore, it can be concluded that homophily also has an influence on the consumer behaviour of Instagram users.

The researcher has addressed the research question that inquires about the role of respondents' demographics like gender, age, income status, and qualification, on their consumer behaviour and perceived Instagram influencers' credibility, by using different tests. First of all, the t-test is applied by the researcher across the gender of the respondents. Findings reveal that there is no significant difference across male and female respondents to the study in terms of their consumer behaviour and perceived Instagram influencers' credibility. Both men and women show similar patterns whether they buy any product/service, or they consider any online influencer as expert, attractive or trustworthy. This result contradicts a previous

study conducted by Rebelo (2017), who reported that there exists a significant difference in the perceived credibility of male and female Portuguese. One of the major reasons for that contradiction can be geographical and cultural differences in the respondents (Pakistani and Portuguese). To investigate the research question that asks how respondents' qualifications influence their consumer behaviour and perceived influencer credibility, authors applied one-way ANOVA across different levels of qualifications. The results indicate significant mean differences in influencers' credibility and consumer behavior.

Similarly, the role of the income status of research participants to impact their consumer behaviour and perceived influencer credibility is examined by using a t-test. The results elucidate that income status does have a significant impact on consumer behaviour and perceived Instagram influencer credibility. Respondents who earn have high consumer behaviour and perceived influencer credibility than those who do not earn. In simple words, people with some sort of income are more likely to indulge in buying products and rely on Instagram influencers for making purchase decisions, than those who have no source of income.

## 6 Conclusion

To conclude the findings, the study claims that online advertising is a significant tool to impact the buying patterns of both Millennials and Gen Z. Instagram influencers with high perceived credibility have great power to develop the interest of consumers in a particular product and thus increase their chance to buy it. Millennials and Gen Z rely on such influencers to identify their needs or to explore different items that fit their needs best. This study confirms the significance of influencers' perceived credibility over the impulsive decisions of consumers. Millennials and Gen Z with higher perceived influencers' credibility are likely to make an unplanned purchase. Additionally, the findings of this study indicate the importance of socioeconomic status in shaping the consumer behaviour of Millennials and Gen Z. Individuals with some sort of income have flexible budgets and so they are more likely to shop for any product, service or idea than those who do not earn.

Furthermore, this study reveals that gender does not cause any difference in the consumer behaviour of both Millennials and Gen Z. However, each qualification level of the respondents has been observed to possess different influence on their perceived influencer credibility and consumer behaviour. This study claims that age plays a remarkable role in perceiving influencers' credibility and the consumer behaviour of the respondents. As compared to Millennials, Gen Z is more likely to perceive Instagram influencers as attractive, trustworthy and expert. In the same way, Gen Z possess a stronger desire to shop or make impulsive buying decisions than Millennials.

Moreover, results confirm that homophily play the role of mediator between influencers' credibility and consumer behaviour. In simple words, the higher the credibility of the Instagram influencers, the greater the tendency of consumers to bond with them on the basis of common factors like demographics, interests or behaviours which in turn results in higher chances to display purchase intention or impulse buying behaviours for Millennials and Gen Z.

Succinctly, source credibility plays a pivotal role in shaping the consumer behaviour of Millennials and Gen Z. Therefore, this study can also be helpful for brands/businesses to make an informed advertising strategy and have deep insights on who they should really hire to advertise their products, by keeping their perceived credibility and the demographics of their target audience in mind.

## 6.1 Theoretical and Managerial Implications

The outcomes of this study advocate various implications for different brands, businesses, and marketers alike that intend to engage digital age influencers as their advertising tool. It is also very useful for the people that are inspired to be influencers and intend to make their career out of it. This study provides brand managers with tactical guidelines regarding influencer selection criteria. By knowing the consumer's involvement with the products, marketers can choose the right influencer for the product's promotion. Having the right influencer endorsing the right product, i.e., having a perfect product-match up proposition, is crucial for achieving a successful brand communication and a strong presence in social media.

This empirical research adds value to the literature based on the potential of Instagram influencers to impact different forms of consumer behaviour. Firstly, it has filled an academic gap by discussing how different forms of consumer behaviour are being influenced by the influencers' credibility. Secondly, the study contributes to the academic research by comparing Generation Z and Millennials for their consumer behaviour and perceived Instagram influencers' credibility.

## 6.2 Recommendations for Future Research

The researchers propose the following recommendations while keeping the pivotal role of influencer advertising in mind:

1. Comparative analysis among rural and urban populations can provide some interesting outcomes on the difference in consumer behaviours based on their demographics.
2. Content analysis on engagement levels of different influencers with different ranges of followers and areas of expertise would assist brands when choosing any influencer for their campaigns.
3. Like Instagrammers, the influence of creators on other social platforms, for instance, YouTube, TikTok etc., can also be observed to provide insights into influencer advertising from some other viewpoint.
4. Longitudinal studies can be employed to track the changes in consumer buying patterns over time.
5. Assessment of emerging trends in influencer marketing such as virtual influencers, augmented reality (AR) etc., can be conducted in future.

## 6.3 Limitations of the Study

This study has a few limitations that should be kept in mind while conducting any future research. This study has analyzed consumer behaviour in the context of a few Instagram influencers and consumers' demographic characteristics only. However, there are countless other factors in their lives that might have contributed to design their buying patterns. Therefore, consumer behaviour cannot be fully determined or predicted in terms of Instagram usage only. Another limitation of the current research is social desirability bias by the survey respondents, that in an effort to conform to societal norms, may present themselves in a favourable light, regardless of their true feelings or actual behaviour.



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A close-up photograph of a hand gently touching blades of green grass. The grass is covered in small, glistening water droplets, suggesting it has recently rained. The lighting is soft, creating a natural and serene atmosphere.

Jaroslav Bednárík, Natália Nagyová

# The Environmental, Social and Economic Pillar Of Socially Responsible Marketing as a Necessary Condition for Increasing the Competitiveness of Medium-Sized Enterprises in Selected Regions of Slovakia in the Context of Used Media

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## ABSTRACT

Corporate social responsibility is one of the most crucial management concepts for companies to integrate into their processes. It is gradually expanding into marketing, in the specific form of socially responsible marketing. As practice illustrates, this concept represents a competitive advantage for businesses that have decided on its application. This step allows them to improve their market position among customers, competitors and investors. At the same time, they can increase their profit, strengthen their brand, minimize employee turnover, increase the influx of new employees, or improve work productivity. Considering the current trends and the ever-increasing pressure from interested parties, analysing the application of this concept has become necessary. This paper aims to analyse the use of socially responsible marketing in particular geographical areas of Slovakia while emphasizing the increasing competitiveness of medium-sized enterprises and the media. The paper presents the results of quantitative research through a questionnaire survey. The submitted paper summarizes the application of socially responsible marketing in Slovakia and discusses future development possibilities in this area.

## KEY WORDS

Competition. Environmental Pillar. Slovak Republic. Socially Responsible Marketing. Sustainability.



# 1 Introduction

The world has been in trouble for a long time with global problems for a long time. We experience unfavourable developments in the economic and social spheres and an ever-increasing negative impact on the environment. This unsustainable situation requires considerable effort regarding human resources, financial resources and time. Economic entities also need to be actively involved in this process. They are an integrated part of society and cannot exist independently of suppliers, customers, investors and other relevant elements.

Moreover, customers are increasingly aware of this unfortunate situation, which increases the pressure and points to the negative impact of humans on the world's ecosystem. More and more individuals are striving for a more sustainable lifestyle, and this effort is more visible in their purchasing behaviour. According to an Ipsos survey from March 2019, 12% of respondents said that their decision to choose a retail chain is influenced by its social responsibility (Môciková, 2019a). In addition, their previous studies show that up to 66% of consumers are guided by socially responsible behaviour and thus the idea of sustainability in their decisions. Furthermore, 73% of respondents would be willing to pay higher prices for environmentally friendly products, and 80% expressed interest in information about which company produces products they buy (Môciková, 2019b). In 2021, the Focus agency presented the research results, where up to 91% of people in Slovakia think that in addition to making a profit, companies should also implement activities beyond the scope of the law related to social responsibility (Business Leaders Forum, 2021). Significant data was presented by research from NYU Stern's Center for Sustainable Business, which identified that half of the growth in consumer packaged goods from 2013 to 2018 came from products focused on sustainability. Products paired with demand for sustainability accounted for 16.6% of the market in 2018, with revenue growing by \$114 billion, a 23% increase over 2013 (Wheland & Kronthal-Sacco, 2019). We face the increasing importance of sustainability, and customers also increasingly request it.

If the company wants to be competitive, it is necessary to take steps to increase competitiveness. Companies have to reassess their actions and realize how society has also changed. Authors Leinwand and Mani (2022) point out three changes affecting the competitive environment, to which companies must adapt. They discuss the revolution in demand, the revolution in supply and finally the transformation of the business environment in which the organization operates. In contrast to past periods, when leaders were often driven mainly by profit motivations, leaders nowadays must consider more factors when creating value. Businesses are confronted with more demanding requirements and must satisfy needs that may have been overlooked. Therefore, we can say that companies are gradually ceasing to have a choice – to implement or not implement corporate social responsibility. More aspects are required nowadays, and companies will gradually adapt to them.

The digital revolution shaped the fragmented world of new media. It created opportunities that are no longer limited to the traditional commercial sphere, where the main aim is to boost the sale of products or services. Timoracký (2019) points to a change in society, together with the growing importance of ecological issues, not only in brand culture but also in the online environment and media. Digital media played a crucial role in developing the concept of corporate social responsibility (CSR) and socially responsible marketing, contributing to the emergence of digital social responsibility. Digital marketing has merged with socially responsible marketing, creating new opportunities for social responsibility in the digital environment.

In the digital age, the element approaching corporate social responsibility has transformed from a philanthropic activity that ignored public opinion and provided only what it considered “good” to a deep commitment while considering all stakeholders – from employees to customers, to suppliers and distribution chains. In the digital age, companies are not closed and do not rely only on traditional information sources; they actively use digital interaction to build relationships (Young, 2018). Therefore, companies must pay attention to authenticity and present it on social



networks. Related to this is the development and use of innovative models that enable the prediction of consumer behavior based on interactions with specific marketing strategies (Kusá et al., 2022).

CSR can be a competitive advantage, while it can also be reflected in financial indicators. Attracting competitors' customers can also be done via difference, which can be corporate social responsibility striving for sustainability. Serefeim and colleagues from Harvard researched collected data from more than 3,000 companies. The period was set from February to March 2020, when the financial markets collapsed, and they realized that companies that were perceived as socially responsible had less negative stock returns than their competitors (Serefeim, 2020). As seen in this challenging situation related to the pandemic, corporates which were socially responsible could sustain themselves and their revenues did not fall as much as their competitors.

The Slovak Republic has an issue with competitiveness at the national level. The World Economic Competitiveness Yearbook of the IMD shows that the Slovak Republic has had a downward trend in terms of competitiveness in recent years. Of 64 countries in 2021, the Slovak Republic was ranked 50<sup>th</sup>. The most significant issues were:

- missing reform initiatives from the government,
- insufficient financing of innovations and transformations in small and medium-sized enterprises,
- weak regulatory framework supporting higher competitiveness,
- the quality of educational institutions and the lack of a strong system dealing with lifelong learning
- lack of agility and readiness for transformation (IMD, n.d.).

Compared to other countries, the Slovak Republic does not achieve favourable results in competitiveness. At the same time, this trend is long-term, even though Slovakia was among the countries with higher competitiveness. The factor that pulls our country down is the efficiency of the business environment, followed by the efficiency of the government.

It is essential to focus on social responsibility and its indicators in Slovakia as a starting point. The Survey of Corporate Responsibility Reporting is a KPMG survey conducted since 1993; it is based on publicly available information provided by companies in corporate social responsibility reports, annual financial reports and websites (KPMG, n.d). In 2020, Slovakia was ranked 40<sup>th</sup> out of 52 countries while being included in the top three progressive newbies in growth of the Sustainability Report. Kazakhstan improved by 34%, followed by the Slovak Republic, which improved by 21% (KPMG, n.d.).

We can conclude that the Slovak Republic is improving its position in competitiveness and sustainability reporting. But to reach higher ranks, we must make much more effort and engage in many more activities.

## 2 Methodology

The research aimed to analyze the application of socially responsible marketing in medium-sized businesses in selected geographical areas of Slovakia while emphasizing increasing competitiveness.

The setting of partial goals was related to the following aspects:

1. Create a comprehensive view of theoretical knowledge within corporate social responsibility, socially responsible marketing, and sustainable development, as this issue contains considerable confusion and swapping of particular concepts.
2. Develop the methodology for the implementation of a pilot survey.
3. Formulate scientific assumptions for the pilot project and then confirm or not confirm their validity by questionnaire research.

4. Implement research focused on socially responsible marketing and competitiveness of medium-sized enterprises in Slovakia in the Bratislava, Trnava and Nitra regions.
5. Carry out a pilot survey to verify the appropriateness and relevance of the questions in the questionnaire and get an initial insight into the concept of corporate social responsibility, as it is an initial topic.
6. Process corrections in the structure and questions of the questionnaire.
7. Develop methodology for the research implementation.
8. Formulate scientific assumptions and hypotheses for quantitative research.
9. Evaluate the results from the questionnaire research.

As defined in the objectives, the pilot project represented the initial step before the actual implementation of the research. The data from the primary pilot project formed the starting point. After summarizing the necessary corrections, we prepared the final questionnaire. The results also represent the basis for determining the values of assumptions in the primary research.

The statistical set was based on several criteria. Initially, we focused on medium-sized enterprises based on the criterion of the number of employees (50-249), which are usually categorized according to their size. We also considered the geographical criterion, choosing the Bratislava, Trnava and Nitra regions for their geographical proximity. The Statistical Office of the Slovak Republic provided accurate data for 2021, identifying 1,980 medium-sized enterprises in these 3 regions (Statistical Office of the Slovak Republic, e-mail communication, April 22, 2022).

Next, we contacted the statistical office again, providing accurate business lists based on our criteria. We have narrowed down the selection to medium-sized companies, including limited liability companies, joint stock companies, limited partnerships, public companies, limited ownership companies and cooperatives. We focused on businesses, assuming they focus on generating profit and possessing sufficient human capital to practice corporate social responsibility. Our final statistical set consisted of 1,032 subjects (Statistical Office of the Slovak Republic, e-mail communication, April 22, 2022).

In the next step, we calculated the sample size using a statistical method. We used the formula for calculating the sample in case the size of the base set is identified.

$$n = p(1-p) / (E^2 / Z^2 (1-\alpha^2/2) + (p(1-p)) / N)$$

n = sample size,  
Z = reliability rate,  
N = basic sample,  
p = variable share,  
E = error range.

The base set was represented by a value of 1,032. We set the confidence level at 95%, corresponding to a value of 1.96. We determined the proportion of the character with a value of 0.5 while proceeding conservatively. The margin of error is usually determined as 1-10%. In our case, we set 5%, which corresponds to a value of 0.05%. Based on the above formula, after substituting the values, we obtained a value of 280. Thus, after the calculation, our sample size represents 280 subjects to maintain the determined values. To obtain sufficient responses, we addressed the entire set, i.e., 1,032 subjects were addressed.

The questionnaire was distributed electronically in April 2022. We reached out to management and marketing staff by sending them personalized e-mails.

After finishing the data collection, we received 407 questionnaires. After initial sorting, we excluded 22 responses due to not meeting the established size or geographic location criteria. Another 40 responses were excluded through a filter question about applying the principles of corporate social responsibility. In total, we received 345 responses from companies

practicing corporate social responsibility in the Trnava, Nitra, or Bratislava regions and belonging to the category of medium-sized enterprises. They also meet the requirements for the legal form of the company.

When creating the questionnaire, we used the survio.com platform. The questionnaire contained 25 questions with different types of answers and was distributed while emphasizing management and marketing. To ensure relevance, we used a filter question focused on those who practice corporate social responsibility.

As part of the preparatory phase of the planned research, it is necessary to set scientific assumptions. The levels were determined based on the results of the pilot project. The research will subsequently verify these. For our paper's purposes, we have established scientific assumptions:

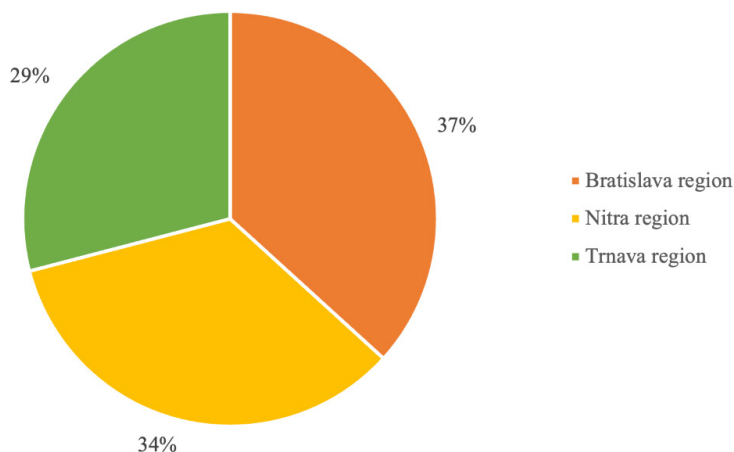
- Assumption marked as P1: More than 77% of respondents implement socially responsible marketing.
- Assumption marked as P2: Online communication is the most common form of marketing communication within socially responsible marketing.
- Assumption marked as P3: Social networks are the most used media within corporate social responsibility.
- Assumption marked as P4: Facebook is the most used network within socially responsible marketing.

In addition to the scientific assumptions mentioned above, we also determined hypotheses to be accepted or rejected through quantitative research.

- Hypothesis H1: There is a dependence between the geographical location of the company and the introduction of socially responsible marketing.
- Hypothesis H2: There is a relationship between CSR communication in marketing and perceived competitive advantage.

### 3 Results

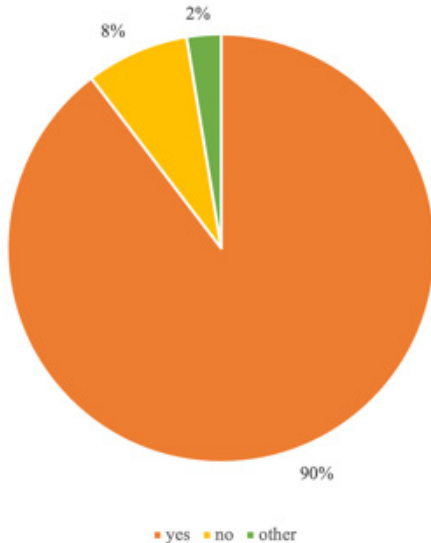
Our primary research focused on businesses from the Bratislava, Nitra and Trnava regions. The graph below illustrates the achievement of similar numbers of respondents for individual areas. The Bratislava region forms the most significant part, with 37% of enterprises, followed by the Nitra and Trnava regions, representing 29% of our sample. We did not notice any significant fact in the distribution that could affect the conclusions.



**FIGURE 1:** Geographical distribution of respondents

Source: own processing, 2022

“Do you apply the principles of corporate social responsibility?” was the starting point for further investigation. Our sample showed that up to 90% of companies actively implement this concept. Only 8% answered negatively, while 2% of respondents said they apply the principles of corporate social responsibility incompletely or have suspended their activities, etc. This confirms a significant trend in our sample, emphasizing the importance of handling corporate social responsibility. The number of companies introducing social responsibility is a significant and essential object of our research.

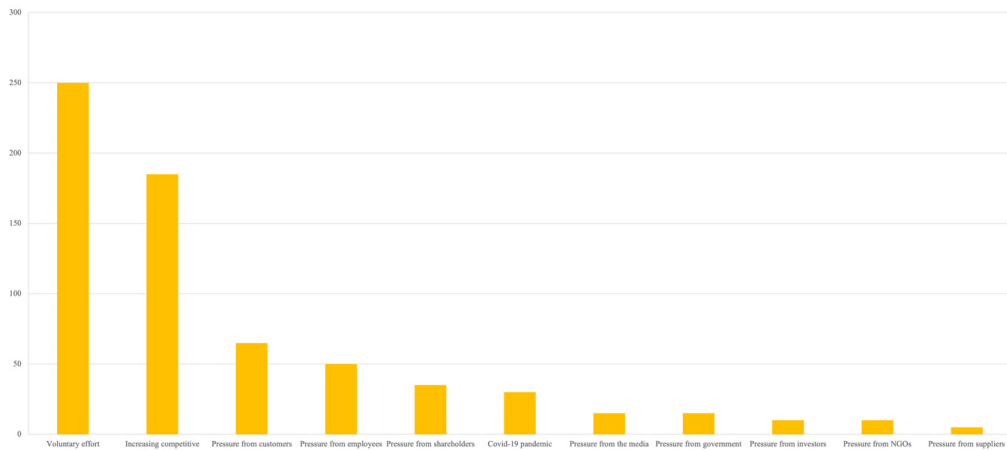


**FIGURE 2:** *Applying corporate social responsibility*

Source: own processing, 2022

With starting points at the theoretical level, we analysed the driving forces for implementing corporate social responsibility into the functioning of companies. Respondents could choose several answers. Undoubtedly, the most important motive was the voluntary interest of the company. This is a positive signal that companies, independently and without internal motivation, are aware of the need to take measures to sustain the entire company. Another important reason was the competitive environment, which was mentioned by 185 companies, representing a 28% share. This data is crucial for our research, showing that the respondents consider introducing corporate social responsibility as a competitive advantage and understand that it is necessary to take these steps to remain competitive.

Next, pressure from customers was another significant aspect related to much of the theoretical research presented in our theoretical framework, which mentioned increasing pressure from customers. This theoretical perspective was also confirmed in our sample. The graph clearly shows that the COVID-19 pandemic impacted companies implementing measures to support a more sustainable way of life. The results show that respondents feel the least pressure from suppliers.

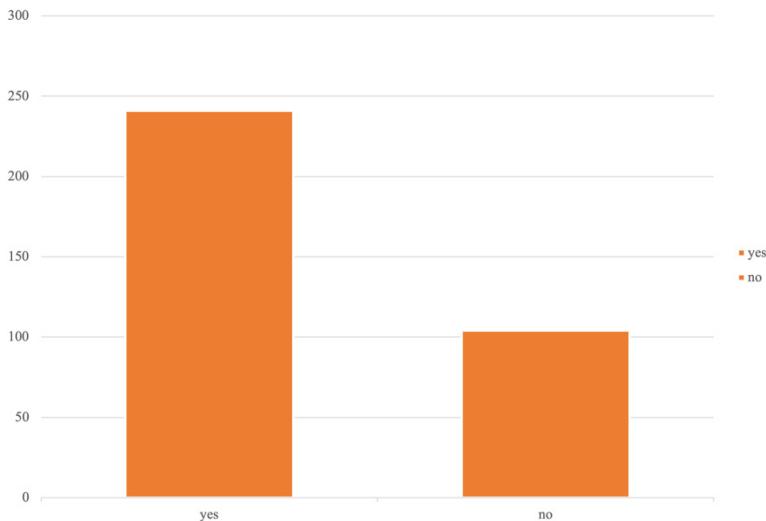


**FIGURE 3:** Reasons for introducing corporate social responsibility

Source: own processing, 2022

70% of respondents answered positively to whether they practice socially responsible marketing. Assumption no. 1 was not confirmed, as 30% of respondents rejected this statement, with some providing more detailed statements. Some participants said that they consider CSR as just an internal activity that they don't disclose, or they feel that it should be self-evident and not brag about it publicly.

While considering the significant discrepancy in this issue, which we already noted in the theoretical framework, and with the vision of a significant space for educating companies about this topic and the advantages of socially responsible marketing, it is necessary to state that companies should also transfer these activities to marketing communication. By doing so, greater awareness and education could be achieved while motivating other economic entities to implement this concept.



**FIGURE 4:** Applying socially responsible marketing

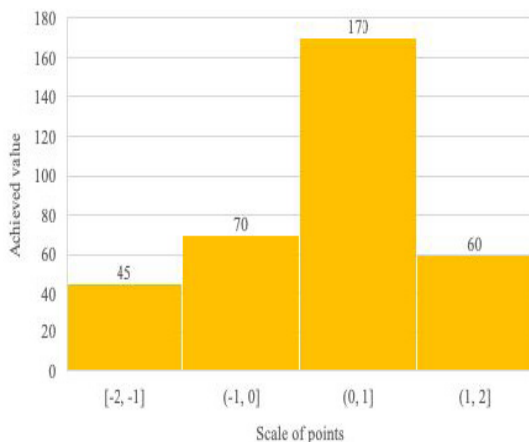
Source: own processing, 2022

In the following question, we focused on what marketing communication tools are used in socially responsible marketing to communicate activities and other information about the social responsibility of the particular company. Respondents had the opportunity to decide how important a specific marketing communication tool is on a scale from -2 (we do not use it at all) to 2 (we use it to a large extent). Online communication is the most used.

In addition, PR, which is often used to communicate sustainable activities, was another significant element. This option received an average value of 0.33. As a tool designed to build positive awareness of the company among respondents, PR represents a suitable marketing communication tool for socially responsible marketing. In addition, the respondents identified sales promotion, personal selling, fairs and exhibitions, sponsoring, and also advertising as used tools.

On the contrary, marketing communication tools that respondents do not use as part of socially responsible marketing were advergames, with an average value of -0.67, guerilla marketing and, surprisingly, influencer marketing, with an average value of -0.54. There is a trend of “greenfluencers”, and it is also surprising that companies do not use this opportunity. Despite the current trend, this form of marketing communication lags in our sample, even though it is significantly connected to online communication. Event marketing was also among the little-used methods.

As we mentioned, online communication was the most used option. We have therefore confirmed assumption no. 2. Regarding descriptive characteristics, we concluded that the average value was 0.61. At the same time, this option most often contained a value of 1. At the same time, the statistical file was also divided like this. For online communication, the standard deviation was 1.12. On the histogram, we observe that most values are between 0 and 1; 170 respondents assigned a scale of 1 to this option. Even though it is the tool that the respondents identified as the most used, we can see considerable room for expanding its usage. As we mentioned in the theoretical part of the paper, there exists digital socially responsible marketing, which has been growing in recent years. Also, based on our research, we conclude that this trend was confirmed in our sample of companies.



**FIGURE 5:** Distribution of the frequency of point evaluation within online communication in socially responsible marketing

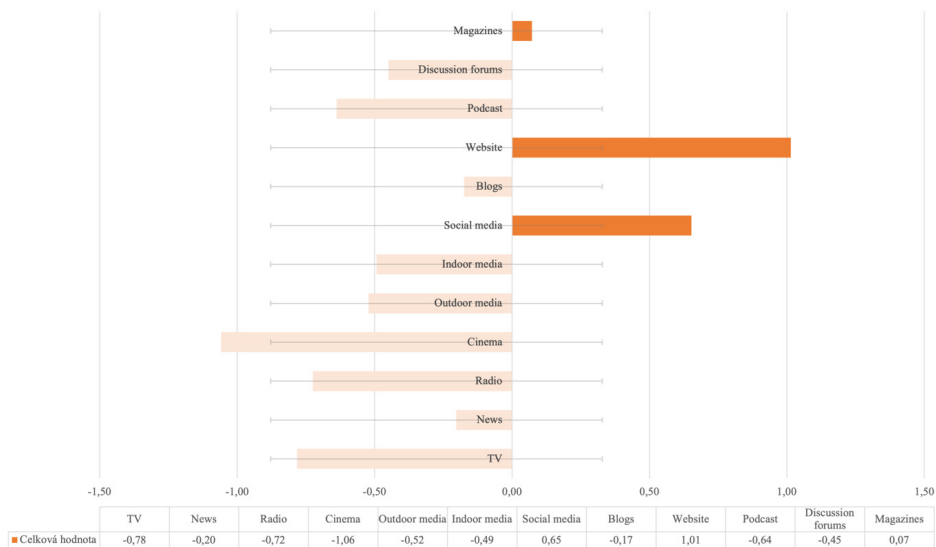
Source: own processing, 2022

In the following question, the respondents had to determine how much they use specific media within socially responsible marketing. Again, the respondents determined the use on a scale from -2 (we do not use it at all) to 2 (we use it to a large extent). This question showed a significant limitation in the variety of media used. Undoubtedly, the most used media were



websites with a value of 1.01. In addition, social networks represented the second most-used medium, with an average value of 0.65. Assumption no. 3. has not been confirmed. On a positive level, magazines were mentioned as well. All other media were marked as unused. The most unused medium was the cinema, followed by television. Surprisingly, podcasts, a medium that has grown in popularity over the past year, scored an average of -0.64. Even though it is a medium used by many brands and for communicating socially responsible activities, as we mentioned in the theoretical part of the paper, it received a negative representation in our sample. Blogs also received an average value of -0.17, even though they can also be a medium associated with PR and can help the company build a positive, sustainable image. While checking the used media and how they managed the lower wave, we identified a significant decline in the used media. Even discussion forums, which can be a tool where users exchange their observations and opinions about, for example, the company and its social responsibility, are, in this case, unused media.

Based on the results, we conclude that we observe very little diversity in the tools used in our sample. As shown in the previous data, online media were the most important and most used, and here too, we can see considerable homogeneity. Respondents mainly use websites and social networks while forgetting the potential of other tools, such as podcasts, blogs or other media. Companies must expand their media mix to expand the potential positive effects of corporate social responsibility and marketing on the company's functioning.

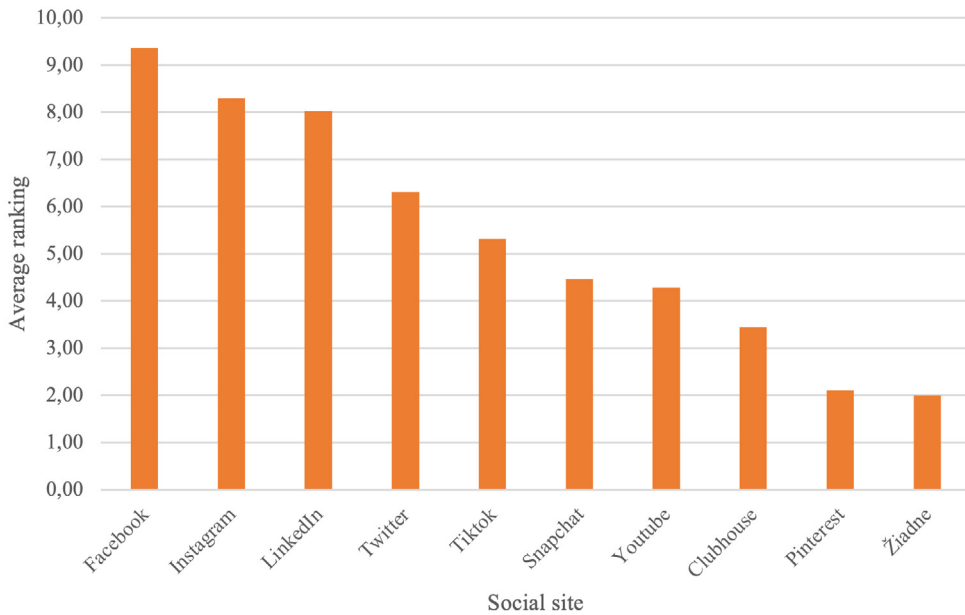


**FIGURE 6:** Media used in socially responsible marketing

Source: own processing, 2022

Since social networks are one of the most used forms of media, we focused on the following question: Which media companies use them in their marketing communication and sustainability communication? For these purposes, we used a question where respondents had to organize individual social networks.

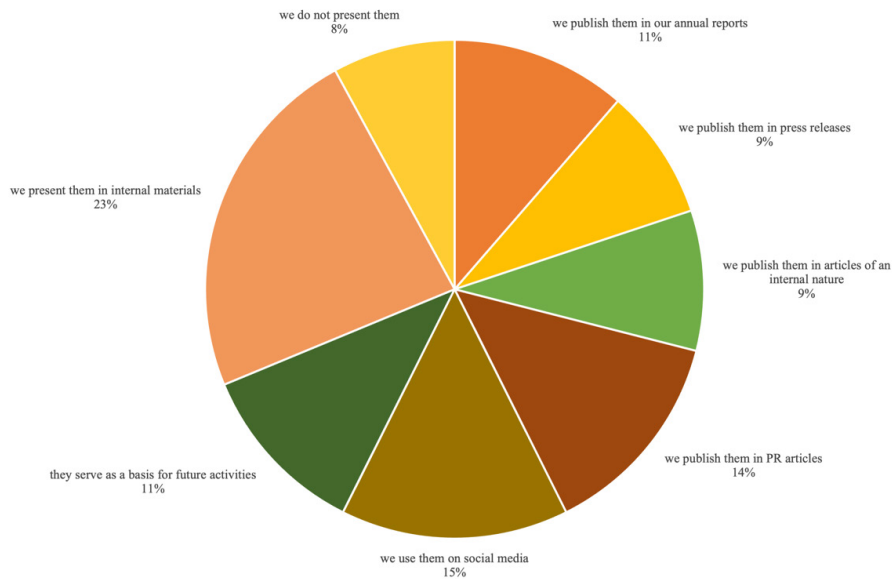
As observed, Facebook led with an average value calculated based on a weighted arithmetic mean of 9.36. Assumption no. 4. was confirmed. It was followed by the social network Instagram, and similar values, although slightly lower, were achieved by LinkedIn. This social network for sharing work opportunities and successes was the third most used network for communicating the issue of corporate social responsibility. TikTok and Snapchat overtook YouTube's social network position. The social network Pinterest was the least used form.



**FIGURE 7:** Use of social networks as part of socially responsible marketing

Source: own processing, 2022

In the theoretical part, we mentioned the importance of analysing the results of activities of socially responsible behaviour and determining the crucial forms necessary for the further development of this concept and the company itself. Therefore, we also paid attention to processing and presenting the results of the activities. 25% of respondents said they present results internally. This option achieved the most significant share. As previous results have shown, this concept tends to be understood, in some cases, somewhat internally. That is why we see such a high number here as well. On the other hand, 130 respondents mentioned that they present this information on social networks, which supports our previous statements that social networks are often used as a medium for marketing communication. In addition, we can quite significantly represent PR articles. This form of marketing communication was strongly represented in the previous questions. The fewest respondents said they did not present the results in any way. Thus, we observe a variety of responses that confirm several of our previous findings. We see room for improvement, either starting to communicate these activities or communicating to the external environment, not just the internal one. As we mentioned, companies must communicate and present results to the internal and external environments to be competitive in social responsibility.



**FIGURE 8:** *Forms of presentation of results from sustainable activities*

Source: own processing, 2022

Furthermore, we researched whether corporate social responsibility can be perceived as a competitive advantage. In our sample of respondents, 77% state that they perceive this concept as a competitive advantage. On the contrary, only 23% say that they do not perceive these sustainable activities within corporate social responsibility as advantageous from the competitiveness point of view.

When analysing the data, we checked whether there exists a dependence between the company's geographical location and whether they communicate activities within corporate social responsibility and in marketing communication, that is, they have socially responsible marketing. We used the chi-square test to determine this dependence or independence since the variables have a qualitative classification and are considered nominal variables. The dependent variable was the geographical location of the business, and the independent variable represented the application of socially responsible marketing.

The first set hypothesis H1 was:

- $H_0$  –The variables are independent; there is no dependence between the geographical location of the company and the introduction of corporate social responsibility.
- $H_1$  –The variables are dependent; there is a dependence between the geographical location of the company and the introduction of corporate social responsibility.

We obtained the variables' actual and expected frequencies based on the contingency table.

Implementation of socially responsible marketing	Bratislava region	Nitra region	Trnava region	Total sum
no	56,70	55,53	46,76	<b>159</b>
yes	137,30	134,47	113,24	<b>385</b>
<b>Total sum</b>	<b>194</b>	<b>190</b>	<b>160</b>	<b>544</b>

**TABLE 1:** *Expected frequencies under the H1 hypothesis*

Source: own processing, 2022

We calculated the  $\chi^2$  value (degree of freedom) from the data as 0.4110599039, with the critical  $\chi^2$  value determined from the tables as a standard of 0.05. After comparing these two values, we conclude that the value we calculated is greater than the determined significance level of 0.05. Therefore, it is not necessary to reject hypothesis  $H_0$ . In the first part, modifying the model according to the geographical point of view is unnecessary.

We also tested whether a relationship exists between corporate social responsibility communication and perceived competitive advantage.

The second set hypothesis  $H_2$  was:

- $H_0$  – The variables are independent; there is no dependence between the communication of marketing communication activities and the perceived competitive advantage.
- $H_1$  – The variables are dependent; there is a dependency between the communication of marketing communication activities and the perceived competitive advantage.

We proceeded the same way as for hypothesis  $H_1$ . We used the chi-square test since the variables have a qualitative classification or is a particular case of a nominal variable – binary.

Perceiving CSR as a competitive advantage	Communicated	Not communicated	Total sum
Yes	185,12	79,88	265
no	55,88	24,12	80
<b>Total sum</b>	<b>241</b>	<b>104</b>	<b>345</b>

**TABLE 2:** Expected frequencies under hypothesis  $H_2$

Source: own processing, 2022

We calculated the value to be 1.00696E-05. After converting from a scientific number to a general number, we get 0.0000100695829652204. This value is less than 0.05; thus, we reject hypothesis  $H_0$  and accept the alternative hypothesis. We proved the dependence between the communication of marketing communication activities and the perceived competitive advantage of our respondents.

Below, we summarize the findings based on predetermined scientific assumptions and hypotheses.

Mark	Statement	Confirmation	Acceptation
P1	More than 77% of respondents implement socially responsible marketing	Not confirmed	
P2	Online communication is the most used form of marketing communication within socially responsible marketing.	Confirmed	
P3	Social networks are the most used media within socially responsible businesses.	Not confirmed	
P4	Facebook is the most used network in the framework of socially responsible marketing.	Confirmed	
H1	There is a dependence between the geographical location of the company and the introduction of socially responsible marketing.		declined
H2	There is a dependency between CSR communication in marketing and perceived competitive advantage.		acceptation

**TABLE 3:** Evaluation of set assumptions and hypotheses

Source: own processing, 2022

## 4 Discussion

The primary research results showed much essential knowledge and confirmed that it is necessary to investigate this topic further. We found that 30% of respondents do not apply socially responsible marketing in their operations. For this reason, there may be reduced information directed from the company to the audience, including customers, employees, competitors, the media and the general public. For that reason, we can also talk about lower awareness.

Based on the results, it is clear that the companies focused significantly on online communication in the presentation of corporate social responsibility and marketing. The dominance of online media in the communication mix of companies indicates their change from traditional forms of communication to digital means. This decision reflects the trends of the present time, where the Internet and social media play a crucial role in informing and influencing the public.

At the same time, we noticed that the media used show significant homogeneity, which means that most companies prefer specific online platforms or types of content when sharing information about their socially responsible activities. This homogeneity can create a certain uniformity in communication between companies and their audiences. At this stage, it is essential to show businesses the potential benefits of diversifying their approach to online marketing communications. This diversity can help companies bring information closer to the target audience, reach a wider group, build authenticity, and achieve a synergistic effect.

An important aspect connected with our issue is the ability of the company to survive in the competitive struggle. We conclude that 77% of respondents perceive socially responsible marketing as a competitive advantage. This statement and other research cited in the thesis's theoretical part confirm this topic's importance.

Furthermore, we discovered that the company's geographical location is not decisive when implementing socially responsible marketing. Based on our research, we identify that companies in different geographical areas, including different regions in Slovakia, show a similar willingness and ability to integrate elements of the environmental, social and economic pillars of socially responsible marketing into their business strategies. On the other hand, our results indicate that the effective communication of corporate social responsibility within the company's marketing strategies significantly impacts the perceived competitive advantage. Businesses that systematically and transparently communicate their CSR efforts and initiatives tend to experience results favouring CSR as a competitive advantage.

## 5 Conclusion

The results we obtained highlight the importance of this issue and of taking steps for development, either at the managerial or marketing level. Sustainability must become the subject of marketing communication. Several research studies show that social responsibility will expand under pressure to stay competitive or meet the state's or other organizations' future conditions. The Slovak Republic has significant gaps in competitiveness and especially business efficiency. In addition, we found that Slovakia lags behind other countries regarding social responsibility. As the results of the analyses show, more and more steps are being taken to encourage companies to start implementing steps towards sustainability, which companies cannot ignore anymore. For this reason, we should mention the need to apply sustainable direction to the functioning of companies.

We claim that our research results have a favourable view of this issue's development. In their research, several foreign authors highlight essential facts about corporate social responsibility and its impact on the business sphere. The authors He and Haris (2020) predict the development

of corporate social responsibility and social marketing. The research mentioned above by Professor Serefeim (2020) from Harvard pointed to a competitive advantage that could transform into positive financial results when all other companies were collapsing.

Even under our domestic conditions, we mention the expected improvement of introducing corporate social responsibility. The expectations of the entire company and individuals show a rising trend, which companies must adopt soon. Up to 91 % of people in Slovakia think that, in addition to making a profit, companies should also implement activities beyond the legislative frame – protect the environment, take care of employees, support the surrounding community and communicate transparently and openly about their activities, according to a survey by the Focus agency for the Business Leaders Forum (2021) association.

Without joint efforts in the long term, this concept will not reach its full potential. We can, therefore, assume that the pressure from customers, employees, and other interested parties will increase, which may result in a greater motivation for companies to bring socially responsible behaviour into their operations.

In parallel with local research, the international perspective confirms that corporate social responsibility is a universal trend penetrating across borders of cultures and nationalities. Our findings are consistent with data from international studies, indicating the consistency of the meaning and effects of CSR in the global marketplace.

Overall, our research findings confirm the importance of corporate social responsibility in today's business environment and show its universality and relevance at various local and international levels.

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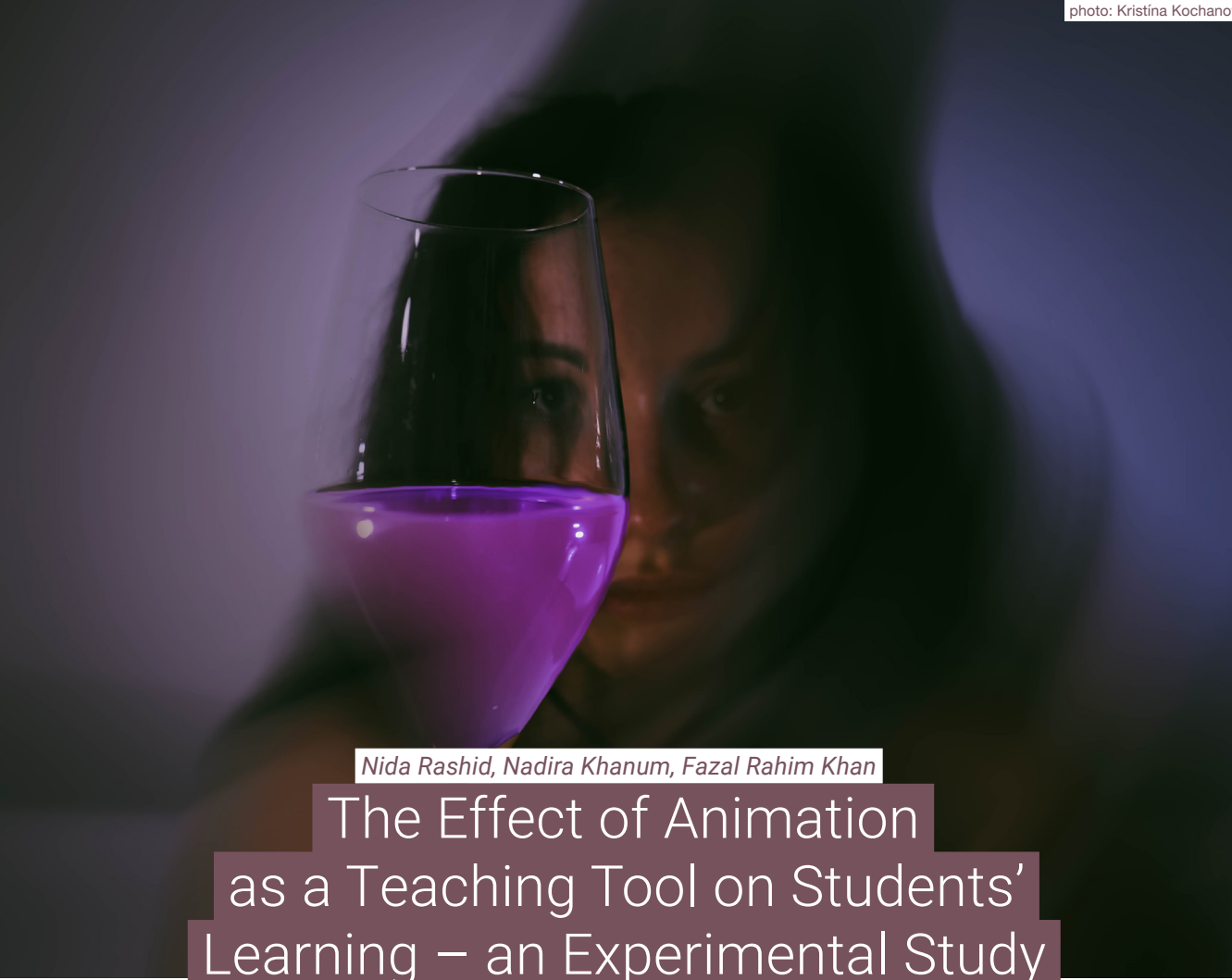
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A woman with dark hair is looking through a glass filled with a vibrant purple liquid. The glass is a simple, rounded shape, and the liquid inside is a deep, saturated purple. The woman's face is partially obscured by the glass, and her expression is neutral as she looks through it. The background is dark and out of focus.

*Nida Rashid, Nadira Khanum, Fazal Rahim Khan*

# The Effect of Animation as a Teaching Tool on Students' Learning – an Experimental Study

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## ABSTRACT

This study aims to explore the effect of animation on students' learning process and compare the learning outcomes between animation-based and traditional teaching methods. The research questions hypothesize that animation enhances the learning process, attention, retention, reproduction and motivation in students. This study employed quantitative methodology by using an experiment involving two separate groups: the experimental group, which received instruction with animated videos, and the control group, which received a traditional teaching method. The sample size consisted of 170 students, with an equal distribution of male and female participants from grade levels 3 to 6, with 85 students in each group. The analysis of the data reveals that animation has a significant effect on the learning process. Students exposed to animation-based teaching methods exhibit higher levels of attention retention, better reproduction of learned material, and increased motivation compared to those following traditional teaching methods. These findings support the created research questions that animation positively influences students' learning outcomes.

## KEY WORDS

Animation. Attention. Experiment. Learning. Observational Method. Social Learning Theory. Quantitative Research.

# 1 Introduction

In this day and age, the students of this generation rely on gadgets and the Internet for all activities and communication (Liu, 2020). In the digital age, educational strategies establish an environment conducive to technology-based learning (Saputra & Febriyanto 2019). To achieve this, teachers utilize technology to enhance students' learning experience by creating a comfortable, collaborative space. The incorporation of multimedia in instructional delivery engages students in the learning process through the use of videos, podcasts, and other mediated tools to explain concepts and illustrate key ideas. Wickramasinghe and Wickramasinghe (2021) suggested that teachers should continuously evolve to engage students in their learning process. Teachers should consistently adapt and explore new activities and ideas to encourage students' participation in acquiring knowledge and understanding.

Technology has profoundly transformed societies, embedding its use and necessity into the daily activities of individuals. With the emergence of new technologies, students increasingly prefer to acquire information or knowledge through pictures and illustrations, often opting for animated videos on relevant subjects (Fernandes Brigas & Ramos Fernandez, 2016; Islamoglu et al., 2015). "Students with different abilities can benefit from integrating appealing and engaging animated videos in the classroom, which gives an advantage to both students' understanding and teachers' workload" (Birbaumer & Schmidt, 2006, p. 567).

Students of this generation are growing up in a multimedia-rich environment, where they frequently switch their attention between various sources of information and entertainment. This constant shifting contributes to a decreased tolerance for boredom, requiring high levels of stimulation to maintain focus (Roehling et al., 2010). The traditional method of teaching knowledge is not sufficient to keep pace with the changes of our time. Therefore, teachers are required to incorporate new pedagogical tools that are more engaging, effective, and relevant to the present era (Nwosu & Onwuka, 2022).

A technology-mediated tool, animation, advances the understanding and engages the focus of the student by providing implicit information through non-textual, attention-grabbing gestures, tone of the content, sound and background music in an enjoyable learning environment which generates learning engagement for a longer time and offers motivation (Ünal Çolak & Ozan, 2012).

This study aims to evaluate the efficacy of animated videos in facilitating the learning process and enhancing academic performance among primary students. It also seeks to compare the outcomes of traditional teaching methods with those using animated videos by using the four steps of the observational model from Albert Bandura's Social Learning Theory.

The effectiveness of using illustrations and dynamic visuals in learning programs enhances accurate knowledge gaining, improves comprehension and facilitates problem-solving (Lewalter, 2003). The impact of learning strategies on the learning process with illustrations depicts the cognitive process contributing to the supportive function of visuals. This notion was also supported by Abdo and Al-Awabdeh (2017), whose study suggested that students may need additional support through moving images to use suitable learning strategies to learn more effectively with moving visuals, which creates a significant impact on students' achievements.

Alrwele (2007) fixated on the moving image and its impact on student's success, which displays that incorporating moving images and infographics into educational settings has proven to be a potent tool for enhancing students' academic performance and comprehension of course material, which benefits in improved learning outcomes, these dynamic visual aids possess the potential to enhance students' cognitive abilities and intellect.

The use of animation in teaching proved effective in enhancing students' achievements, retention, and interest. The incorporation of animation provided students with a richer learning experience and students can effectively process information within their cognitive structures (Aiyedun, 2020). When evaluation between visual and textual communication has been done, it can be claimed that visual communication seems to consume a greater impact

than verbal or textual communication, which leaves a more enduring and permanent impression on the mind (Dur, 2014).

## 1.1 Effects of Animation on Learning

The illusion of movement by the rapid display of a sequence of static images that slightly differ from each other creates the continuous motion and shape change illusion (Bétrancourt & Tversky 2000). Discoveries say that children love animations, so they observe their activities and they learn their behavior. Animated videos have an inordinate impact on students' minds as all children like to watch different genres of animation. By watching animation, the brain processes graphics, imageries and, specifically, educational content. The impact of media animation on children's behavior has grown significantly and holds power over them. Captivating visuals are designed to capture and retain their attention to influence their memory and behavior (Ruchi & Mishra, 2014). Innovative approaches are being developed to enhance student learning outcomes; animation facilitates comprehension of various subjects by accommodating individual learning preferences regarding time, location, and pace. It offers clear explanations of intricate concepts and fosters students' freedom in learning (Mou, 2023).

Using computer simulation and animation in the classroom has proven to enhance students' understanding and significantly impact their discussions on related subjects and problem-solving exercises. The strategy of regularly showing animated videos on the related subject can resolve the unsatisfactory performance of the student in the classroom and also decrease the menace and demotivation aspect in students (Falode & Mohammed 2022).

**RQ<sub>1</sub>:** What are the effects of students' learning through traditional teaching methods and teaching through animated videos?

## 1.2 Animation Towards Attention

Ünal Çolak and Ozan (2012) evaluate that using animated instructive agents through the latest technology and multimedia positively impact on student attitude. Students often find these mediators to be engaging and entertaining, which can make learning, understanding, motivating and attention-grabbing more effective and make the subject matter more satisfying. Achievement and satisfaction in learning attitudes are more effectively fostered through animated videos, compared to traditional learning methods. This approach to teaching provides students with a beneficial means to improve their performance and enhance their retention of acquired knowledge (Orie, 2022). Around the world, schools are utilizing some of this cutting-edge technology to boost students' attention, comprehension and performance (Fernandez Rivas et al., 2020). This led us to create the following:

**RQ<sub>2</sub>:** How does students' attention vary between teaching through traditional teaching methods and teaching through animated videos?

## 1.3 Animation-Based Retention

The move towards active, interactive, and learner-centered teaching methods has revolutionized traditional classrooms, inspiring students and creating more conducive learning environments. Animations aid students' cognitive processes, simplify intricate concepts, and enhance motivation, which improves attitudes and academic performance in courses (Anekwe & Opara, 2021). According to Khanum's et al. (2015) research, animations profoundly and constructively impact on memory retention, comprehension, entertainment, and even advertising.

Animations also outperformed video commercials in terms of their ability to enhance recall. In a multimedia learning environment, learner can benefit from animations rather than textual graphics, which aid in knowledge construction by visually representing complex concepts (Lin & Atkinson, 2011). Visual learners benefit from animated videos, which lead to improved students' learning achievements and retaining information (Puspaningtyas & Ulfa, 2020).

**RQ<sub>3</sub>:** How does students' retention vary between traditional teaching methods and teaching through animated videos?

## 1.4 Recalling and Reproducing Information

Abdo and Al-Awabdeh's (2017) study revealed that participants' achievements significantly improved when they used animations, demonstrating the valuable enhancement of teaching various subjects. The study indicated that participants displayed increased confidence and made fewer mistakes when recalling and reproducing information. Authors also concluded that animations were more effective in facilitating understanding and perception of lessons than traditional methods. Additionally, using animations positively influenced overall student achievement by stimulating memory recall.

According to Mastiah et al. (2023), using animated media with students in teaching has several benefits in education. It helps learners understand complex subjects, particularly science, aids teachers in explaining educational materials, which boosts students' success and satisfaction, improves learning outcomes, and encourages students to reproduce learned behaviors effectively.

**RQ<sub>4</sub>:** How does students' lesson reproducing ability vary between traditional teaching methods and teaching through animated videos?

## 1.5 Motivation for Learning

Motivation is an important factor in triggering and driving effects on individual behavior and facilitating the completion of the learning process. Students' motivation increases with incorporating any engaging animation compared to traditional learning methods (Cevahir et al., 2022). The findings of Rosen (2009) showed a significant effect of an animation-based learning environment on the transfer of knowledge, which shapes motivation. Animation-based teaching improves students' perception of challenging subjects, boosts interest in education, and promotes technology integration and activity-based learning. Education through animated video is a captivating and dynamic field that requires students to be engaged and motivated to succeed. Using animation in instruction can positively impact students' motivation by facilitating the development of concepts (Zheng et al., 2020).

Our proposition on motivation is **RQ<sub>5</sub>:** How does students' motivation vary between teaching through traditional teaching methods and teaching through animated videos?

## 1.6 Theoretical Framework

This study adopted the observational model of Social Learning Theory by Albert Bandura (1977), as the theoretical framework. According to Bandura's Social Learning Theory, learning is influenced by our interactions with others in a social setting. By observing the behaviors of others, individuals tend to adopt similar behaviors. When people observe the behaviors of others, they acquire and imitate those behaviors, particularly when their observations are positive or associated with rewards (Bandura, 1977, in Nabavi, 2012).

Educators have successfully applied the theory of social learning in the learning process. Social learning theory is a bridge between behaviorism and the cognitive approach. Teaching and learning thoroughly integrate with social learning theory. Within this theoretical framework, three distinct models are introduced to explicate the learning process: traditional teaching methods align with the live model category, while animated instruction corresponds to the symbolic model category.

The effect of animated video influences student learning by using the Social learning theory observational learning model, which focuses on attention retention, reproduction, and motivation. The social learning theory emphasizes that learning results from both the social interaction of people and their environments. Tu (2000) discussed that through computer-mediated learning social learning also takes place, learners need to recognize and escalate the social presence. Technology-based activities can create an optimal social learning environment, which is facilitated by the appropriate level of social presence.

The observational model is a key component of the Social Learning Theory that deals with new behavior by observing other skills, ideas and behaviors. Attention, retention, reproduction, and motivation are the steps that are required for the learning process.

**Attention:** In order to learn from observation, an individual needs to stay attentive to the performance being executed. This involves focusing on the relevant aspects of the model's actions, such as their behavior, characteristics, and the consequences of their actions. Factors that can influence attention include the perceived meaning of action, the model's attractiveness or credibility and the level of distinctiveness.

**Retention:** Once individuals have paid attention to the observed behavior or action, they need to retain or remember the information to replicate it in the future. This entails understanding the material in memory and creating mental representations of the behavior. Cognitive processes can enhance retention through rehearsal, association, and elaboration, as well as various strategies and computer-mediated activities.

**Reproduction:** After the behavior has been observed and retained, individuals attempt to reproduce or imitate it. This involves translating the mental representations of the behavior into real actions. Individuals recall the physical and cognitive memory to perform the behavior and make decisions according to their capabilities with the observed model.

**Motivation:** Individuals need to be motivated to reproduce the behavior they have observed. Bandura also emphasized the role of self-efficacy, which refers to individuals' beliefs in their own capabilities to perform under their internal satisfaction successfully. Higher self-efficacy leads to greater intrinsic motivation to imitate the observed behavior.

Through the use of observational learning, the study explored how animated videos can be used to enhance student learning and engagement. It also examined whether animated videos can create a more engaging learning environment for students and how these models influence their attitudes, behaviors, and knowledge attainment. The study also examined if there are any differences in learning outcomes between students who watched animated videos and those who were taught without the use of animated videos.

## **2 Methodology**

This research study used a quantitative approach to examine the effects of utilizing animated videos as a teaching tool on students' learning. The experiment conducted in this study involved two groups: the experimental group, which received animated videos as an instructional tool, and the control group, which used traditional teaching methods. Cevahir et al. (2022) also examined the effects of animation-based instructional materials using both a control group and an experimental group.



## **2.1 Procedure**

A series of experiments were conducted to collect data. The participants were initially sorted based on their grade levels; which are grades 3, 4, 5 & 6, resulting in four distinct groups. Subsequently, each of these groups was subdivided into two smaller groups, the control group and the experimental group, through a randomization process that ensured a balanced representation of students across various demographic and academic backgrounds, enhancing the validity of the study's findings.

The assessment encompassed measuring the participants' scores, aiming to gauge their level of comprehension and understanding of the material, it aimed to calculate the individuals' attention, retention, reproduction, and motivation. It evaluates the influence of the instructional content presented through animated videos and through traditional teaching methods on students' learning and behaviors.

## **2.2 Measures**

### **2.2.1 Attention**

Attention is the cognitive process of selectively concentrating on particular information. It is a state of heightened alertness in which only a specific stimulus is responded to, while other stimuli are temporarily ignored. Attention is gained through observation when behavior is being observed by actively paying attention and accurately perceiving the important aspect (Bandura, 1977, in Nabavi, 2012).

Attention is a covert mental activity occurring within the person, its measurement poses a major challenge to methodological inventiveness. The focus of attention was assessed using behavioral observation, whereby participants' movements were recorded while they were observed and witnessed in both, teaching with animated videos and traditional teaching methods (Bechtel et al., 1971).

To measure attention, students were observed by filming through cameras with assigned seat numbers to ensure accurate data collection. Attention was measured through 3 dimensions: (I) facial expressions (Ekman et al., 1972), (II) children's eye gaze (III) and aversion during experimental presentations (Alwitt et al., 1980; Anderson & Levin, 1976; Krull & Husson, 1979). To measure attention, the participants were evaluated using anti-attention criteria and later reverse coded. Participants were repeatedly measured on the above mention criteria in which each student was marked from 0 to 60, where the score (0) shows no attention and the maximum score (60) shows complete attention.

### **2.2.2 Retention**

Retention relies on remembering observed information and can be influenced by observation. Achieving retention involves visual imagery models or verbal descriptions (Bandura, 1977, in Nabavi 2012). Retention is the capacity to remember, the act or power of remembering things. Retention is the ability to recognize or hold onto information that is given. It is an integral part of learning, as it allows the learner to access information or objects that have been previously encountered.

Five items were used to measure retention. These items likely encompassed tasks or questions related to the content presented (Chiou et al., 2015). This same set of items was administered to both the experimental and controlled groups. The items were designed to inquire about the processes and stages of the topic presented via the animation. A scoring system was implemented to gauge the accuracy of students' replies. Each correctly answered item established a score of 1. The maximum score of 5 indicated the highest level of retention, while a score of 0 represented no retention of the material.

### 2.2.3 Reproduction

Individuals can translate observed skills into practical behavior. Reproduction is a fundamental concept, it is the act to duplicate or reproduce a behavior or response previously learned or experienced (Bandura, 1977, in Nabavi, 2012).

To measure the reproduction of lessons in the study, the researchers utilized a set of items that were specifically designed to assess the participants' ability to replicate or reproduce the observed behavior. These items likely encompassed tasks or questions related to the content presented (Chiou et al., 2015) through animated videos and the traditional lecture delivered by the teacher. The scoring system was implemented to assess the level of precision in the participants' responses to these items. Each correctly answered item was assigned a score of 1 out of 5, the maximum score (5) shows the highest reproduction and the lowest score (0) shows no reproduction of the observed area, reflecting the participants' accurate understanding and reproduction of the content. This scoring methodology allowed for quantitative evaluation of the student's performance in reproducing the observed behavior or information.

### 2.2.4 Motivation

For observational learning to be effective, individuals need to identify a motivation or rationale for imitating specific targets (Bandura, 1977). Motivation is a key factor in any learning process, and it can help keep people motivated to continue learning and to try and replicate the behavior they are observing.

Self-determination theory suggests that human behavior is driven by different types of motivation, each varying in the level of self-determination. These motivations include intrinsic motivation, extrinsic motivation and amotivation (Deci & Ryan, 1985). Motivation in this experimental research was gathered through intrinsic motivation. Motivation refers to actions that are engaged in for their own sake, driven by the enjoyment and fulfillment that the target brings.

Guay et al. (2000) constructed a tool to achieve intrinsic motivation, which is replicated in this study. Students' motivation was measured through a set of 5 statements. Each statement is scored through the scale: 1 corresponds to *not at all*; and 7 corresponds to *exactly*, where the highest score shows a high amount of motivation in the control group and experiment group.

## 3 Results

In the quantitative study, the reliability analysis of the internal consistency and accuracy of the scale, to see the item consistently, has the same results. The internal consistency and accuracy of attention and motivation of students between both groups are analyzed. The value of the measurement scale of Attention = 0.88 and Motivation = 0.85, is higher than 0.7, indicating that the items within the Attention and Motivation scale are reliable.

The study consisted of 170 respondents, with 85 individuals assigned in each group. The percentages of males and females in each grade (3, 4, 5 and 6) are relatively similar with small variations. The differences in percentages between males and females indicated linear distribution that is essential for analyses and drawing accurate conclusions from the study's results.

Age, grade, and gender provide an overview of the central tendency, variability, and range of the data for each variable. Table 1 indicates that the sample consisted of 170 respondents, with ages ranging from 7 to 13. The average age of the respondents is 10.35, with a standard deviation of 1.26, which shows the distribution of ages in the sample.

	Min	Max	M	SD
<b>Age</b>	7	13	10.35	1.27
<b>Class</b>	3	6	4.89	0.98
<b>Gender</b>	1	2	1.43	0.50

\*Note: N = 170

**TABLE 1:** Descriptive statistics of age, class and gender

Source: own processing, 2024

The grade seems to represent different groups or levels within the study. The sample minimum and maximum values indicate four different grades 3, 4, 5 and 6. The standard deviation of 0.98 shows the spread of the class distribution. As for the two categories of gender, male and female respondents in the study the mean value of 1.43 suggests that the sample has a slightly higher representation of the male gender category.

### 3.1 Testing Research Questions

The purpose of the study was to see the effects of teaching through animated videos on students' learning. In line with this objective, a research question was formulated, focusing on the learning of the student.

In assessing learning outcomes, comprehensive approach was adopted by adding scores of retention, attention, reproduction, and motivation. This multifaceted evaluation allowed for a comparison between the controlled group and the experimental group by applying simple linear regression. Through this method, the change in results was observed that is influencing the learning process. Table 2 shows the impact of animated videos on learning. The R<sup>2</sup> value of 0.51 revealed that the predictor variable explained 51% variance in the outcome variable with  $F(1,168) = 175.301$   $p < 0.001$ . The findings revealed that group changes from traditional to animation teaching and learning in students increased (Beta = 0.72,  $p < 0.001$ ).

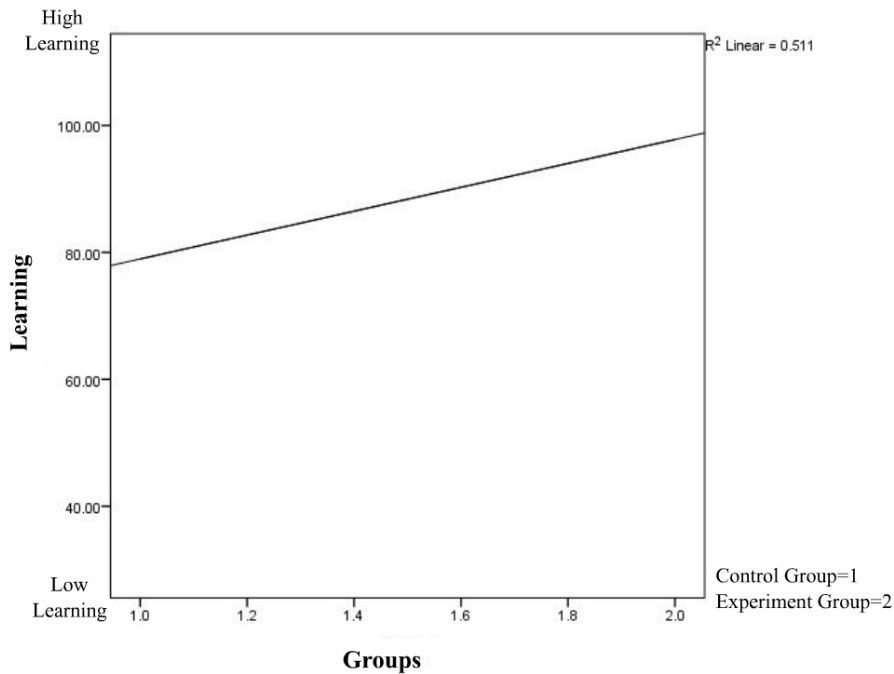
Variable	B	$\beta$	SE
<b>(Constant)</b>	0.15		2.25
<b>Group</b>	18.81	0.72	1.42
<b>R<sup>2</sup> Change</b>	51%***		

\*Note: Traditional Group = 1, Experiment Group = 2, \*\*\* $p < 0.001$

**TABLE 2:** Regression of learning on groups (N=170)

Source: own processing, 2024

The R<sub>2</sub> value of 0.51 indicates the use of animation in the outcome variable, learning. The use of animated videos has a 51% of variance in learning outcomes. F-statistic  $F(1,168)$  value of 175.301 indicates that the ratio of both variances is significant. This indicates that the relationship between the experimental group and the outcome variable learning is based on analysis. The p-value of less than 0.001 ( $p < 0.001$ ) also directs the significance of the findings. The beta coefficient is 0.72 with the  $p$ -value  $< 0.001$  declaring that the relationship is positive, which means that when groups are increasing the outcome variable, learning is also increasing as shown in the graph.



\*Note: Experiment group = Teaching through animated video, control group = traditional teaching method

**FIGURE 1:** Change in group\* Learning

Source: own processing, 2024

This implies that the experimental group, which received learning through animated videos, statistically has higher values and a significant impact on learning compared to the control group in the study. These statistics support the research question “What are the effects of students’ learning through traditional teaching methods and teaching through animated videos?”

The purpose of the study was to see the effects of animated videos on attention, retention, reproduction and motivation on students’ learning. In line with this objective, four hypotheses were formulated, focusing on the variables of attention, retention, reproduction, and motivation.

To test the variables in research question two, which are attention, retention, reproduction and motivation, an independent t-test was applied on the gathered scores to see the difference between the use of animated videos and traditional teaching methods by comparing mean, standard deviation and standard error mean. The experimental group consistently outperformed the control group, with less variability in their scores.

	Group	Mean	Std. Deviation	Std. Error Mean
Attention	Experiment	56.80	4.34	0.47
	Control	45.41	8.42	0.91
Retention	Experiment	3.98	0.80	0.09
	Control	3.31	1.10	0.12
Reproduction	Experiment	4.40	0.85	0.09
	Control	3.66	1.32	0.014
Motivation	Experiment	32.60	3.0	0.32
	Control	26.59	5.11	0.55

\*Note: N = 170, where Control Group = 85 and Experiment Group = 85

**TABLE 3:** Group statistics of Attention, Retention, Reproduction and Motivation

Source: own processing, 2024

From the t-test results, first, the Levine test was observed to check whether it is above 0.05 or below to decide whether either of the variances in any groups were assumed or not. In this case, the equal variance was not assumed (as  $p > 0.001$ ) in all the variables. An independent-samples t-test was conducted to compare the attention, retention, reproduction and motivation of the control and experimental group. There was a significant difference in the scores between the traditional teaching methods and teaching through animated videos.

Equal variances were not assumed.

	t-test for Equality of Means						95% Confidence Interval of the Difference	
	t	df	p	Mean Difference	SE Difference			
<b>Equal variances not assumed</b>							Lower	Upper
<b>Attention</b>	11.08	125.6	0.00	11.4	1.03		9.35	13.42
<b>Retention</b>	4.54	153.42	0.00	0.67	0.15		0.38	0.96
<b>Reproduction</b>	4.35	143.03	0.00	0.74	0.170		0.40	1.08
<b>Motivation</b>	9.36	135.54	0.00	6.012	0.64		4.74	7.28

\*Note: Levene's Test for Equality of Variances is 0.001, Sig. (2-tailed) = p

**TABLE 4:** Independence sample test of Attention, Retention, Reproduction and Motivation

Source: own processing, 2024

Based on the results of the attention mean and standard deviation, the scores suggest that there is a significant difference in both the variances and means between the groups being compared. The t-value measures the magnitude of the difference between the groups, which was 11.08. This directs the substantial difference between the means of the two groups. The probability  $p < 0.001$  means the difference between the groups is visible. These statistics answer the research question RQ<sub>2</sub> "How does students' attention vary between teaching through traditional teaching methods and teaching through animated videos?"

The t-value of retention is 4.54, which indicates a significant difference. The probability or the p-value for Equality of Means  $p < 0.001$  indicates the difference between the groups is visible. These statistics respond to the research question RQ<sub>3</sub> "How does students' retention vary between teaching through traditional teaching methods and teaching through animated videos?"

Moreover, to test the research question on whether teaching through animated videos will affect the lesson reproducing ability more than the traditional teaching methods, the table showed that the t-value indicates the significance of the difference between the groups, the t-value here is 4.35, which indicates a difference. The probability here is also  $p < 0.001$ , which means the difference between the control group and the experiment group is visible. These statistics support the research question RQ<sub>4</sub> on the lesson reproducing ability.

To calculate motivation, the t-test was also applied, based on the scores gathered during experimentation. T-value is 9.36, indicating the noteworthy difference between the groups when probability, or the p-value, is  $p < 0.001$ , which means the difference between the control group and the experiment group is visible. Within the 95% confidence interval of the difference, the lower interval is 4.74, and the upper interval is 7.28, which also indicates that both groups contain true difference in motivation. These statistics answer the research question RQ<sub>5</sub> "How does students' motivation vary between teaching through traditional teaching methods and teaching through animated videos?"

## 4 Findings and Discussion

The current study explored the effects of the use of animated videos on students' learning in the classroom. The observational model steps of Bandura (Bandura, 1977, in Nabavi, 2012) were explored through a control group and an experimental group (intervention as animated video) on the students of grades 3, 4, 5, and 6 to see the "learning" outcomes and evaluate "attention", "retention reproduction" and "motivation" in the control group and experiment group, that is through traditional teaching methods and animated videos respectively.

Based on observations in the learning process, it can be seen that in students' activities during the learning process, students seem to pay less attention to the explanation from the teacher when learning takes place. They were seen to play and talk with friends, do their activities, and lack concentration on the teacher's explanation (Ramadhan et al., 2021). When explored learning as a variable in detail, it was found that integrating animation or animated videos in the classroom is highly effective in students' learning in the classroom. These results indicate that animations prove to be impactful in enhancing students' educational achievements. Aiyedun (2020) attained similar findings when investigating the impact of utilizing animation in teaching strategies on secondary school students' achievement, retention, and interest.

Using animation or moving images by the teacher in the classroom, regarding the topic, has considerable potential in education to enhance students' aptitude, functional skills, and affective development in the learning process (Alrwele, 2017).

Every four steps of the observational model in the learning process, attention, retention, reproduction and motivation were methodically examined by researching the intricate details

First, attention was the variable that analyzed the use of animated videos for learning to attract more attention than the traditional teaching method. According to the analysis, the attention levels detected in the group where teaching through animation was given were significantly higher compared to the group with traditional teaching methods. This indicates that students who were exposed to learning through animation exhibited a greater degree of engagement and attention. Higher levels of focus suggest that students are actively engaged in their education while watching animation, which can enhance the processing and comprehension of new knowledge. The result of the study supported the existing literature (Jeetha & Prasad, 2021) stating that incorporating animated teaching videos can help alleviate boredom during the learning process and address the limited attention span. The benefits of animation are well established in education and it is scientifically proven that dynamic illustrations can be captivating and can be retained in memory for a longer time.

Retention was another step of the observational Social Learning Theory model which was the study variable. The analysis and results revealed that animated videos for learning had a greater impact on retention compared to traditional teaching methods. This finding suggests that implementing animation enhanced the students' ability to retain information over long time. The result can be verified through previous literature, as by Mayer (1997; 2001) who established in several experimental studies that learning and retention with animations can be more effective when they are blended with vocals rather than textual (Ploetzner & Lowe, 2004). The results of the study also aligned with the literature by Khanum et al. (2015) stating that learners exhibit enhanced learning and retention exhibits enhanced learning skills when the learning material is presented in an animated form. The use of animation captures the attention of learners and retains the information.

Further, this study also found the relationship between animated videos for learning and their effects on reproducing the skills from the learned behavior. The finding indicates that during the study students reproduced or imitated the learned behavior after watching an animated video, which is more notable than within the traditional method. The observation of the group which was exposed to animation videos as an intervention showed that this type of intervention had a more pronounced influence on the student's aptitude to reproduce the learned work or copy



behavior. Similarly, Ruchi and Mishra (2014) also found that animation helps the student to reproduce their work effectively. The influence of cartoon animations has pointedly increased, particularly on children who are regularly open to various forms of media and in that animated films are mainly influential. The impact of these animations on behavior is evident in several actions, as they tend to imitate and reproduce from the learned actions.

The finding revealed that the use of animated videos for learning improves motivation more than traditional teaching methods. The current study showed signs of a high level of motivation when watching animated videos related to their coursework (Cevahir et al., 2022), particularly during the mid-day break at school when interest in learning tends to fade. This specifies that the use of animated videos as a teaching tool can effectively engage students and keep their motivation active to learn, even during times when students' attention spans decrease. There is a notable difference in motivation levels in the experimental group, which was exposed to animated videos that had a significant effect. The control group in this study, relying on conventional teaching approaches, experienced considerably lower levels of motivation compared to the experimental group. This suggests that animated videos have a unique ability to captivate students' interest and maintain their enthusiasm for the subject matter. Rosen (2009) validates these findings, his study showed a drastic shift in student perception of science learning. He said that the change due to animation in the classroom created an environment in which students were enthusiastic and motivated to learn and participate more. He also explained that students with learning disabilities also benefitted from the new technology learning and animation.

The results of the study that show high learning attention, comprehension, and attitude towards understanding through moving graphics or animation are consistent with the previous studies (Gallicano et al., 2014; Gareau et al., 2015; Alotiabi, 2016; Al Hosni, 2016) and also direct that animation positively and significantly impacts students when used properly and effectively. These studies validate that using animations as a teaching tool can enhance students' learning process.

## **5 Conclusion**

The study aimed to explore the use of animated videos as a teaching tool for students by using the steps of the observational model of Social Learning Theory. The variable used varies by the group, which was made among students.

The findings of this study validate that animation has a significant impact on the various aspects of students' learning. Animation grasps and captures students' attention more effectively than traditional static teaching methods or textual resources. The dynamic nature of animation engages students' senses, motivates their interest, and makes the learning experience more immersive. Moreover, animation improves the retention of information with visual images, storytelling techniques, and simplified visual representations, which facilitates better comprehension and long-term memory retention. In reproducing the learned behavior by students, animation increases the active involvement of students and leads to improved learning outcomes. The vibrant nature of animation compels students' curiosity, interest and involvement in taught content, which leads to improving academic performance and achievements.

By conducting an experimental study, the paper may contribute to understanding of how animation affects students' learning outcomes, memory retention, and engagement, which will potentially add to existing theoretical knowledge. This study provides insights into the effectiveness of incorporating animation into educational practices. It could provide practical guidance for educators on how to design and implement animated learning materials effectively, optimize instructional strategies, and enhance students' engagement and learning outcomes. In Pakistan, the paper's findings may help in curriculum development for schools, to develop the curriculum using animation and technology as teaching tools, which will pave the way for a transformative impact and positive change.

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Viera Krúpová

# Podcasts as an Attractive Educational Tool

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## ABSTRACT

Media plays a key role in the learning process. Many listeners, viewers, readers, or visitors of online platforms look to the media as a source of new information to expand their knowledge. With a constantly changing lifestyle that keeps accelerating and putting ever higher demands on people to do several things at once, new media are gaining popularity. One of them is a podcast, which reflects the modern person's need to do more things at once – that is, to gain new knowledge or to be educated in addition to other activities. The ambition of this study is to focus on podcasts in terms of education and on what this form of media offers to its listeners. In more detail, we want to focus on two specific categories of podcasts – official media and official educational institutions. The main goal of this study is to map and point out how the media and official educational institutions, selected by us, use podcasts for education, what forms they prefer, what the frequency of presented materials is and how they process educational content. We will also focus on evaluating whether and in what form podcasts are offered to users.

## KEY WORDS

Broadcast. Education. Educational Institutions. Media. Podcast. Radio.



# 1 Introduction

Media, in general, fulfill several functions. They reflect the requirements of a part of their viewers, listeners, or readers and try to fulfill their needs to get new information and expand their knowledge. In the case of public service media, this function is given by law (*Zákon č. 532/2010 Z. z. o Rozhlase a televízii Slovenska* [Act No. 532/2010 Coll. on Radio and Television], 2010). Among the attributes of public service media is also broadcasting in the service of the public sphere – in this case, the public sphere is understood as a space where members of the public become citizens who jointly decide on matters of common interest. Public media should provide them with access to information and knowledge that will enable the individual to participate in public life (Šmíd, 2004). In addition, public media have responsibility for the development of society in several areas, they provide a program service that consists of news, journalistic news, documentary programs, artistic programs, musical programs, sports, entertainment and educational programs, genre-diverse programs for children and youth and other (*Štatút rozhlasu a televízie Slovenska* [Statute of Radio and Television of Slovakia], 2011). Various educational programs also serve to fulfill this mission. Private media are also engaged in the production of educational formats. Their delivery is usually aimed at a more popular, simpler way in order to achieve the highest possible viewership or listenership.

Educational programs are an integral part of television and radio broadcasting. Radios are an excellent platform as well as a mediator of educational programs. Compared to other media, radio media content can be listened to anywhere, and under any circumstances, a whole range of other activities can be performed while listening. According to I. Jenča, radio broadcasting, i.e. auditory broadcasting, can be characterized by several specificities. Among the specifics of radio journalism, he includes acoustic principle, promptness, differentiated effect on a wide range of listeners, continuity of broadcasting, ubiquity – i.e. availability in any place, operability, responsiveness – possibility to listen alongside other activities, authenticity (Jenča, 2004).

However, as several authors point out, due to the rapid development of new communication channels, including the Internet, some specifics of radio broadcasting are no longer unique. In connection with this topic, according to S. Brečka, the only thing specific to radio broadcasting is that it can be consumed while performing other activities, especially those that do not require a lot of attention (Brečka, 2009). This specificity – the possibility to listen to podcasts while performing other activities – is also used by podcast creators, who base their creation and production of their podcasts on this specificity, develop it, and transform it into specific genres. For the new format – podcasts, it is important that it reflects the change in the lifestyle of a modern person. That is the ever-accelerating pace of everyday life, the demands placed on a person during the work process, and the need to materially provide for oneself and one's family. This is directly related to the effort to maximize the use of not only working time but also time that is intended for relaxation, rest, sports activities, social interactions, and family care. The meaning of auditory creation, i.e. podcasts, is to provide the opportunity to listen to a spoken text or obtain new information in addition to other activities, anytime and anywhere.

In this context, we find it very interesting to explore how podcast authors, creators, or producers use podcasts for educational purposes. We will take a closer look at what type of formats they choose, how they process content, and how often they broadcast this type of podcast. Since it is a very extensive media environment, we do not have the ambition to map it all at once in the first stage of our research. Through selected examples, we will find out what type of areas they mostly focus on and if they are different, specific, or unique in any way. In our research, we will use the methods of quantitative and qualitative content analyses, comparison, and generalization. This study aims to provide a picture of access to educational podcasts, in selected media and educational institutions in Slovakia.

## 2 What Exactly Is a Podcast?

There are many definitions of podcasts. One of the comprehensive definitions can be found in 2006 when the author D. Potter defined podcasts as digital files that can be downloaded from the Internet and listened to anywhere and anytime (Potter, 2006). According to the *Chicago Tribune*, a podcast is “a digital recording of a radio broadcast or similar program that is available on the Internet for download to a personal audio player” (Chicago Tribune, 2005, para. 2). R. Berry also compares a podcast to a radio broadcast, but emphasizes that their distinctive style, sound and aesthetic qualities must be taken into account (Berry, 2016). Definitions of Slovak authors or producers of podcasts are also available. D. Tvrdoň, a person who is responsible for the growth of podcasts on the sme.sk platform states that a podcast is an audio recording on the Internet that we can listen to or download to our smartphone or another device. The main principle is the possibility to listen to it later (Tvrdoň, 2019). M. Fenčák, a producer, one of the founders of the Slovak podcast platform ZAPO, among other positions in the field, also the former program director of Radio Expres, therefore, a person who has extensive experience with auditory creation, stated that he believes that podcast is an equal, friendly and free debate, where no one is the presenter or the guest (Fenčák, 2021, in Šiška, 2021). The writer and journalist T. Ulej, who is considered the “father” of podcasts in Slovakia, says that there is a very blurred line when defining what a podcast actually is. It’s spoken word, so even a radio show that someone posts online can be a podcast. He adds that, according to him, the only thing that makes a real podcast different is its technological part, that is, that it has some XML Feed, based on which a person can download a recording and listen to it later (personal communication, April 12, 2021). In general, a podcast is described as an audio recording that the author places on the Internet to spread information and share knowledge. The podcast can be listened to online with an Internet connection or offline by saving it to a mobile device that allows you to listen to the podcast later (Web Academy, n.d.). In light of the above, the authors agree that a podcast is an audio recording that listeners can download to their devices or listen to directly in the podcast application.

### 2.1 Short Look at the Evolution of a Podcast

In Slovakia, podcasts began to spread more massively after 2017, when several media and news portals began to create them. Journal *SME* is still one of the most important experimenters in the field of podcasts. Its first news podcast *Dobré ráno [Good Morning]* was created in October 2017. According to Journal *SME*, 13 podcasts, tens of thousands of regular listeners and their number is still growing, experimentation continues in 2019 (Tvrdoň, 2019). Podcasts started to be talked about more intensively in Slovakia in 2018. Podcasts started to be created by several Slovak portals, online radios, commercial radios, televisions, and even the Press Agency of the Slovak Republic. The news portal *aktuality.sk* created a daily news podcast *Nahlas [Out loud]*. *Denník N* started publishing a regular summary of the day’s most important events and also prepares a *Newsfilter* podcast six times a week. The Press Agency of the Slovak Republic prepares a daily short summary of events in the podcast *Journal*. The weekly *Trend* portal provides its video show *Otvorene [Openly]* as a *Trend.sk* podcast. Television Markíza publishes a recording of the Sunday political show *Na Telo [Right to the Point]*. Commercial radio stations publish part of their broadcasts as podcasts, Rádio Expres, Funrádio, and local Trnavské rádio [Radio Trnava]. In 2018, several independent podcasts were created in Slovakia that were not connected to any major media. They mainly focus on conversations between podcast creators and their presenters on various topics from marketing strategy, lifestyle advice, health, parenting to spiritual guidance or entertainment (Tvrdoň, 2019). Podcasts are trending even after 2019 and are still growing today. New podcasts have been launched by several media, national Slovak radio stations have started publishing shows in the form of podcasts, including RTVS.

Several well-known personalities and YouTubers have also tried this genre (Tvrdón, 2019). Podcast is becoming a common media standard today. We are seeing even larger podcast producers entering the scene, such as Bauer Media, and ZAPO, who also subsume smaller producers, including independent podcast creators. As for the genres of podcasts, they are based on existing genres of radio production. If we apply the tertiary division of radio genres into news, journalism, and artistic broadcasting, we can observe that the categorization is almost functional (Kolenčík, 2023). According to P. Kolenčík, the basic genre of the podcast is journalism, in particular journalistic interviews. Compared to traditional presenters, podcasters often have the fundamental advantage of a huge immersion in a specific issue, thanks to which they can conduct deep conversations on given topics on a huge scale (Kolenčík, 2023). This is often reflected in podcasts that aim to deliver educational content.

## 2.2 Media as an Educational Tool

One of the main functions of the media is education. The authors D. Kováčiková and S. Sámelová in their publication *Filozofické, sociálne a pedagogické východiská edukácie* [Philosophical, Social and Pedagogical Starting Points of Education] (2016) refer to the definition of education published in the *Pedagogický slovník* [Pedagogical Dictionary]. In it, the three authors, J. Průcha, E. Walterová, and J. Mareš, understand education as a process of deliberate purposeful action on a person's personality to achieve positive changes in their development. Education is therefore a process in which the teacher acts on the student by applying available methods in order to convey new information to them (Průcha et al., 2013, in Kováčová & Sámelová, 2016). *The Oxford Dictionary* defines education as the process of education, training, and learning, especially in schools, colleges, or universities, intending to improve the student's knowledge (Oxford advanced, n.d.). However, education cannot be only seen as learning carried out in official educational institutions. Education can take several forms – formal, informal, institutional, during compulsory schooling, further education, and lifelong learning. Education obtained through the media can also be seen as one of the relevant forms of education. According to V. Kačínová (2015), the media should not only serve as a means of education in the entire process of education but should be the subject of education. The author also specifies the media used in the educational process:

- printed media (books, periodic and non-periodic press);
- audio media (broadcast, CD);
- audio-visual media (film, television, DVD);
- new media (CD-ROM, internet, digital television, pocket laptops, tablets, mobile, telephones) (Kačínová, 2015).

Critical thinking and fact-checking skills enable young people to critically and responsibly navigate a complex media environment (Kačínová & Vrabec, 2022). Also, according to the survey *Children and New Media 2023* by ResSolution Group and Nielsen, children use the Internet not only for homework but also for school preparation. Search engines such as Google or Seznam surpass traditional textbooks and notebooks, especially among children aged 12-13. Of this age group, 64 percent of children use an Internet search engine to learn and prepare assignments, while textbooks and workbooks are in second place with 54 percent (Mediálne, 2023). The young generation therefore prefers modern, interactive forms for obtaining information or education. Knowing this aspect of communication is a great opportunity for the active involvement of youth groups in properly facilitated informal discussions on socially important topics – of course, in a form that is appropriate, accessible, and sufficiently attractive for the “online” generation (Vrabec, 2008).

The use of new media is natural for the online generation. They are used to getting information whenever they need it or find it important. They do so via tablets, mobile phones, or computers. Podcasts are one of the ways to get information on demand. There is therefore an assumption that they serve not only the function of obtaining information but can also be a good source for education. According to a survey conducted and published in the 2021 issue of *Quo Vadis Mass Media*, up to 48% of high school students listen to educational podcasts. Although podcasts are not yet fully integrated into educational processes within schools, many students use them for supplementary education (Matláková, 2021). Available online platforms offer a relatively wide range of educational podcasts produced by official media and official educational institutions, but also by several independent personalities, well-known presenters, or influencers.

### 3 Methodology

This study aims to analyze and compare selected podcasts focused on education in the media and official scientific and educational institutions, not only in terms of content but also in terms of formality. As part of the research, we will use quantitative and qualitative content analyses in order to find out podcasts' content and the level of their processing.

As our research material we will use podcasts devoted to education – podcasts of selected media and podcasts of selected scientific and educational institutions in Slovakia. We chose these media because we expect their podcasts to be on a professional level, as they are produced by experienced workers. We have selected media outlets with the longest history of podcast production. We included scientific institutions that focus on science and research because they must inform the public about obtained scientific results. In this day and age, popularization is often talked about, and podcasts can be an attractive popularization tool.

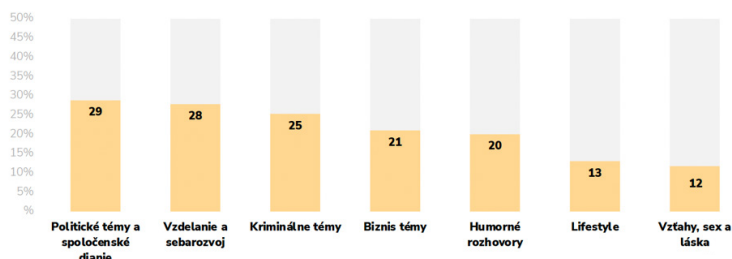
For the media, we decided to include a podcast by *Radio FM*, *Čierna labuť\_FM* [*Black Swan\_FM*] (RTVS, n.d.), and a podcast by *Denník SME* called *KLIK* [*CLICK*] (SME.sk, n.d.). *Radio FM* is one of the pioneers of podcasts in Slovakia. They started podcasting just two years after podcasts appeared in the world. The third circuit of public radio launched its first podcast in April 2006 (D. Vančo, personal communication, May 6, 2021). They continue their podcast production to this day. Among the first experimenters and still important producers of podcasts in Slovakia is the daily *SME*. Their first news podcast, *Dobré ráno* [*Good Morning*], was created in October 2017 (Tvrdoň, 2021). Today, together with Bauer Media and ZAPO, they are among the most important producers of podcasts in Slovakia. They share up to two-thirds of the 'podcast pie' in Slovakia (2muse, 2024). In the field of scientific and educational institutions, we decided to include *Vedecký podcast SAV* [*Scientific podcast SAV*] (Akademiasav, n.d.) and *Veda na dosah* [*Science Within Reach*], a podcast produced by Slovak Centre of Science and Technical Information (CVTI) (*Veda na dosah*, n.d.). The Slovak Academy of Sciences is the largest scientific institution in Slovakia. It is logical and natural to expect it to devote itself to educating the public. CVTI is an organization of the Ministry of Education, Research, Development, and Youth of the Slovak Republic, which is dedicated to educating children and adults. As part of the overall observation, we will monitor all selected podcasts and their production throughout the year 2023. All episodes during the year 2023 will be evaluated. Specifically, the podcast *KLIK* [*CLICK*] produced 55 episodes, the podcast *Čierna labuť\_FM* [*Black Swan\_FM*] produced 36 episodes, the podcast *SAV* 20 episodes, and the podcast *Veda na dosah* [*Science Within Reach*] 21 episodes. So, we analyzed a total of 132 episodes. As part of the qualitative content analysis, we will monitor the following criteria: content, presenting style, and the overall way of conducting the podcasts, the structure of the podcasts in terms of content and formality, and the length of the podcasts. As part of the evaluation of the obtained data, we will use the methods of comparison and generalization.

## 4 Educational Podcasts

Educational podcasts are part of podcast production in Slovakia. According to 2muse Agency, the only agency in Slovakia concerned with the topic and research around listenership, educational topics are sought out and popular among listeners.

### Spontaneous listenership based on the topic/character of a podcast

People are highly interested in learning, mainly about politics, events in society, or self-improvement. They entertain themselves with criminal mysteries or humorous interviews. The least popular podcasts are about relationships.



**FIGURE 1:** *Spontaneous listenership based on the topic/character of a podcast*

Source: 2muse (2024)

Topics concerned with education and self-development came at second place in spontaneous listenership based on a topic/character of the podcast, around 28% of all podcast listeners in Slovakia chose these topics.

Podcasts are placed on podcast platforms/applications from which they can be listened to directly or downloaded to the listener's own devices. Educational podcasts appear in various categories, they can be found not only in the category of Education but also in the categories of Science, Health, Technology, IT, and more. In the category of Education, the content of podcasts is devoted to various topics – teaching foreign languages, self-development, history, science, new technologies, law, design, business, real estate, book publications, coaching, and many others. Educational podcasts are produced by the media, by official institutions, as well as by well-known and lesser-known personalities – actors, presenters, influencers, and education experts. For the purposes of this study, we have chosen two podcasts produced by the media, which are produced by producers whose work in the podcast production has been significant for years, and two podcasts produced by institutions that, in terms of their focus, are expected to systematically focus on the topics of education.

### 4.1 Podcast by SME.sk – KLIK [CLICK]

The *SME* newspaper produces a wide range of podcasts, 34 in total (as of February 24<sup>th</sup>, 2024). On a regular basis, it produces podcasts on various topics, for example – politics, history, mental health, science, culture, and more. In addition, it also produces the so-called mini-series, i.e. podcasts with a limited number of episodes, for example on topics such as the Holocaust, disadvantaged people in the labor market, excluded communities, the climate crisis, etc. As part of its production, *SME* newspaper also prepares podcasts in cooperation with external suppliers, mostly either other media or non-profit organizations/civic associations. For the purposes of our study, we have chosen the podcast *KLIK* [CLICK], because it has educational content and is produced by the *SME* newspaper, that is, it is produced in-house, and the newspaper's employees are directly involved in its production. Podcast *KLIK* is a technological podcast,

that has been produced by *SME* since 2019, overall, with 277 episodes (as of as of February 24<sup>th</sup>, 2024). The podcast is primarily focused on happenings in the world of technology, media, and social media. It is produced on a weekly basis, always premiering on Saturday. When it comes to podcast *KLIK [CLICK]* (*SME.sk*, n.d.) we have focused on all episodes produced in 2023, 55 episodes to be exact. From these, 51 episodes were published in the regular time. In addition, the producers also prepared 4 episodes that came out on a different day of the week and were marked by the presenter as special editions of the podcast and also had a different structure than other regular episodes of the podcast. On Saturday, December 23<sup>rd</sup>, 2023 the podcast was not released because it was the Christmas holidays. The length of the podcasts varies, ranging from 35 minutes to 70 minutes. The podcast which is published on Saturday is presented by two presenters – Dávid Tvrdón and Ondrej Podstupka. Special editions of the podcasts had one host and a guest in the studio. The podcasts are available in the *SME* app or on Apple, Google, Spotify, and RSS.

Date	Topic of the podcast
7.1.2023	Don't ask if but when. Robots will take over our jobs sooner than you think.
14.1.2023	CES 2023 shows amazing year for laptops and intelligent home
21.1.2023	Twitter is falling into a downward spiral
28.1.2023	The rapid growth is over
4.2.2023	It's not going to be better. Technological companies reported a bad quarter
11.2.2023	The first big battle for artificial intelligence will take place on search engines
18.2.2023	Why tech platforms end up swallowing themselves
25.2.2023	Apple maybe just cracked a whole new market
4.3.2023	It is clear now, that AI will be mainly laughed at
11.3. 2023	Spotify also succumbed, it will get a feed like TikTok
18.3.2023	We were mistaken, robots will win
25.3.2023	AI, everything, everywhere, all at once
1.4.2023	We know how Twitter will die
8.4.2023	ChatGPT bachelor events and experiences
15.4.2023	We explain how exactly ChatGPT works
22.4.2023	YouTube without advertisements is more popular in Slovakia than Voyo
29.4.2023	The authorities are already protecting existing markets, in technology
6.5.2023	We've been waiting decades for passwords to die. It's finally within reach
13.5.2023	Google is going to war with Microsoft and Samsung
20.5.2023	First notebook with virtual screen will hit the reality
27.5.2023	Netflix started a new era of piracy
3.6.2023	Kings of robots beg us to stop them
6.6.2023	Apple showed an expensive "mixed-reality" headset, new Mac computers and updates in operating systems
10.6.2023	Not even Apple has found a miraculous use for VR
17.6.2023	The war for Reddit has reached a heated stage
24.6.2023	Middle age crisis entered Silicon Valley
1.7.2023	How Apple became a victim of its own success
8.7.2023	Zuckerberg wants to destroy the remains of Twitter, Instagram is starting new app Threads
15.7.2023	Microsoft has another victory on a way to building a gaming imperium
22.7.2023	Why streaming and AI started a riot in Hollywood
29.7.2023	If you sell your humanity to TikTok, you will make more money than on OnlyFans



5.8.2023	Why Apple bought Messy
12.8.2023	Netflix pushes games into TV, it will compete with the big players
18.8.2023	How artificial intelligence can influence parliament elections
25.8.2023	Will artificial intelligence end the world? How to install a smart home?
2.9.2023	ChatGPT announces capitalism of later days
9.9.2023	Brussels started another fight with Apple, Facebook and Microsoft
13.9.2023	Apple did not impress with Iphone 15, it will take better pictures but it's not revolutionary
16.9.2023	We argue, is the new iPhone 15 a shame?
23.9.2023	Microsoft hopes that AI will save Window's revenue
30.9.2023	The twilight of podcasts is coming, the ecosystem is being torn apart by the big platforms
7.10.2023	After years, it is a good time to buy a gaming notebook
14.10.2023	The war of artificial intelligences has begun. In the comment section on Amazon.
21.10.2023	How Microsoft is quietly building a Trojan horse
28.10.2023	We are having a fight about artificial intelligence so you don't have to
3.11.2023	You will no longer hide from Youtube advertisements. They are blocking the blockers.
11.11.2023	The next effect of AI battles will be in mobile phones, but Apple is not handling it well
18.11.2023	Recommending technological gifts for Christmas 2023
21.11.2023	A palace coup in OpenAI. Klik hosts in Good morning.
25.11.2023	What started the decomposition of OpenAI?
2.12.2023	Instagram knows exactly how it hurts children and how much it makes doing so
7.12.2023	How to shop online safely
9.12.2023	Google showed how it wants to win against ChatGPT
16.12.2023	Twitter can finally be replaced by a different app from another sociopath
30.12.2023	Forecast of 2024: AI will interfere in elections. Threads will beat Twitter

**TABLE 1:** Podcast topics – KLIK [CLICK]

Source: own processing, 2024, according to SME.sk (n.d.)

Most podcasts were devoted to artificial intelligence and technologies related to it, with a total of 18 episodes. 3 episodes were devoted to robotization, 11 episodes to social networks, and 10 episodes to news about technology – iPhones, laptops, and online platforms. The podcasts were also devoted to news or the current situation in technological companies – a total of 10 episodes, 3 episodes were dedicated specifically to buying gifts, game consoles, or warnings about the risk of shopping online.

### The structure of the podcast (regularly released)

The podcast has its regular structure: an introductory jingle, greetings from the presenters, an introduction of the topic, a jingle, an advertisement, a jingle, a discussion about the topic between the presenters, if there is a change of topic: a jingle, a goodbye, a conclusion, a jingle, an advertisement.

At the beginning of the podcast, an audio jingle plays, which is distinctive and dynamic. The same audio jingle appears both during and at the end of the podcast. Podcast hosts greet listeners, always stating what episode number it is. They will introduce a topic or several topics that they will talk about. The topics are based on current events, that is, they are topics that resonate with the public or in the media in the current week. An audio jingle will be played after the topics are introduced. An advertisement lasting about 30 seconds follows. The audio jingle will sound again. Afterward, the presenters continue the conversation about the topic/topics of the podcast. They try to create a very informal atmosphere in the studio, it is practically a form of a free dialogue between them, which is informal and easy to understand.

They both try to discuss rather complex topics in a simple and concise way. They bring information to listeners simply, while also trying to explain complex topics to listeners who are not experts in the field. On the other hand, during the discussion, they go into depth about the topic, and they try to bring as much relevant information as possible. At the beginning, they always introduce the topic and then expertly explain its meaning. If it is a practical topic, they also focus on how it can be used in practice, and in what areas. An audio jingle is always played when changing the topic. At the end of the podcast, the presenters thank the listeners and provide practical information, e.g. where the podcast can be listened to, and how it can be listened to without ads (if listeners have paid for premium content and listen to the content through the *SME* app). At the end, the presenters will indicate when the next episode will be released and thank the collaborators who participated in the podcast. An audio jingle will play. The jingle is followed by an advertisement lasting about 30 seconds.

### **The structure of the podcast (special edition)**

The special edition of the podcast has the following structure: an introductory jingle, a greeting by the presenter (podcast has only one presenter), an introduction of the topic, an introduction of the guest, a jingle, an advertisement, a jingle, a discussion between the presenter and the guest on a chosen topic, if there is a change of topic: a jingle, a goodbye from the presenter, a jingle, an advertisement.

At the beginning of the podcast, there is a jingle, the same as in regular episodes. There is only one presenter – either Ondrej Podstupka or Dávid Tvrdoň. They alert listeners that this is a special edition of the podcast. They then introduce the topic and introduce the guest. A jingle follows, followed by an advertisement lasting about 30 seconds. Then the presenter interviews the guest. The interview is conducted in a pleasant, informal atmosphere. The presenter asks comprehensible questions that are easy to understand even to listeners who are not experts in the given topic. At the same time, the presenter tries to include as much information as possible on the given topic and obtain all relevant information from the guest. If there is a change of topic, a jingle will play. At the end, the presenter thanks the guest and the listeners and provides useful information for the listeners. Specifically – where can they listen to the podcast, and how they can listen to it without advertisements (if they pay for premium content and listen to the content through the *SME* application). In the end, he will indicate when the next episode will be released and thank the collaborators who participated in the podcast. A jingle will play, which is followed by an advertisement lasting about 30 seconds.

## **4.2 Podcast by Radio FM – Čierna labuť\_FM [Black Swan\_FM]**

Rádio\_FM produces podcasts just like *SME*, the difference is that they are first premiered in a radio broadcast and then they are specifically edited into a podcast, with information added at the beginning and at the end that is only related to the podcast. There are 13 podcasts of Rádio\_FM available (as of February 2<sup>nd</sup>, 2024). For the purposes of our study, we chose the *Čierna labuť\_FM [Black Swan\_FM]* podcast because its content is educational, and, in addition, the radio prepares it in cooperation with an external organization that is also focused on educating the public.

*Čierna labuť\_FM [Black Swan\_FM]* (RTVS, n.d.) podcast is produced by *Radio FM* and focuses on environmental topics. According to the creators of the podcast, the term “black swan” refers to the fact that even if something seems impossible or non-existent at first glance, it can become a reality (RTVS, n.d.). That’s why the podcast brings new perspectives, unfamiliar topics, and unusual opinions. Podcast *Čierna labuť\_FM [The Black Swan\_FM]* is created in cooperation with CEEV Živica (Center for Environmental and Ethical Education Živica). Rádio\_FM began broadcasting the show in 2019 and broadcasted a total of 171 episodes (as of February, 24<sup>th</sup> 2024).

In 2023, they broadcasted 36 episodes. The length of the podcasts is approximately 10 minutes. The podcast is hosted by presenters directly from the afternoon broadcast of Rádio\_FM called *Popo-FM*. The *Black Swan* show is also broadcast by FM radio in its linear broadcast, premiering every Monday as part of *Popo\_FM*, at 3:10 pm. The show is not archived, but listeners can listen to it as a podcast. The podcast is slightly edited compared to the radio show. The opening and closing information is added as a part of the opening and closing sound. The podcast is available at [www.radiofm.sk](http://www.radiofm.sk) and on podcast platforms – Apple, Google, Spotify, RSS, podmaz.sk.

Date	Topic of the podcast
9.1.2023	The World Cup and carbon neutrality
16.1.2023	Future of skiing, not only in Slovakia
23.1.2023	Climate protests in Germany
30.1.2023	Never-ending chemicals
6.2.2023	Renovation instead of demolition
13.2.2023	Climate law
20.2.2023	Regenerative agriculture
27.2.2023	Why are wetlands important?
6.3.2023	How to correctly charge electronics?
13.3.2023	Protection of oceans
20.3.2023	Hidden side of collagen
27.3.2023	IPCC report about the climate
3.4.2023	Recycling shoes
17.4.2023	Protection of deep-sea seabed
24.4.2023	Will planes be more ecological than cars?
15.5.2023	The disease of white fibers
22.5.2023	Toys and the environment
29.5.2023	The user and fast fashion
5.6.2023	Strawberries from Spain
12.6.2023	Drink containers are about to change
19.6.2023	How to be more eco-friendly in summer?
26.6.2023	Is Bratislava ready for rapid weather changes?
4.9.2023	Energy literacy
11.9.2023	Waste heat
18.9.2023	To school as ecologically as possible
2.10.2023	Blooming fields in the city
9.10.2023	Cycling for children
16.10.2023	Preparation of garden for winter
23.10.2023	Glaciers for skiing
6.11.2023	Green school
13.11.2023	Climate change and insects
20.11.2023	Christmas trees
27.11.2023	Rich people have bigger influence on climate change
4.12.2023	Vegan Christmas
11.12.2023	Christmas without gifts
18.12.2023	Batteries and Christmas

**TABLE 2:** Podcast topics – Čierna labuť\_FM [Black Swan\_FM]

Source: own processing, 2024, according to RTVS (n.d.)

Most topics included were about environmental protection, specifically about the protection of soil, forests, and water – there were 21 episodes in total. The podcast also addressed the climate and its threats, a total of 7 episodes. The other topics were about advice on how to protect the environment around us, there were 8 episodes.

### The structure of the podcast

The podcast has a base structure as follows: an introductory jingle, a jingle, an introduction by the female or male presenter (they switch, podcast is always presented by only person), a greeting, an introduction of the topic and the guest, a discussion with the guest, if there is a change of topic: a jingle, the final words by the presenter, a jingle.

The podcast starts with a dynamic jingle and a dynamic male voice, which informs the listeners, that they are listening to podcast *Čierna labuť\_FM* [*Black Swan\_FM*] and that they can listen to it every Monday at 3 pm on Rádio\_FM. It is followed by a dynamic jingle with the slogan “Black Swan\_FM – we inspire change”. It is followed by greetings from the presenter of the afternoon show *Popo\_FM*. The presenter greets the listeners and introduces the topic and the guest. The guests are from *Živica* – Kristína Farkaš and Petra Ježeková take turns. In an informal way, they talk about the given topic and give practical advice. The presenters, together with the guests, try to provide information in a comprehensible, simple way to cover the given topic as much as possible, i.e. to provide the listeners with as much relevant information as possible. Podcasts do not have the same structure. Some contain only a conversation between the presenter and the guest, some are supplemented with statements by an expert on the given topic, which are pre-recorded and inserted into the podcast. If there is a change of topic, the jingle is inserted with the slogan “Black Swan\_FM – we inspire change”. After the interview, the moderator thanks the guest for visiting the studio, and the listeners for listening to the podcast, and says goodbye. This is followed again by a dynamic jingle with a dynamic male voice, which informs the listeners that they have listened to a podcast by Rádio\_FM and that they can find the stream, live broadcasts, and podcast playlists at [www.radiofm.sk](http://www.radiofm.sk), and that the “*Čierna labuť\_FM*” [“Black Swan\_FM”] section can be heard on the air every Monday live at 3:10 pm.

## 4.3 Slovak Academy of Sciences – Vedecký podcast SAV [Scientific podcast SAV]

The Slovak Academy of Sciences (SAV) produces only one podcast – *Vedecký podcast SAV* [*Scientific podcast SAV*]. The intention is to popularize science, bring new information, knowledge, and results of the work of this institution, and educate the wider public. The primary intention is to deliver this type of content through real people who are successful and have achieved results in the field. The Slovak Academy of Sciences launched its science podcast in September 2020. Every two weeks, it introduces an interesting personality from the Slovak Academy of Sciences. It focuses on scientists who work on interesting topics or are part of world-class scientific teams. The podcasts present their research and life story. The presenters of the podcast are Soňa G. Lutherová from the Institute of Ethnology and Social Anthropology at SAV, Peter Boháč from the Institute of Inorganic Chemistry at SAV, and Klára Kohoutová from the Center of Social and Psychological Sciences who brings interviews with researchers from SAV institutes based in eastern Slovakia. In total, SAV produced 76 episodes (as of February 24<sup>th</sup>, 2024), and 21 episodes were broadcasted in 2023 (Akademiavied, n.d.). The periodicity is not regular, there is an effort to broadcast podcasts twice a month. But, for example, only one podcast was broadcasted in March, and during July and August, there were no podcasts broadcasted at all. The length of the podcast varies from 30 minutes to 60 minutes. Podcasts can be found at [www.sav.sk](http://www.sav.sk), on podcast applications Apple, Google, Spotify, and on the website [podmaz.sk](http://podmaz.sk).

Date	Topic of the podcast
13.1.2023	Yvetta Velísková: Our water is mainly threatened by contamination
27.1.2023	Special podcast SAV: About claims without evidence with Vladimíra Kurincová Čavojeová
10.2.2023	Daniela Antolová: Warming climate supports the spread of parasites
24.2.2023	Special podcast SAV: About SAV's evaluation with Mária Omastová
24.3.2023	Matej Baláž: Mechanochemistry has several advantages
7.4.2023	Milan Ťapajna: Health risks of 5G networks are a clear hoax
21.4.2023	Jana Cviková: Feminism needs public discourse to survive
5.5.2023	Richard Imrich: We monitor the gaps in current medicine
19.5.2023	Enikő Račková: The olfactory system regenerates very well
2.6.2023	Marián Jakubík: We monitor bodies on a collision course with Earth
16.6.2023	Special podcast SAV: About the history of the academy with Adam Hudek
30.6.2023	Special podcast SAV with Pavol Šajgalík: Science is freedom of thinking
8.9.2023	Podcast SPECIAL: Climate change thorough eyes of social sciences
22.9.2023	Podcast SPECIAL: We are living in an era of strong emotions
6.10.2023	Michal Kentoš: We lack the culture of activism
20.10.2023	Daniela Ježová: I have not yet met a human without a stressful reaction
3.11.2023	Podcast SPECIAL: Artificial intelligence holds up a mirror
1.12.2023	Michal Teplan: Every living organism is glowing
15.12.2023	Podcast SPECIAL: The history knows forbidden Christmas
29.12.2023	Miroslav Blaženec: Nature always knows the best

**TABLE 3:** Podcast topics – Vedecký podcast SAV [Scientific podcast SAV]

Source: own processing, 2024, according to Akademiavied (n.d.)

In its podcasts, SAV covered topics related to nature and environmental protection, there were five topics in total. Three topics were devoted to health – physical and mental, four topics were devoted to current topics of society, one topic was devoted to psychology, and one topic was also devoted to the issue of new knowledge about space. In its podcasts, the Academy of Sciences also addressed its own topics, whether the topics about the institution itself or new knowledge gained at the Academy of Sciences – scientific discoveries, history of the Academy of Sciences, science, and artificial intelligence.

### The structure of the podcast

The podcast's structure is usually as follows: an introductory word of the presenter, an introduction of the topic, an introduction of the guest, a discussion, the final words of the presenter, thank you to the guest, naming everyone who has been collaborating in the podcast, a goodbye to the listeners, an encouragement to share the podcast, final information.

The entire podcast is based on a conversation between the presenter and the guest. At the beginning, the presenter informs the listeners about what they are listening to, that it is an episode of the SAV Science Podcast and announces the number of the episodes within the series. Next, they introduce the topic and the guest. Then the presenter introduces the guest in more detail – area of work, successes they have achieved, as well as some information about how they spend their free time. All this is accompanied by music that is of non-disruptive, rather conservative nature. This is followed by an interview with the guest on the given topic. The presenter conducts the interview in an informal manner. The presenter asks questions that are simple and understandable, despite the topic being complex sometimes. The guests also express themselves in an understandable way, if it is not the case – the presenter invites them to explain or clarify the given topic or statement. This is done in order to provide the listener

with as much relevant information as possible. At the end of the podcast, the presenter also asks the guest about personal topics, such as hobbies or leisure time activities. In addition, the presenter also asks the guest about their personal opinions or wishes, which are mainly related to the discussed topic, or sometimes, it is a reaction to current events in the field of science, research in society. After the interview, the presenter thanks the guest, names all people that participated in the preparation of the podcast, dramaturgically and technically, and invites the listeners to share the podcast with their friends. They proceed to say goodbye. From the end of the interview, all the spoken word is accompanied by the same background music as used at the beginning.

Some podcasts are marked as Special edition podcasts, but their structure is the same as other podcasts that are not marked as such. Therefore, based on the context, it is not clear why and how they are special.

#### 4.4 Slovak Centre of Science and Technical – Podcast Veda na dosah [Science Within Reach]

The Slovak Centre of Science and Technical Information (CVTI) produces only one podcast, which is in an audio version. In addition, they also have videos on their YouTube channel through which they also aim to popularize science. These are interviews with researchers, but also videos from various events related to science and research or topics related to scientific discoveries or current events. However, these videos are not marked as podcasts, they always have a specific title – for example, *Interviews with Slovak Researchers*, *Earthquakes in the World or in Slovakia*, *Digital Games*, *COINTT 2023 Conference*, *European Night of Researchers*, and others.

The podcast in the classic audio version is prepared by the National Center for the Popularization of Science and Technology in Society at CVTI, and there is only one. The intention is to bring people closer to science and provide interesting scientific information in a more understandable language. CVTI started the podcast *Veda na dosah [Science Within Reach]* (Veda na dosah, n.d.) in 2020, and prepared a total of 82 episodes (as of February 24<sup>th</sup>, 2024). 21 episodes were broadcasted in 2023. The podcast is broadcasted regularly, once or twice a month. Alžbeta Králiková is the presenter of the podcast. Its length varies from 30 to 60 minutes. The podcast can be listened to on the podcast applications of Apple, Google, Spotify, and the website podmaz.sk.

Date	Topic of the podcast
25.1.2023	On the future of humanity, infertility, and time, that is more than crucial
22.2.2023	Bacteria - the key to sickness and health
29.3.2023	How does human decision-making work and how to prevent irrationality?
26.4.2023	Is it possible to clean the space from cosmic waste?
10.5.2023	Mathematics is easier on a walk
31.5.2023	Parasites in human body
14.6.2023	ChatGPT – risk or a new era of communication?
28.6.2023	The science of tanning is uncovered. What does skin say?
12.7.2023	Toxoplasmosis - a risk in our environment
26.7.2023	Debunking myths about feminism and gender equality
16.8.2023	It's not right to live in a sterile environment, but hygiene is crucial
30.8.2023	On consumer literacy in Slovakia
13.9.2023	Innovation and inspiration – that's also part of the European night of explorers
27.9.2023	Let's save water and we will save life: Hydrologists and conservation of water resources



4.10.2023	The use of scientific research institutions' research results in practice
11.10.2023	COINTT 2023: White spots in innovation and transfer of technology
25.10.2023	On astrophotography and robotization of telescopes
8.11.2023	Individualisation and a way to modern medicine
29.11.2023	Earthquakes in the past and today
13.12.2023	Happiness - scientific decomposition of joy
27.12.2023	What can we learn from thought experiments?

**TABLE 4:** Podcast topics – *Veda na dosah* [Science Within Reach]

Source: own processing, 2024, according to *Veda na dosah* (n.d.)

CVTI podcasts are devoted to health topics, there were seven podcasts in total. Psychology was the topic of five podcasts, the topic of nature resonated in three podcasts, social topics were covered in two podcasts, and technology in one podcast. One topic was devoted to innovations and one to science and the results of research institutions in the field of science in Slovakia.

### The structure of the podcast

Podcasts have the following base structure: introductory information about the podcast, an intro by the presenter, an introduction of the topic, greeting the host, a discussion with the host, the presenter's conclusion, a goodbye to the listeners, the end with music in the background.

Podcast *Veda na dosah* [Science Within Reach] starts with introductory words from the presenter, with music in the background. The music is non-disruptive and more conservative, it evokes positive feelings in the listener and is calming. Along with the music, the presenter says what podcast are you listening to.

Subsequently, the presenter welcomes the audience and introduces the topic and the guest, followed by an interview with the guest. The conversation is conducted in a conservative but very pleasant way. This means that the presenter asks a question, does not interrupt the guest, and lets them finish their answer or thought. The presenter only asks questions related to the topic, and these questions are asked in a simple, understandable way. In the same way, the guests answer very clearly, they try to explain even the most complex topics in such a way that the answers are comprehensible even to the wider public. After the discussion, the presenter thanks the guest and says goodbye to the audience. At the very end, while playing the same music as at the beginning, the presenter will state what the listeners listened to, who produced the podcast, and in what year.

## 5 Discussion and Conclusion

The ambition of this study was to focus on the analysis of Slovak podcast production in the context of how producers or authors use this space to educate listeners. From the whole range of educational podcasts, we focused on podcasts produced by official media and official educational institutions. Educational podcasts are also produced by a third group – independent podcasters, celebrities, presenters, experts, and influencers. Among the official media, journal *SME* dominates the production, with podcasts especially created for its online version *sme.sk*. The second relevant medium, in the field of podcast creation, is *Rádio\_FM*. However, its range of educational podcasts is not extensive, and its educational podcast *Čierna labuť\_FM* [Black Swan\_FM] is not originally created as a podcast, but primarily for radio broadcasting. Other media cover the topic of education rather marginally or when there is a current hot topic that resonates within the society. The media also often prefer to publish podcasts that are edited from already existing materials such as broadcast sessions, discussions, seminars, or conferences. Similar to the official media, we did not find enough educational podcasts in

the category of podcasts produced by official educational institutions, although their primary activity is education.

There are several reasons for the low podcast production in official media and official educational institutions. The media, especially the privately owned ones, are guided by the results of official surveys of viewership, listenership, readership, or attendance when deciding which topics or formats they will cover. This also applies to podcasts. We can state that journal *SME* and *Rádio\_FM* have been producing podcasts for more than six years and both were at the “birth” of the Slovak podcast scene. It is only natural that they have developed a base of regular listeners. Therefore, they regularly expand their podcast offer with new content. Other media do not have the advantage of an early start to podcast creation, therefore we assume that due to the later start of creation and less experience they approach the expansion of podcast creation, including educational podcasts, more cautiously. As for official educational institutions, it could be assumed that they would have a greater ambition to convey interesting educational content to listeners through new media such as podcasts, as education is their primary activity, and they have access to relevant experts and access to the latest information, findings, and research. Our initial analyses show that educational institutions in Slovakia adhere to a more traditional, well-established system of education, through publications, seminars, and conferences, and therefore do not use new media to a greater extent.

Based on the analysis of the form and content of observed podcasts, we can conclude that there are differences between educational podcasts created by the official media and educational institutions. While official media strives for a lighter approach to communication with the listener, educational institutions communicate rather conservatively. The “podcast” language of official media is simpler and less formal. The presenters and guests of podcasts try to spark the listeners’ as much as possible by talking about complex topics in a simple way, providing practical advice that can be used in everyday life, and giving various interesting tips and recommendations. It could be said that they are more aware of their listeners and target information at them. They understand that they are conveying information to a wider population and try to make people understand and engage them as much as possible. That is also why they choose current topics and include practical things in their podcasts, i.e., specifically, how a given topic can be important, how it can be used in the life of an ordinary listener who does not belong to the professional public, who is familiar with the given topic. Official media also works with the formal side of a podcast. They work more with the specific structure, by including more sound jingles, thereby separating topics according to their content, choosing a language that is close to the listeners, they avoid incomprehensible expressions, technical terms, or abbreviations.

Official educational institutions stick to a more classic form of conversation between the presenter and the guest, which in some cases can seem too long or too technical, especially when discussing complex topics. Although official institutions try to mimic the structure of podcasts produced by the media to some extent, there are differences on closer inspection. It could be said that they do not perceive the needs and demands of their listeners in as much detail as the media do. It is logical because the media regularly work with their listeners, they also conduct official listening surveys, and they are interested in what topics their listeners prefer. Therefore, the media can better adapt the content and form of podcasts to their listeners than official educational institutions. For this reason, media podcasts appear more understandable and engaging to listeners. Our findings are based on a probe into the educational podcast creation and based on a deeper analysis of the two historically longest running and most relevant podcasts, to further explore this issue.

The question that still remains is what the future of educational podcasts is. It is obvious that the overall lifestyle of today’s people is not going to change anytime soon. On the contrary, the requirements for a listener’s flexibility and quick reorientation, conditioned also by sufficient education, will increase. At the same time, it is likely that, for reasons of shortage of time,

they will prefer online education, conducted in a more simple and engaging form. This is also why there will be more and more room for self-education in the online environment. It turns out that education through podcasts is also becoming attractive for various companies and organizations, which educate not only their employees but also clients and partners through podcasts. However, it is very important to take into account the present time and the demands of modern people, when it comes to podcast production. This remains a challenge for further research in this area.

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# Daily Internet Use and Its Association with Drug Behaviour in Adolescence

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## ABSTRACT

The paper deals with the most widespread electronic medium among adolescents – the Internet. The main aim was to discover how young people spend their leisure time in the online world, with a particular focus on the relationships and differences between Internet use, particular activities, and legal drug use. The chosen quantitative research methodology was applied through a Leisure Time Activity Questionnaire and selected questions from the SMF questionnaires on a sample of 180 respondents attending secondary school, aged 15 to 19. We found that almost 90% of the respondents spend more than 2 – 3 hours a day on the Internet, of which 20% spend up to 6 hours or more. Despite expectations, we found significant negative relationships between the amount of time spent online and rates of legal drug use. Additional analysis showed significant differences between groups of adolescents in online activities such as gaming, listening to music, killing boredom, watching pornography and arranging activities. These results point to a possible protective effect of selected types of activities that young people engage in while online in relation to engaging in drug use behaviours.

## KEY WORDS

Adolescence. Electronic Medium. Internet Use. Legal Drug Use.

# 1 Introduction

Today, more than ever before, a large part of adolescents' lives takes place in the online space. It has become very much a natural part without which they cannot imagine functioning effectively. In addition to many advantages, such as easy access to information, a variety of leisure alternatives, access to culture and a space for socialising and maintaining social support more easily (Wu et al., 2016), the Internet also tends to be risky. We have identified three main groups of risks associated with Internet use that are particularly dangerous during adolescence, as follows:

- risky behaviours taking place in the online space (e.g. cybersex, cyberbullying, sharing personal information, communicating with strangers, accessing inappropriate info) (Paluckaitė & Žerdeckaitė-Matulaitienė, 2016);
- problematic use of the internet, such as using the internet in a way that significantly and negatively interferes with everyday life (Caplan, 2010; Kopuničová & Baumgartner, 2016);
- internet use as a factor in the emergence or development of other types of risky behaviour (Toozandehjani et al., 2021).

The interest of this paper is exactly the third component, specifically the verification of the link between internet use and the use of legal drugs among adolescents. There is experimentation and regular use of legal drugs on the one hand, which have for a long time been recognised as the most widespread forms of risky behaviour among young people. Representative examples can be seen in the results of the international ESPAD survey (European Monitoring Centre for Drugs and Drug Addiction, 2020), which involved almost 100,000 adolescents from more than 35 countries in Europe. Analysis of the data showed that, on average, 18% of students smoked cigarettes and 33% drank alcohol before the age of 13. Separate results for Slovakia are even higher, with 26% for smoking and 39% for drinking alcohol before the age of 13. Nociar (2018) in the report of the nationwide TAD (tobacco-alcohol-drugs) survey, claims that over 24 years of repeated surveys, smoking has doubled among high school students in Slovakia, and drinking alcohol, although slightly decreasing in frequency, is increasing in problematic drinking. Similar findings have been reported in other studies from the region (Bieliková et al., 2019; Čerešník, 2015; Sklopal et al., 2014). On the other hand, we can see a widening problem in the amount and the way the Internet is being used. Based on the quantum of leisure time spent in the online space, it can be considered problematic when a young person spends more than 39 hours per week in the online space (Orosová et al., 2012) or also more than 3.5 hours per day (Balhara et al., 2020). Current domestic empirical studies document the fact that almost half of adolescents spend more than 3 – 4 hours per day of leisure time using the internet (Rojková & Mydlová, 2019; Reznická & Sejčová, 2019), with a noticeable increasing trend in other countries (Schmidt et al., 2020; Nagata et al., 2022).

We believe that it is relevant to observe the concurrent development of the two distinctive forms of risk behaviour mentioned above, which are particularly significant in adolescence, as one possible perspective on the issue. Researchers from different countries have also repeatedly confirmed the relationship between internet use and risky behaviours in young people. In a large meta-analysis of 27 studies, Vannucci et al. (2020) found that the more time adolescents spent on social networking sites, the higher the likelihood of engaging in drug use and risky sexual behaviours.

Kelleghan et al. (2020) performed a detailed analysis of the content of time spent online in relation to tobacco and marijuana smoking, resulting in 6 sub-categories of digital media use. These included posting on social media, reading articles, playing games, writing to friends, and shopping, listening to music, and checking in on social networking sites. An association between checking in social networking sites and a higher risk of cigarette smoking and marijuana use has been observed. Also, interesting results came from a study conducted on a representative



sample of US students (Kaur et al., 2020), where the researchers categorised their online activity by time and type, such as watching videos, playing games, and using social networking sites. The results showed a significant relationship between drinking alcohol and binge drinking, especially if they spent more than 3 hours per day on these activities. Similar findings are also presented in research carried out on a sample of adolescents from Slovakia (Vavrová, 2019; Rojková & Mydlová, 2019). Young people are increasingly exposed to drug-related content through digital media. Whether it is targeted advertisements, promotion through influencers or friends' posts depicting risky behaviour, it can subsequently influence their actions. Also, de Brujin et al. (2016) examined online alcohol marketing and found that high levels of ad exposure were associated with an increased likelihood of drinking among young Europeans.

Thus, the available evidence suggests an influence of Internet use on young people's risk behaviours. Not only the content but also the amount of time spent online plays an important role.

Based on the theoretical and empirical findings presented, the aim of this study is to:

- describe how much free time adolescents devote to the Internet and to what specific activities;
- verify the association between the amount of time spent on the Internet and the use of legal drugs;
- investigate the relationship between specific online activities and adolescents' drug use behaviour.

The research questions asked were:

RQ1: How many hours a day of their free time do they use the internet and what are their specific activities?

RQ2: What is the relationship between the amount of time spent online and adolescents' use of legal drugs?

RQ3: Is there a difference in drug use behaviour depending on the number of hours per day spent on the Internet?

## **2 Methodology**

We were conducting research on a population of adolescents attending high school. Research participants were informed accurately about the purpose and use of the collected anonymised data, their participation was voluntary, and they could withdraw at any time during the measurement without giving a reason. For underage respondents, an electronic form of informed consent from their legal guardian was provided.

The main criterion for inclusion in the sample was the age of the respondent, which ranged from 15 to 19 years. The total number of participants was 180, attending different types of schools. The representation of females is 63.3% (N = 114) and males 36.7% (N = 66). The average age of the respondents was 17 years.

### **2.1 Research Tools**

To determine the extent of legal drug use over a 30-day period, we selected questions from two questionnaires, the Situational-motivational factors of alcohol behaviour Questionnaire (Rojková & Vavrová, 2017) and the Situational-motivational factors of smoking Questionnaire (Vavrová & Gálová, 2017) which were also validated for their satisfactory psychometric qualities.

We used the authors' questionnaire to inquire about the activities that young people do in their free time. The original instrument was created in the framework of a project aimed at developing and standardizing a different methodology at the University of Saints Cyril and

Methodius in Trnava (Vavrová & Rojková, 2020). For a more detailed description of online leisure activities, we further ask “How often during the day do you use the Internet?”, to which the respondent answers by indicating the amount of time (from 0 to 6 or more hours) to the selected activity.

## 2.2 Operationalisation of Variables

### Legal Drug Use

The intensity of alcohol use and intensity of cigarette smoking variables are created by multiplying the responses to the items measuring the frequency and amount of alcohol consumed in the last 30 days.

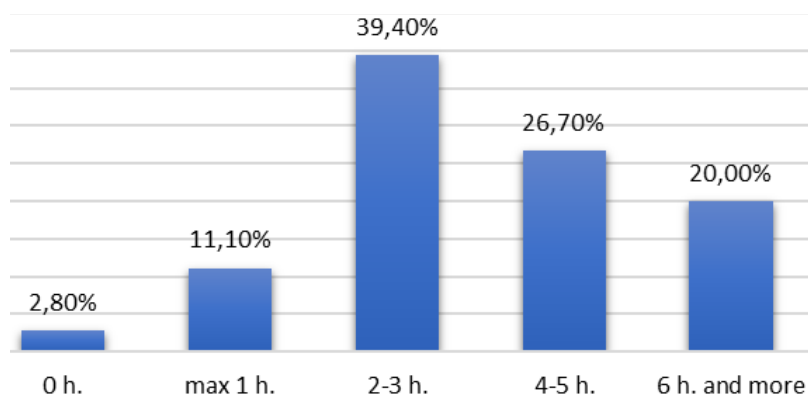
The legal drug use variable is created by summing the intensity of alcohol use and intensity of cigarette smoking variables.

### Internet Use

The daily internet use variable is referred to by the question “How many hours a day in your free time do you surf the internet, play games or use social networks?”, where participants were given a choice of 5 options ranging from “0 hours” to “6 or more”. We then divided the answers into three groups – max. 1 h, 2 – 3 h and 4 or more hours. We examined specific activities by asking individual questions with the same response scale.

## 3 Results

In response to the first research question (Figure 1), we found that 2.8% (N = 5) of respondents do not use the Internet in their free time for even one hour a day, and 11.1% (N = 20) devote at most 1 hour to it. The most frequent time spent on the Internet is 2 – 3 hours, with 39.4% (N = 71) of respondents, followed by 26.7% (N = 48) indicating the option of 4 – 5 hours, and 20% (N = 18) of young people indicating 6 hours or more.

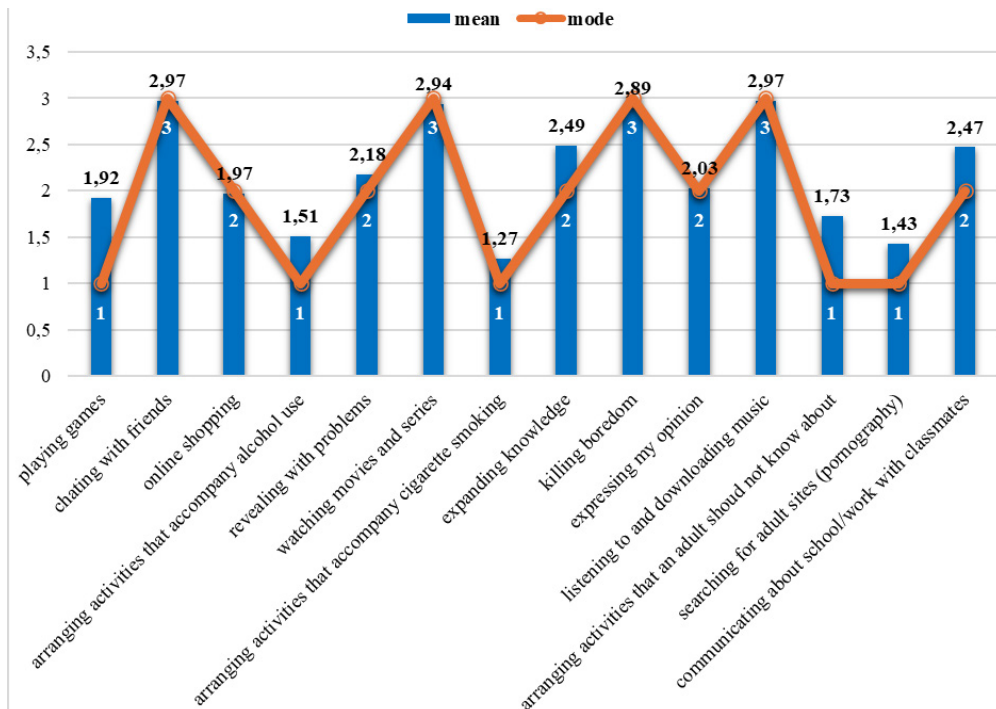


**FIGURE 1:** Daily internet use

Source: own processing, 2024

In the next figure (2), we report the average and most frequently entered values for items related to specific activities that respondents perform on the Internet during the day. The items “playing games” with an average of 1.92; “arranging for activities that accompany alcohol use” with an average of 1.51; “arranging for activities that accompany cigarette smoking” with an average score of 1.27, as well as the item “arranging for activities that an adult should know

nothing about” with an average score of 1.73 and also “searching adult sites (pornography)” with an average score of 1.43 consistently had 1 (0 hours) as the most frequently measured value, i.e. the participants hardly use the Internet at all for these activities. A maximum of 1 hour per day, which corresponds to a value of 2 as the most frequently reported score, was observed for the questions: “online shopping” with a mean value of 1.97; “revealing problems” with a mean of 2.18; “expanding knowledge” with a mean of 2.49; “expressing my opinion” with a mean measured score of 2.03; and also for the question “communicating about schoolwork with my classmates” with a mean of 2.47. The highest mean values and the value of Modus 3, which means 2 – 3 hours per day devoted to a given activity, are recorded for the items “chatting with friends” with a mean of 2.97; “watching movies and series” with a mean of 2.94; “killing boredom” with a mean of 2.89 and for the item “listening to and downloading music” with a mean of 2.97.



**FIGURE 2:** Descriptions of the average and most frequently indicated values of online activities

Source: own processing, 2024

The results of the analysis concerning the verification of the association between the length of time spent on the Internet and drug behaviour showed that the intensity of cigarette smoking ( $p = 0.209^*$ ), the intensity of alcohol consumption ( $p = 0.150^*$ ) and the actual use of legal drugs ( $p = 0.145^*$ ) were significantly negatively, and weakly correlated with the extent of the time spent surfing the Internet.

Daily internet use	Intensity of cigarette smoking		Intensity of alcohol use		Legal drug use
	Spearman's p	-0.212**	-0.154*	-0.153*	
	Sig.	0.04	0.039	0.041	

\*significance level  $p < 0.05$ , \*\*significance level  $p < 0.01$

**TABLE 1:** Correlation coefficient between drug use behaviour and extend of daily internet use

Source: own processing, 2024

The last research question was validated with the nonparametric Kruskal Wallis test. Based on the results, we interpret the differences in mean rankings between groups in all three variables as statistically significant. We observe that the highest scores in both intensity of cigarette smoking and intensity of alcohol use were obtained by participants from the group that spent less than 1 hour per day on the Internet, while the lowest scores were obtained by the group with 4 or more hours per day. In the Legal Drug Use variable, the highest scores were achieved by the group spending no more than 1 hour per day on the Internet and the lowest by respondents with 2 – 3 hours of daily Internet use.

Daily internet use		N	Average ranking Chi-square	Kruskal Wallis Test	
				Sig.	
Intensity of cigarette smoking	1 (max 1h)	25	113.80	10,287	.006**
	2 (2-3h)	71	91.17		
	3 (more than 4h)	84	83.00		
Intensity of alcohol use	1 (max 1h)	25	121.50	11,023	.004**
	2 (2 – 3h)	71	86.32		
	3 (more than 4h)	84	84.80		
Legal drug use	1 (max 1h)	25	123.56	12,322	.002**
	2 (2 – 3h)	71	84.61		
	3 (more than 4h)	84	85.64		

\*\*significance level  $p < 0.01$

**TABLE 2:** Differences in drug behaviour depending on the daily amount of internet use

Source: own processing, 2024

Given the unexpected results, we decided to add a descriptive and comparative analysis of the categories of spending leisure time on the Internet depending on the amount of time of daily use. This was because we were interested in whether those participants who spend less time on the Internet, and at the same time, according to the above results, drink/smoke more heavily, engage significantly more in other Internet activities and vice versa.

Daily internet use		N	Average ranking	Kruskal Wallis Test	
				Chi-square	Sig.
arranging activities that an adult should not know about	1 (max 1h)	25	68.72	8,848	0.013*
	2 (2 – 3h)	71	87.56		
	3 (more than 4h)	84	99.46		
listening to and downloading music	1 (max 1h)	25	76.70	10,015	0.007**
	2 (2 – 3h)	71	81		
	3 (more than 4h)	84	102.64		
“killing” boredom	1 (max 1h)	25	45.06	54,876	0.000***
	2 (2 – 3h)	71	73.54		
	3 (more than 4h)	84	118.36		
playing games	1 (max 1h)	25	72.98	19,976	0.000***
	2 (2 – 3h)	71	76.51		
	3 (more than 4h)	84	107.54		

searching adult sites (pornography)	1 (max 1h)	25	86.62	10,882	0.004**
	2 (2 – 3h)	71	79.35		
	3 (more than 4h)	84	101.08		

\*significance level  $p < 0.05$ , \*\*significance level  $p < 0.01$ , \*\*\*significance level  $p < 0.001$

**TABLE 3:** Selected results of the analysis of differences in online activities between groups

Source: own processing, 2024

We found statistically significant differences between the groups in 5 specific activities performed on the Internet, namely: arranging activities that an adult should not know about; watching movies and series; “killing” boredom; playing games and searching adult sites. In each case, we observed the highest average ranking for Group 3 (more than 4 hours per day) and the lowest for Group 1 (max 1 hour). The exception was the adult pornography/site search variable, where Group 2 had the lowest values (2 – 3 hours). Table (3) shows only the activities with statistically significant results.

## 4 Discussion

The main aim of the paper was to investigate how young people use the Internet in their leisure time and whether this is related to the intensity of legal drug use. We looked specifically at the amount of time spent online, which includes all activities associated with internet use in leisure time.

It was found that 39.4% of participants spend more than 2 – 3 hours per day online and 46.7% spend more than 4 hours per day, with 20% of them even spending more than 6 hours in a single day. In terms of specific uses of the online space, most of their time was spent chatting with friends, listening to music, watching movies and TV shows, “killing” boredom, expanding their knowledge, communicating with classmates about schoolwork, and discussing their problems. These results are consistent with previous research findings (Reznická & Sejščová, 2019; Kurilla et al., 2019), that point to an increasing trend of passive leisure (Bieliková et al., 2019; Nagata et al., 2022). These types of activities not only negatively affect cognitive functioning (Laidley & Conley, 2018), life satisfaction, higher levels of loneliness or obesity in adolescence (Sichling & Ploger, 2018; Oberle et al., 2020), but also contribute to a higher likelihood of engaging in risky activities (Vannucci et al., 2020). However, some authors argue that leisure time spent in this way is important for healthy development, self-expression and stress reduction (Caldwell & Faulk, 2013; Baďura, 2018).

We therefore see it as important to take a closer look at how young people spend their time online and how this relates to other aspects of their lives. We further tested the relationship between daily internet use and young people’s use of legal highs. Contrary to expectations, we found a negative association between the amount of time adolescents spent on the Internet and rates of alcohol drinking and cigarette smoking. In further analysis, we aimed to identify differences in the intensity of legal drug use according to the amount of time spent online, drawing on theoretical insights to identify 3 groups. Internet use of more than 3 – 4 hours per day appears to be significant in relation to drug use (Kaur et al., 2020; Rojková & Mydlová, 2019). However, studies document the fact that as little as more than 2 hours per day of social network browsing can increase the risk of alcohol use (Sampasa-Kanyinga & Chaput, 2016). Also considering the limit of 3.5 hours per day as problematic (Singh et al., 2020), three groups were established. The first used the Internet for a max of 1 hour per day, the second group with a daily range of 2 – 3 hours, and the third was defined by 4 or more hours. Results showed statistically significant differences in legal drug use, smoking intensity, and drinking intensity in all three groups, with those who spent the most time on the Internet scoring the lowest.

However, we expected the opposite effect, given theoretical and empirical studies indicating a positive relationship between the amount of time online and risky behaviours in adolescents (below). In further analysing the data, we focused on differences in the specific activities that young people performed online. We found significant differences between groups in some online activities, namely – arranging activities that an adult should not know about; watching movies and TV shows; “killing” boredom; playing games and searching adult sites (pornography). In all these activities, the highest scoring group was the group that spent more than 4 hours a day on the internet. Therefore, we can think similarly to the authors Lichner and Šlosár (2017), who define a phenomenon favourable to risk-taking as a protective factor. Thus, if in the analysis we observe negative associations between a given phenomenon and a type of risky behaviour, respectively, by strengthening such factors, it is possible to reduce its level. Specifically, previous empirical studies have also shown a negative association between playing video games and cigarette smoking or alcohol consumption (Chan et al., 2022). Other research has presented a significant relationship between higher rates of less socially oriented online activities such as gaming, news reading and lower rates of adolescent drinking (Svensson & Johnson, 2020). These outcomes may indicate that the more leisure time young people devote to playing games, watching movies and TV shows, reading the news, and randomly searching, activities with lower socialization potential, the less opportunity they have to use legal drugs. Pape et al. (2018) report that modern technology offers access to a range of leisure-filling activities that adolescents may find more enjoyable than, for example, drinking alcohol. Thus, it has been argued that digital media reduces interaction with peers/friends in real life and thus reduces socialisation, which is usually the context in which drug use occurs. On the other hand, in the online environment there is also exposure to content promoting risky behaviour, whether from friends or marketing. So, we must have in mind, that only if the needs of the individual are sufficiently saturated and healthy patterns of behaviour are reinforced, risk factors may, in other circumstances, be considered protective. Overall, our results point to the importance of examining adolescents' leisure time in the online space, not only in terms of time but also specifically in terms of the activities and content they engage in. This may ultimately yield valuable information for future prevention.

We are therefore inclined to the opinion of specialists who claim in their work (Kurrila et al., 2018) that it is also essential to focus on qualitative aspects, not just quantitative, when examining behaviour associated with Internet use. It is important to know the type and content of PC and Internet activities and, with what motivation and with what consequences people carry out these activities.

## 5 Conclusion

In conclusion, in line with the theoretical findings and the results of the empirical part of the paper, we can conclude that the tendency towards passive leisure persists. Almost 90% of adolescents spend more than 2 – 3 hours a day in their leisure time on the Internet, of which a fifth spend up to more than 6 hours. This fact alone points to a tendency towards excessive or problematic internet use. A noteworthy finding of the study is the negative relationship between the amount of time spent on the Internet and the use of legal substances. Upon further investigation, we found that reinforcing selected activities on the Internet reduced the intensity of smoking and drinking alcohol, and substance use in general. Thus, this suggests, despite previous research findings, that the Internet may also have acted protectively. Further detailed investigation of the issue is of course needed, as well as consideration of other factors that may participate in the whole process.



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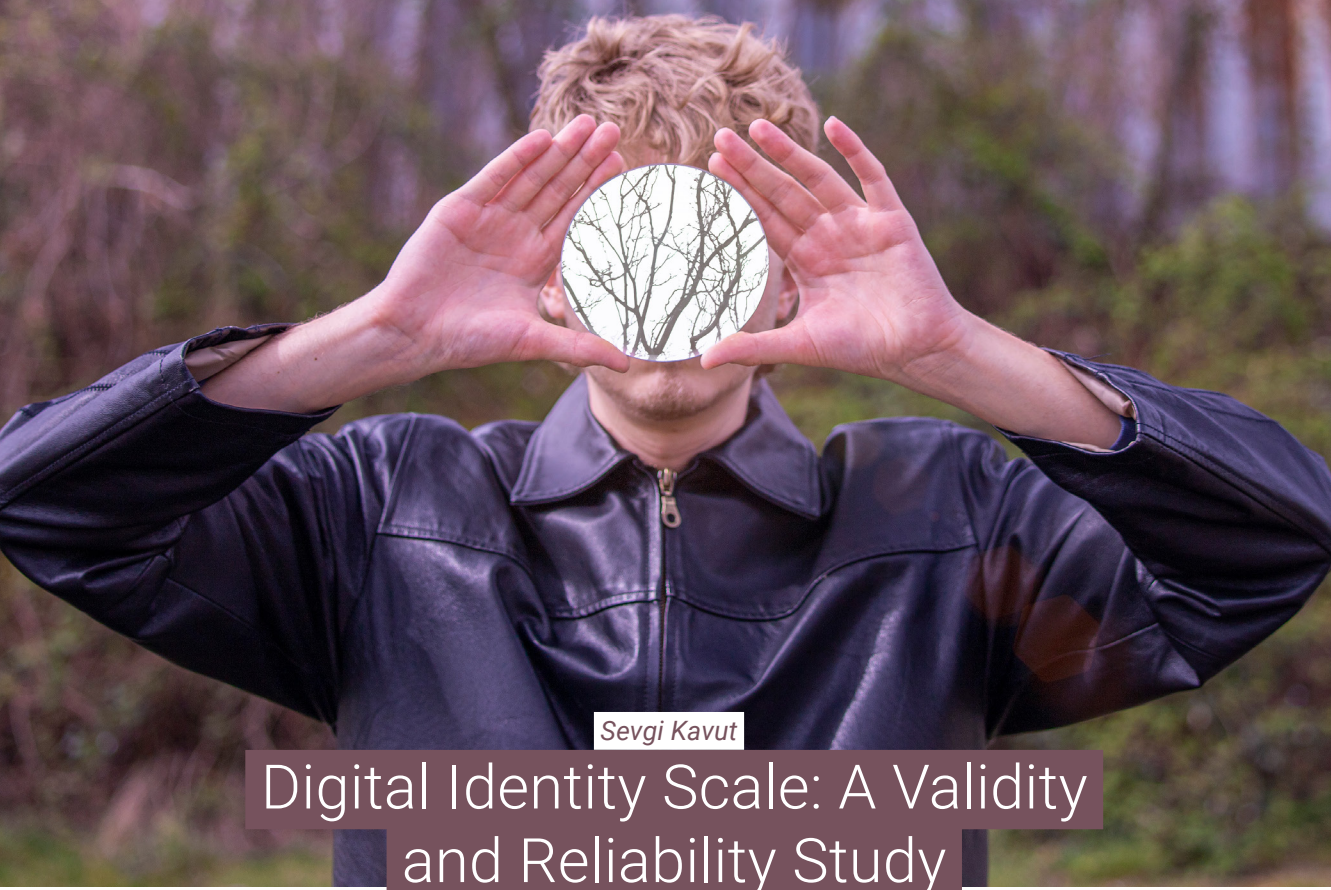


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# Digital Identity Scale: A Validity and Reliability Study

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## ABSTRACT

The purpose of this study is to develop a reliable and valid scale for measuring digital identity definitions, digital personalities, self-presentation strategies, communication styles in digital contexts, and digital identity perceptions of digital environment users over the age of 18. This study is significant since it is the first scale study on the subject of digital identity in Turkish literature, filling a gap in the field and creating a unique, reliable and valid scale. The process of developing this scale consists of many phases. First, in-depth interviews were conducted with 18 people and an item pool was created by reviewing literature and data obtained. Item numbers were reduced according to the view of experts. Expert opinions were obtained using the Lawshe method. Afterwards, the pilot study was applied to 278 participants for construct validity. Following this, the main study was conducted with 511 participants. After the data was collected, exploratory and confirmatory factor analyses were carried out. The scale's validity and reliability was tested and approved. The result of exploratory and confirmatory factor analysis was a scale with 28 items and 3 factors. These findings are deemed important so that this scale can be considered a reliable and valid measurement tool.

## KEY WORDS

Digital Identity. Digital Identity Scale. New Communication Technologies. Reliability. Scale Development. Validity.

# 1 Introduction

Digital identity is a relatively new yet growingly significant topic. The implications of digital identities on people's lives, behaviour, and how they present themselves in digital contexts with impression management and personality traits are predicted to remain unexplored until a measurement method is established. Thus, the purpose of this study is to develop a unique, reliable and valid scale for measuring digital identity definitions, digital personalities, self-presentation strategies, communication styles in digital contexts, and digital identity perceptions of digital environment users over the age of 18 in Turkey.

This study is significant since it is the first scale study on the subject of digital identity in Turkish literature, filling a gap in the field and creating a unique and legitimate scale. In the meantime, through individual digital identity accounts and usages, this study depicts digital identity definitions, digital personalities, self-presentation strategies, communication styles in digital contexts, and digital identity perceptions of users over the age of 18.

The main problem in developing this scale is the deficiency of measurement tools in Turkish literature and the inadequacy of current digital identity scales in international literature. Thus, this study has targeted developing a valid and reliable measurement tool which reveals digital identity and sub-dimensions of digital identity. Examining articles, theses, dissertations, scales, and other research in the national and international literature reveals that studies on digital identity are undertaken on a restricted and homogeneous population, such as university students, younger people, and members of specific occupational groups. The existing scales have a weak correlation to reveal digital identity definitions, digital identity presentations and digital identity perspectives of digital users. Thus, this study has targeted various sociodemographic groups, including those with digital environment users over the age of 18, based on factors including age, income, gender, and education. It is believed that this scale will address a need in the field and advance the fields of sociology, psychology, and communication in particular.

It is noted that there is not much research on the topic of digital identity. Nonetheless, it is acknowledged that this subject is significant and has progressively become vital from a national and worldwide perspective. This study aims to contribute to new studies in digital identity, digital presentation, digital personality, digital reputation, digital impression, digital communication topics.

# 2 Literature Review

The nature of human communication and the internet, which contains an incredibly large amount of data at a profoundly varying rate, both allow for greatly reduced communication costs and simultaneously incredible distances, as well as coverage of all other media content (Reed, 2019). Every major advancement in technology alters humans. The emergence of some aspects of the modern digital world predates the era of smartphones and personal computers. However, the measurement and rate of change in our lives have unexpectedly grown due to accessibility, the usage of mobile phones, and the rapid growth of internet advances (Lemma, 2017).

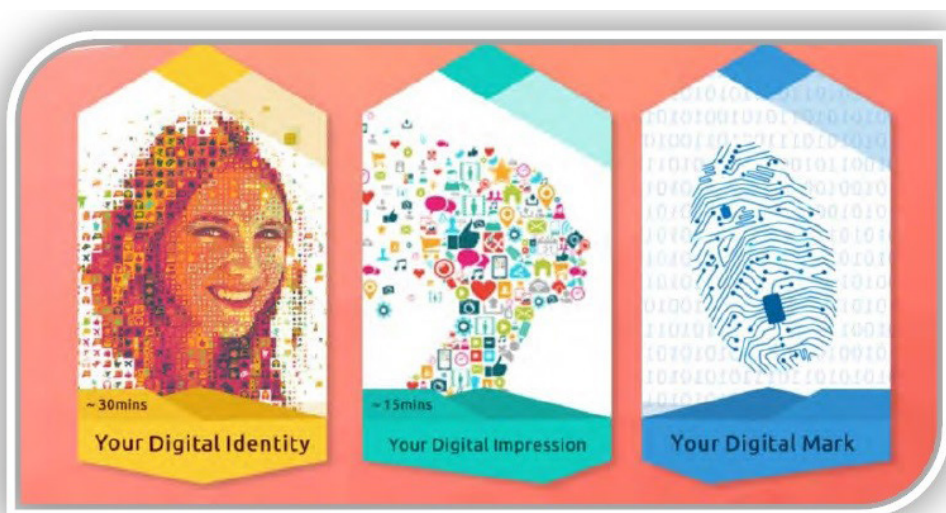
Digital identities facilitate individuals' ability to exhibit themselves to various audiences and to acquire distinct personas across various social media channels. Within the virtual digital environment of cyberspace, these identities' distinct artificiality is fully present. Because of this special characteristic, the relationship between digital IDs and their corresponding offline IDs is unclear (Brown, 2016). Digital identity is defined by Sullivan and Stalla-Bourdillon as "it is an identity constituted from saved information and transmitted on digital forms" (2015, p. 268). Digital identities can be also described as a composition of technology and identity, individuals who present identity in the digital world. Everywhere people go, their identities are marked



with information about them. These marks may be classified as information on social media, name, phone number, creating a full profile covered by the image, commenting on a forum, filling out a form, and maintaining a blog (Ayed & Ghernaoui-Helie, 2011). At the same time, digital identity is a concept that is appropriate to the digital world. This trend has a link that raises privacy concerns about people's real-world identities and their identities in the virtual world, as people engage in more activities in the virtual world (Pato, 2003). Digital identity is defined by Phiri et al. (2011) as the formation of personality traits, attitudes, and preferences of individuals who can receive personalized services that can exist online on mobile devices, in workplaces, and in many other areas.

A digital identity is a social identity that is formed online through the creation of online profiles. On networking sites, self-offering is displayed in a social setting. Social media profiles on the internet are crucial for identity authorization (Bozkurt & Tu, 2016). Digital identities are now an important part of the identity management system due to the growth of the internet and the expansion of online services. A presentation of all available user data in online contexts is called a digital ID (Phiri et al., 2011). According to Rodrigues, a digital identity is one that has been formed by relationships, computer technology, and digital interactions like the Internet and digital media. Account names, domain names, artificial intelligence, biometric data, digital certificates, digital pictures, digital/electronic signatures, e-portfolios, geotagging, globally unique identifiers, ID cards or symbols, mobile IDs, passwords, personal data, IP addresses, personal profiles, smart cards, reputation, etc. can all be sampled, according to Rodrigues, who stated that there are various ways in which digital IDs can be viewed (Rodrigues, 2011).

Nowadays, identities may be constituted as analogue (document), digitized (scanning) or digital (digital footprint) (Kavut, 2021a). Furthermore, as seen in the figure 1, Kavut (2021a), digital identity modules are classified into three stages as digital identity, digital impressions and digital mark or digital footprint. We can say that personal digital identities constitute digital impression via social media platforms and this process creates digital marks.



**FIGURE 1:** *Digital identity module*

Source: Kavut (2021a, p. 33)

Goffman's writings help to develop theories for comprehending the connection between identity and social networks. The dramaturgical approach of Goffman offers an appropriate framework for the development of identity. Proposed individualism, self-narratives, and cultural practices of connectedness are more generally positioned in parallel with Goffman's work on social networks. Goffman observed the unique components of performance as well as

deliberate self-presentation in various circumstances (Cover, 2016). Goffman clarified that daily existence is a type of performance and used a theatrical metaphor to describe people's attitudes and behaviour (Wood & Smith, 2005). The historical roots of the concepts of personality and personality traits are based on Trendelenberg, known for his work between 1870 and 1910 (Paranjpe, 2002). Although the concepts of person and personality are used synonymously, they have different meanings. The concept of the person suggests individual differences in personality while expressing people's rights and duties (Paranjpe, 2002). Digital identities are a fairly new concept derived from the applications of individuals developed in online environments. The digital identities of individuals are in pieces and therefore consist of a combination of several services or networks (Costa & Torres, 2011). Digital identity creation can provide young people with the opportunity to showcase themselves, if utilized with caution. Finding an identity that governs one's experiences and life and enables one to become an individual is the primary goal in life, according to Frosh, a psychoanalytic and identity theorist. Identity is expressed in this way as the middleman (Frosh, 2010, in Balick, 2014). Self-presentation is distinct from other behaviours because effective communication relies heavily on genuine or perfect responses. Self-presentations are abnormal ways for people to convey their sentiments, realities, and/or self-beliefs as well as their interpersonal outcomes and impacts (Schlenker, 2012). With a multitude of digital experiences, a digital identity structure has arisen. A digital identity can be defined as an enumeration of one's online self-definitions. Building a second self that works with their second life is how people construct their digital identities (Sohier & Brée, 2019).

Digital identity is the method of self-presentation that people exhibit online, both in a personal and professional context (Ahlquist, 2016). According to Kavut (2021b), digital identity refers to an identity type that encompasses cultural capital, individual profiles, social media records, and person sharing in digital contexts. Put differently, digital ID, or biometric identity, is a type of identification that simultaneously verifies encoded identities in social and content networks and incorporates the characteristics of intelligent identity technologies like blockchain and apps based on additional data (Feher, 2019). Simultaneously, digital identity is known as a digital presentation of publicly available data on people or organizations. Obtaining permissions can be used for a variety of purposes, such as verifying identity claims. Digital credentials comprise not only the individual's qualifying information, such as social security number and passport number, but also biometric information, such as footprint characteristics (Bertino et al., 2009). Consequently, when the term "digital identity" is used, it is understood to refer to a concept that encompasses not only how individuals present themselves on various online platforms, but also a more comprehensive structure that includes things like membership and biometric traits, individual preferences, attitudes, and behaviours related to name, surname, social media, and other online transactions.

Schmidt and Cohen mentioned the importance of digital identities in their book *The New Digital Age – Reshaping the Future of People, Nations, and Institutions*, suggesting that the world's virtual (online) population will exceed the world's population within the next decade. They emphasized that while online identities rarely overshadow people's physical selves, in the future, individuals' identities in everyday life will become more recognizable than virtual activities and relationships (Schmidt & Cohen, 2013). Their digital IDs are physical, such as fingerprints and DNA; passwords, such as driver's licenses; Khan, who divides this into four sections: behavioural identity such as electronic and online shopping, such as social media accounts, stated that the electronic and behavioural identities he defines dynamically can develop in line with the habits of individuals, while the legal and physical identities he defines as static are unique and irrevocable (Khan, 2018).

Digital identities are an important topic today. It has developed around two macro areas: presentation and reputation. The presentation dimension is the way people display their behaviour in online environments, how to participate and interact in these shared areas, and what persona or self they assume as part of their digital presence. In the reputation dimension,

the focus is on what others think of the individual. While reputation is independent of people's online presence, it is socially dependent. That's why digital identity management is important because it can affect people's activities both face-to-face and online (Costa & Torres, 2011). Identities will be the most valuable resource for citizens in the future and they will mostly exist online. They claimed that people's experiences on the internet can start even before they are born, that people's life experiences can become frozen over time and eventually surface where they are visible to all, and that businesses can develop new techniques to control information (Schmidt and Cohen, 2013). Focusing on the benefits of digital identities, Aiello et al. (1998) explained that digital IDs also meet the needs of many areas such as online shopping, transactions between businesses, online banking, verification of codes, internal identities when necessary for government, private or business use of the Internet. Al-Mahmood et al. (2018) explained in their work on digital identities and online reputation that The Reputation Economy's author Michael Fertik stated that online reputation is more important than money or power. This explanation is a case in point of the economic value and importance of digital identity.

## **3 Methodology**

### **3.1 Aim and Method**

The purpose of this study is to develop a reliable and valid scale for measuring digital identity definitions, digital personalities, self-presentation strategies, communication styles in digital contexts, and digital identity perceptions of digital environment users over the age of 18 in Turkey. This study was conducted with the field research method. This study used an online Google Form survey as its survey method. The correlational survey model served as the study's research model.

### **3.2 Sample**

The study's target population comprises Turkish consumers and creators of digital environments. The study's sample consists of adult Turkish citizens over the age of eighteen who use digital environments.

## **4 Scale Development Process**

There are numerous steps involved in the development of this scale. First, a pool of items was produced by reviewing both domestic and foreign literature, and 18 people were interviewed in-depth. In line with the data obtained, the item pool was created and 252 scale items were prepared in the light of the collected information. The scale items are regulated and sent to an expert for assessment. Expert opinions were obtained using the Lawshe approach. There are three academicians and two communication specialists from Turkey among the five experts. The number of articles in the draft questionnaire form was reduced to 55, after evaluation by the experts. Based on the fact that the number of articles is 5 times greater, the pilot research study was aimed to be applied to 275 people, and the online questionnaire prepared through Google Forms was applied to 278 participants.

Pretest (pilot) survey studies are the only way to pre-evaluate questions that pose problems for respondents and interviewers. Therefore, both basic textbooks and prerequisites for experienced researchers are explained as mandatory (Presser et al., 2004). Pre-evaluation (pilot) applications prepared for the evaluation of surveys are recommended to be carried out by

the interview method (Altunışık, 2008). For this reason, the in-depth interview method was used in the initial stages of designing the Digital Identity Scale to create open-ended and sentence completion questions utilizing the preliminary research form and questions.

Pretest studies usually means testing surveys to screen and identify possible problems for a small sample group of 15 to 30. Even the best surveys can be improved by preliminary studies, the general rule on this issue is not to start fieldwork without a comprehensive preliminary. All features of surveys, including survey content, words, order of questions, forms, the difficulty of questions, and guidelines, should be tested (Malhotra, 2006, p.195). Reynolds et al. (1993) emphasized in the literature that the number of pretest samples should be small, that this number can be compared between 5-10 and 50-100, and that the sample is small but large enough to cover the target audience.

The scale's composition was determined to have 28 items and 3 factors, following the completion of the pilot study and factor analysis. In the initial study, 511 participants were contacted via email addresses and social media platforms, and an online survey form created using Google Forms was distributed to them. The 5-way Likert scale was used to rate the items. Next to each of the items five choices were placed. These choices were arranged and scored as (1) *Strongly Disagree*, (2) *Disagree*, (3) *Neutral*, (4) *Agree*, and (5) *Strongly Agree*.

## 5 Findings

### 5.1 Reliability Analysis

De Vaus (2002) explained that a reliable measurement gives similar results if the test is repeated. The most commonly used test reliability index in reliability analysis is Cronbach alpha ( $\alpha$ ) (Ryan, 2013). Table 1 displays the reliability coefficients of the digital identity scale based on data from the pilot research.

Scale Dimensions	Number of Items	Guttman	Cronbach ( $\alpha$ )
Describing Digital Identity	11	.890	.944
The Need for Digital Identity, Personality, and Digital Identity Presentation	9	.905	.918
Communication, Impression, and Reputation Management in Digital Environments	8	.945	.957
<b>Total</b>	<b>28</b>		<b>.910</b>

**TABLE 1:** *The coefficients of reliability analysis*

Source: own processing, 2024

Büyükoztürk (2005) explained that the reliability coefficients of scales 0.70 and above are generally considered sufficient for test scores. The results of the reliability analysis demonstrate the scale's overall and sub-dimension-wide reliability. Table 1 clearly shows that the scale's reliability research yielded a height sufficient for all reliability coefficients with an alpha value of .910 Cronbach.

The Cronbach alpha internal consistency value of scale shows that the reliability coefficient of Describing Digital Identity dimension was found to be  $\alpha$ : .944, The Need for Digital Identity, Personality, and Digital Identity Presentation dimension was found to be  $\alpha$ : .918, and Communication, Impression And Reputation Management in Digital Environments dimension was found to be  $\alpha$ : .957. These results were obtained by looking at the reliability multiples of the sub-dimensions of the scale. Upon closer inspection, it became evident that the scale had a high internal consistency rate. It was found that alpha values for all sub-dimensions are greater than 0.70 and therefore the scale has sufficient reliability.

## 5.2 Validity Analysis

According to De Vaus (2002), the validity measurement has been defined as realizing the measurement of things wanted or intended to be measured. Factor analysis has mostly been used to support the validity of the Digital Identity Scale. After determining the KMO and Bartlett values, factor analysis is used in conjunction with the varimax rotation procedure and the maximum likelihood approach. Lawley invented the maximum likelihood method in 1940 to handle factor exclusion. The maximum likelihood method has calculated sample values for each factor loading by calculating loadings that maximize sample suitability of the surveyed correlation matrix (Tabachnick & Fidell, 2014). Maximum likelihood (ML) is the most commonly used prediction method (Harrington, 2009). The recognized statistical method known as factor analysis excludes the dimension reduction technique in particular, as well as the latent structure of a set of variables. Factor analysis is classified into two types: exploratory and confirmatory factor analysis (Ryan, 2013).

## 5.3 Exploratory Factor Analysis

An exploratory factor analysis was performed on 278 participants in total. 55 items in total are included in the first stage of factor analysis. The appropriateness of the factor analysis of the data was assessed using Bartlett's test ( $\text{sig}=.000$ ) and KMO (.823). The analysis yielded a KMO and Bartlett's test value of over 80, indicating significance.

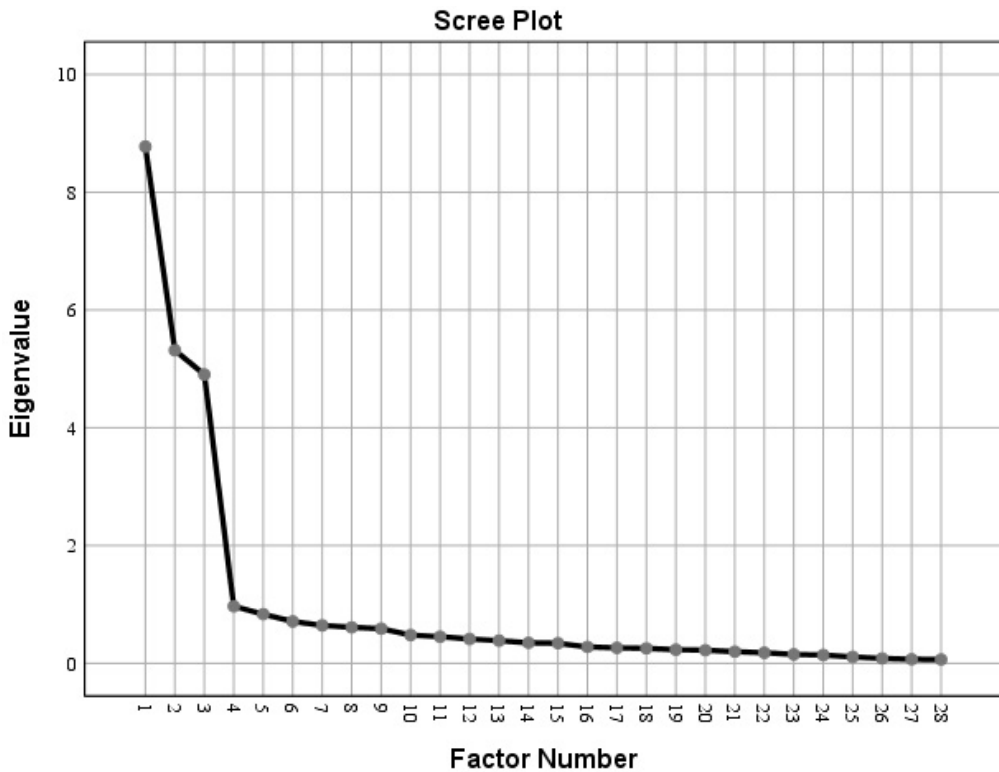
A first-factor analysis was conducted on fifty-five items. 55 items are grouped under twelve factors, and the eigenvalue is large starting at one. The variation of these twelve components concerning the scale is 67.79 percent. Twelve components specified items have common variances (communalities) ranging from 0.275 to 0.889. Due to the low factor loading values in the factor commonality and under different factors, items constructed for measurement were selected to be gradually removed from the scale. Consequently, items 1, 2, 4, 5, 8, 11, 16, 18, 20, 22, 25, 27, 29, 31, 33, 34, 36, 38, 39, 40, 42, 45, 48, 49, 52, 54, and 55 were removed from the scale. This decision was taken after considering expert opinions and literature support. The second stage of factor analysis is applied after these transactions. Three sub-dimensions were found to be collected using a 28-item scale in the final form, and it was found that the distribution of sub-dimensions was consistent. The Kaiser-Meyer-Olkin and Bartlett test was used to assess the suitability of the factor analysis of the data in the exploratory factor analysis.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.858
Bartlett's Test of Sphericity	Chi-square	7045.037
	Df	378
	Sig.	.000

**TABLE 2:** KMO and Bartlett's test values of digital identity scale

Source: own processing, 2024

Table 2 indicates that Bartlett's Sphericity test score of 0.00 ( $p<0.05$ ) and the Kaiser-Meyer-Olkin value of .858 are significant. This value shows that the available data are excellent for factor analysis. In other words, KMO and Bartlett's values are appropriate for factor analysis of the data. It is found that in the second stage of factor analysis, KMO values are higher than in the first.



**FIGURE 2:** Digital identity scale scree plot

Source: own processing, 2024

The scree plot shows that the chart curve tends to decrease after three factors. Thus, it was determined that three should be the scale factor number. In the second stage, the scale was collected under three factors, with an eigenvalue greater than 1, when factor common variances (communalities) tables and scree plots were analysed. The total variance value of Digital Identity Scale is 67.84%. It is found to vary between 0.493 and 0.880 in terms of common variances (communalities) of three sub-dimensions that are defined alongside items.

Factors	Initial Eigenvalues			Total Factor Loads			Rotation Sums of Square Loads		
	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %
1	8.776	31.341	31.341	8.053	28.761	28.761	6.784	24.229	24.229
2	5.316	18.987	50.328	5.007	17.883	46.644	6.040	21.571	45.800
3	4.904	17.514	67.842	4.906	17.521	64.165	5.142	18.364	64.165

**TABLE 3:** Eigenvalues and variance of digital identity scale

Source: own processing, 2024

Table 3 displays the item factor loads. A review of the component matrix table reveals that these 28 items are included in the first, second, and third-factor load values, and that factor load values are 594 and above. This finding suggests that the scale has a generic element. The first component,  $\lambda_1=8.776$ , describes 31.34% of the total variance, the second factor,  $\lambda_2=5.316$ , 18.98%, and the third factor,  $\lambda_3=4.904$ , describes 17.51% of the total variance, according to the eigenvalue statistics of the factor analysis conducted in the second stage.



Items	Factors		
	1	2	3
1. Digital identity is the identity that creates the person one wants to be in the virtual environment and reflects it to others as if it were real.	.875		
2. Digital identity is the identity by which people reflect their way of life in digital media such as profile photos, identity details, political-social posts made, and people being followed.	.854		
3. Digital identity is an intermediary identity for individuals to find people who resemble them as a mirror that allows them to see themselves.	.832		
4. Digital ID is the identity that contains the presentation of all the information that we have created online as a tool that helps communicate when used correctly.	.821		
5. Digital ID, when used correctly, is an identity that strengthens the face-to-face environment by hosting content that cannot be asked or criticized.	.812		
6. Digital ID is a kind of personal marketing identity that people show to people they know or do not know.	.796		
7. Digital ID is the identity of many companies for advertising purposes to reach their user profiles to understand in which direction perceptions are heading.	.784		
8. I think digital ID and virtual ID are the same things.	.742		
9. Digital identity is an identity in which real-life reputation is digitized and digitalized.	.676		
10. Digital identity, like the footprint of an individual, is the identity that can be monitored at any time on social media, job applications, credit usage, online purchases, digital banking, and choosing friends.	.655		
11. Digital ID is the identity that protects individual data against data leaks and cyberattacks and provides online security.	.618		
12. Digital IDs are an identity that everyone needs, which are necessary for all personality structures.		.852	
13. Social people need a digital identity as much as introverted people.		.836	
14. If the presented digital identity is far from reality, the person does not like themself and presents their personality differently in the digital environment.		.808	
15. People who have a sense of curiosity and want to be noticed by other people need a digital identity.		.796	
16. People need digital identities because of their desire to make them like themselves.		.761	
17. In digital environments, individuals talk about their positive personality traits with the idea that reality has no chance of being investigated.		.743	
18. Identity formation in digital environments takes advantage of good impressions and personality and thanks to this, people present themselves better.		.673	
19. The life of everyone appears perfect and smooth in digital environments.		.638	
20. People need digital identities to earn money in this area by catching on.		.594	
21. I think that communication with words or emojis alone is not healthy without hearing the voice of the other person, without seeing their face.			.905
22. I think that communication in digital environments is a false and insincere form of communication.			.895
23. I think that communication in digital environments, along with face-to-face communication environments, can be an effective tool.			.875
24. With digital identity, I think that people try to make themselves think that they are living a life that others will aspire to, by making them look much more successful, rich, and beautiful than they are.			.859
25. I think a special effort should be made on social media to have a good reputation via digital identity.			.836
26. I think that in digital environments people will not care when the assessment of others about themselves is negative.			.834
27. I think it is important how one sees oneself in digital environments.			.824
28. I think it can be dangerous to have close ties with other people in digital environments.			.781

TABLE 4: Rotated factor matrix of digital identity scale

Source: own processing, 2024

The component matrix's findings demonstrate that the Digital Identity Scale, which has three sub-dimensions, is a valid and reliable measuring instrument. Describing Digital Identity dimension makes up 11 items. The Need for Digital Identity, Personality, and Digital Identity Presentation dimension makes up 9 items. Communication, Impression and Reputation Management in Digital Environments dimension makes up 8 items. Internal consistency and reliability of the scale were calculated for each factor value, which ranged from 594 to 905, as well as for the total score of 910. Eleven items make up the first factor: 3, 6, 7, 9, 10, 12, 13, 14, 15, 17, 19; nine items make up the second factor: 21, 23, 24, 26, 28, 30, 32, 35, 37; and eight items make up the third factor: 41, 43, 44, 46, 47, 50, 51, 53. By analysing the scale items and items in the factors after the factor analysis, the researcher created the scale factor names: Describing Digital Identity is the first factor, The Need For Digital Identity, Personality, and Digital Identity Presentation is the second factor, and Communication, Impression, and Reputation Management in Digital Environments is the third factor.

## 5.4 Confirmatory Factor Analysis

The confirmatory factor analysis stage of the scale was carried out, following the exploratory factor analysis. The confirmatory factor analysis has been satisfied with the AMOS program. Confirmatory factor analysis (CFA) is a research method that uses structural equation modelling to show correlations between latent and observable variables (Çapık, 2014).

Gürbüz (2019), acceptable values of path analysis model indices explain in Table 5. A goodness of fit index for the level I and level II path analysis models and the acceptance criteria of fit indices have been explained in Table 5. While evaluating the results of the confirmatory factor analysis in table, it is evaluated by considering indices such as  $\chi^2$ , CMIN ( $\chi^2$ )/DF, NFI, TLI, IFI, CFI, GFI, AGFI, RMSEA, RMR, SRMR, AIC, CAIC and ECVI.

Model Fit Index	Model Result (Level I)	Model Result (Level II)	Acceptable Value	Harmony
<b><math>\chi^2</math> Test</b>	.000	.000	$p > .05$	Acceptable
<b>CMIN (<math>\chi^2</math>) / df</b>	2.101	2.139	<5	Acceptable
<b>NFI</b>	.915	.913	>.90	Acceptable
<b>TLI</b>	.940	.938	>.90	Acceptable
<b>IFI</b>	.954	.952	>.90	Acceptable
<b>CFI</b>	.953	.951	>.90	Acceptable
<b>RMSEA</b>	.063	.064	<0.80	Acceptable
<b>GFI</b>	.870	.870	>.90	Acceptable
<b>AGFI</b>	.822	.822	>.90	Acceptable
<b>RMR</b>	.083	.079	<0.80	Acceptable
<b>AIC</b>	841.977	853.318	The smaller value between the two models	Acceptable
<b>CAIC</b>	1351.015	1353.101		Acceptable
<b>ECVI</b>	3.040	3.081		Acceptable

**TABLE 5:** Results I and II goodness of fit index path model

Source: Gürbüz (2019, p. 34)

The digital identification scale's first-level goodness of fit index results was analysed in Table 5, revealing a chi-square of 621.977, a degree of freedom (df) of 296 ( $p=.000$ ), and a chi-square / df=2.101. The scale's comparative fit index (CFI) score was 953; the goodness of fit index (GFI) value was 870; the TLI value was 940; the IFI value was 954; and the RMSEA

value was 063. Based on the analysis of model comparative fit indices, it was determined that ECVI 3.040, AIC 841.977, and CAIC 1351.015 had values that were smaller and both saturated compared to independent models. Based on the findings, the goodness of fit indices are often observed to be quite good (Bayram, 2013; Meydan & Şeşen, 2015; Karagöz, 2016).

After looking at Table 5's results for the digital identity scale's second level goodness of fit indices, the chi-square measured 637.318 degrees of freedom (df) was 298 ( $p=.000$ ), and chi-square / df=2.139 was discovered. There was a CFI of .951; an RMSEA (Root Mean Square Error of Approximation) of .064; a GFI of .870; and an RMR of .079. The values of the model comparative fit indexes are AIC 853.318, CAIC 1353.101, and ECVI 3.081. These findings demonstrate that the scale is smaller than the independent model and also saturated. It was discovered after the results of the analysis were reviewed that the fit indices are fairly good (Bayram, 2013; Meydan & Şeşen, 2015; Karagöz, 2016). The chi-square model, which allows for the assessment of the precise model convenience of the sample to model, is the most widely used model fit index (Harrington, 2009). The range of the chi-square's degree of freedom is measured in chi-square tests and ranges smaller than five are recognized as the goodness of fit index (Erkorkmaz et al., 2013).

It is seen that supply exceeds goodness fit and acceptable fit index with values of level 1 2.101 and level 2 2.139. It is accepted that values of CFI and TLI have between .90 and .95 as the goodness model fit index (Brown, 2015). The CFI values in the first level are 1.953 and 2.951, while the TLI values in the first and second levels are .940 and .951, respectively .938 are markers of good fit. A good fit is indicated by a GFI (Goodness of the Fit index) value of .90 or higher, while satisfactory compliance is indicated by a value of .85 or above (Karagöz, 2019). An explanation of the scale's permissible GFI .870 compliance value is provided. Overall, all indices of goodness of fit indicate good model fit. The validity and reliability of the 28-items, 3-sub-dimensions of Digital Identity Scale have thus been validated by the results of exploratory and confirmatory factor analyses.

<b>Kaiser-Meyer-Olkin Sampling Adequacy</b>		.893
<b>Bartlett's Test of Sphericity</b>	<b>Chi-square</b>	4819.911
	<b>Df</b>	378
	<b>Sig.</b>	.000
<b>Cronbach Alpha</b>		.894

**TABLE 6:** Test-retest reliability of digital identity scale

Source: own processing, 2024

The KMO value, which was 858 in the pilot study conducted with 278 participants, grew to 893 in the main study, which was produced with 511 participants, according to an analysis of the KMO and Cronbach Alpha data relevant to the main study. The pilot study's Cronbach alpha value was 910, whereas the main study's score was 894. The results show that the Digital Identity Scale is a legitimate and reliable measurement tool.

## 6 Conclusion

The Digital Identity Scale revealed digital identity definitions, digital personalities, self-presentation strategies, communication styles in digital contexts, and digital identity perceptions of digital environment users over the age of 18 in Turkey. The main problem in developing this scale is the deficiency of measurement tools in Turkish literature and the inadequacy of current digital identity scales international literature. Thus, this study targeted developing a valid and

reliable measurement tool. Examining articles, theses, dissertations, scales, and other research in the national and international literature reveals that studies on digital identity are undertaken on a restricted and homogeneous population, such as university students, younger people, and members of specific occupational groups. The existing scales have a weak correlation to reveal digital identity definitions, digital identity presentations and digital identity perspectives of digital users. Therefore, this study targeted various sociodemographic groups, including those with digital environment users over the age of 18, based on factors including age, income, gender, and education.

Scales and measurement tools on digital identity and digital identity types in the literature were examined. Upon reviewing the literature, both domestically and internationally, it became apparent that the present scales typically have an indirect connection to the topic of digital identification. A sub-dimension known as Virtual Appreciation was discovered in the sub-dimensions of the "Virtual Identity Scale" created by Kardaş (2017) when the measurement instruments for assessing Digital Identity in Turkey were examined. The Social Approval Needs scale created by Karaşar and Öğülmüş (2016) has been found to include a Positive Impression Release sub-dimension. Demir (2011) created the Turkish adaptation of the Identity Functions Scale created by Serafini and Adams (2009). There are 22 compounds on the initial iteration of Serafini and Adams' scale. It has 15 items in Demir's study on Turkish adaption. Sohier and Brée (2017) developed a Digital Identity Scale with four sub-dimensions: Digital Self, Virtual Reputation, Social Inhibition Elimination, and Self-Search, after analysing the measuring tools discovered in the international literature. Serafini and Adams (2009) developed the Identity Functions Scale, also referred to as Structure, which included questions regarding identity and self. The Identity Views Scale (AIQ-IV), created by Cheek and Briggs (2013), has five sub-dimensions: Relational Identity, Individual Identity, Social Identity, Collective Identity, and Special Items. The social identity and relational identity sub-dimensions were utilized.

This study examined the scale materials of the researchers stated, and it is included in literature. It was appropriate to construct a scale as the Digital Identity Scale is not included in Turkish literature. There is a major shortage when there is no measurement device in the relevant subject. It is a unique, valid, and reliable scale developed within the framework of scientific research. This scale consists of 28 items and 3 sub-dimensions. The first sub-dimension of the scale is titled Describing Digital Identity and consists of 11 items which reveal digital identity definitions of individuals. The Need for Digital Identity, Personality, and Digital Identity Presentation are the titles of the second sub-dimension of the scale, which consists of 9 items regarding people's demands for digital identities, digital identities' presentation, and personality attributes. Communication, Impression, and Reputation Management in Digital Settings is, with 8 items, the third sub-dimension of the scale that deals with communication patterns that are composed in digital settings and controlling impressions and online reputation with digital identities.

The scale can be tested on several sample groups or with various factors connected to digital identification, such as those under the age of eighteen, certain age and educational groups, college students, and personnel in the communication and information sectors. The outcomes may vary if various variables and subjects from the Digital Identity Scale are examined. The scale can be a contribution to the field in this way. It is thought that the scales that are currently in use only provide a small area of study for digital identification, after reviewing the research. It is believed that this scale will address a need in the field and advance the fields of sociology, psychology, and communication in particular.

The overall results indicate that this scale has appropriate validity and reliability. Having said that, emerging and enabling technologies like blockchain, big data, AI, and the internet of things are linked to digital identity. Digital identity research has become more important as a result of recent developments in communication technologies including artificial intelligence, big data, blockchain, and other developments. It is recommended that researchers can develop

valid, reliable and update scales regarding enabling technologies and digital identity parallel to current technological advancements. Besides, it is suggested that future researches should replicate this study on larger samples such as different cultures, sociodemographic groups or other countries. Trying different survey and data collection methods is suggested for future researches.

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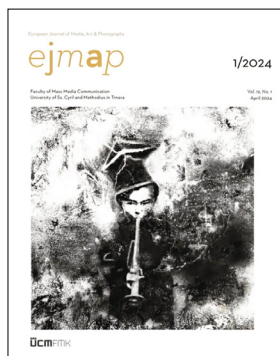
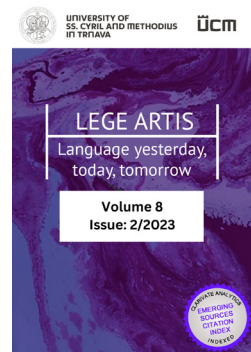
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