

# Teachers in a world of information: Detecting false information

**Kamil Kopecký; Dominik Voráč; René Szotkowski; Veronika Krejčí; Karolína Mackenzie; Magdalena Ramos-Navas-Parejo**

**Nota:** Este artículo se puede leer en español en:

<https://revista.profesionaldelainformacion.com/index.php/EPI/article/view/87136>

Recommended citation:

**Kopecký, Kamil; Voráč, Dominik; Szotkowski, René; Krejčí, Veronika; Mackenzie, Karolína; Ramos-Navas-Parejo, Magdalena** (2023). "Teachers in a world of information: Detecting false information". *Profesional de la información*, v. 32, n. 5, e320501.

<https://doi.org/10.3145/epi.2023.sep.01>

Manuscript received on 12<sup>th</sup> October 2022

Accepted on 29<sup>th</sup> March 2023



**Kamil Kopecký**

<https://orcid.org/0000-0003-2860-946X>

Univerzita Palackého v Olomouci  
Faculty of Education  
Žižkovo nám. 5  
77140 Olomouc, Czech Republic  
[kamil.kopecky@upol.cz](mailto:kamil.kopecky@upol.cz)



**Dominik Voráč**

<https://orcid.org/0000-0002-3970-0130>

Univerzita Palackého v Olomouci  
Faculty of Education  
Žižkovo nám. 5  
77140 Olomouc, Czech Republic  
[dominik.vorac01@upol.cz](mailto:dominik.vorac01@upol.cz)



**René Szotkowski**

<https://orcid.org/0000-0002-1261-6481>

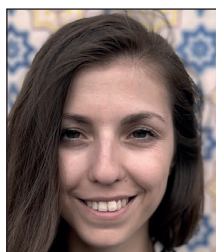
Univerzita Palackého v Olomouci  
Faculty of Education  
Žižkovo nám. 5  
77140 Olomouc, Czech Republic  
[rene.szotkowski@upol.cz](mailto:rene.szotkowski@upol.cz)



**Veronika Krejčí**

<https://orcid.org/0000-0002-2130-7613>

Univerzita Palackého v Olomouci  
Faculty of Education  
Žižkovo nám. 5  
77140 Olomouc, Czech Republic  
[veronika.krejci@upol.cz](mailto:veronika.krejci@upol.cz)



**Karolína Mackenzie**

<https://orcid.org/0000-0002-9652-3230>

Univerzita Palackého v Olomouci  
Faculty of Education  
Žižkovo nám. 5  
77140 Olomouc, Czech Republic  
[karolina.mackenzie01@upol.cz](mailto:karolina.mackenzie01@upol.cz)



**Magdalena Ramos-Navas-Parejo** ✉

<https://orcid.org/0000-0001-9477-6325>

Universidad de Granada  
Facultad de Ciencias de la Educación y el  
Deporte de Melilla  
Ctra. Alfonso XIII, s/n  
52005 Melilla, Spain  
[magdalena@ugr.es](mailto:magdalena@ugr.es)

## Abstract

The media have advanced rapidly in recent years, bringing with them new challenges, such as the need to acquire adequate training to be successful in today's global world. Since anyone can participate in public media communication, misinformation is an element that shapes today's society. This article focuses on the extent to which Czech teachers believe fake news and conspiracy theories. We conducted an online survey with a total of 2,155 teachers from all regions of the Czech Republic. The teachers assessed a total of 34 statements divided into three thematic groups: statements related to the European Union, statements related to the Covid-19 disease pandemic and statements focusing on well-known historical, cultural and social phenomena. More than half (61.14%) of Czech teachers were able to correctly judge the truthfulness of statements. Nevertheless, 15.59% of Czech teachers admit that they are not able to assess the statements in a relevant way, and only 10.41% believed some of the fake news or conspiracy theories.

## Keywords

Media literacy; Disinformation; Misinformation; Hoaxes; Fake news; Conspiracy theories; Fact-checking; False information; Teachers; Educators; Czech Republic; Surveys; Primary schools; Secondary schools; European Union; Covid-19.



**Funding**

Funded by O2 Czech Republic (contract research).

**1. Introduction**

The twenty-first century is often referred to in public as the information age or the post-factual age. There is a reason for these labels –with the development of the media and the advent of the Internet, the amount of information that people are surrounded by has increased many times over, and naturally, with the amount of information, the amount of information that is partially or completely false has also increased. As early as 1964, debates raged about whether there was an ‘information explosion’ (Havrilesky, 1972) but the volume of information circulating is also increasing on the internet itself –in 2000 there were more than 17 million websites available on the internet, in 2018 the number of websites was more than 1.6 billion. However, more information does not make people make better decisions, but can negatively influence them (Zheng *et al.*, 2020). An example from around the world is the experience of the COVID-19 disease pandemic, where at least several hundred people died due to misinformation (Islam *et al.*, 2020). Thus, in addition to the pandemic itself, the *World Health Organization* has focused on the so-called ‘infodemic’ manifested by the large amount of fake news about COVID-19 in order to prevent unnecessary loss of life caused by misinformation (WHO, n.d.).

The large amount of information increases the demands on the teachers in terms of information and media literacy. In the Czech Republic, the case of a primary school teacher who, at the time of the Russian invasion of Ukraine, told her pupils, for example, that the capital Kiev was not facing any attacks and that they should not trust the public *Czech Television* because it belongs to a media group tied to the billionaire Soros has been widely discussed (Ciroková, 2022). The potential problems of critical reception of media messages were highlighted by research from Slovakia, which is a neighbouring country of the Czech Republic and until 1993 formed one state with the Czech Republic. For example, research entitled *Basic skills for the Hoax century from the perspective of teachers: claim vs. reality* by Focus Agency and the *Centre for Environmental and Ethical Education Pyskyřice*, conducted in 2019 with the support of the *British Council*, produced interesting results (Goda, 2019): up to 57% of teachers out of 523 respondents would recommend one of the Slovak conspiracy websites as a verified source of information to their students. This could be due, for example, to the fact that teachers are not regular readers of all the media mentioned in the survey, ignored the “I don’t know” option and recommended even those media that they do not actually know.

Other interesting surveys on teachers and misinformation include the *Focus Agency* survey (Modrako, 2020) commissioned by the Slovak political party *Spolu* and the *European People’s Party (EPP)* in 2020 among second grade primary school teachers in Slovakia, which showed that some Slovak teachers are subject to misinformation. For example, of a sample of 518 Slovak teachers, almost a third said that the vaccination against COVID-19 was only a preparation for chipping people, or that COVID-19 was just a “fluke”. Already in this research it was clear that teachers –like the rest of the population– are influenced by misinformation and disinformation.

**2. Methodology****2.1. Research identification**

The research *Czech Teacher in the World of Media* was conducted by the *Centre for Prevention of Risky Virtual Communication* of the *Faculty of Education at Palacký University in Olomouc* and *O2 Czech Republic*. The research was funded by *O2 Czech Republic* and *The Media Literacy of Teachers and Students as Key Issues of Education in the 21<sup>st</sup> Century* project of the *Faculty of Education at Palacký University in Olomouc*, and a research group from the *University of Granada*, with which researchers from the Czech Republic have long cooperated, also collaborated on partial analyses.

The research included four thematic parts, in this text we focus only on the part dedicated to the perception and critical assessment of false information in the online environment with the working title *Czech teacher in the world of information*.

**2.2. Research procedure**

The research is primarily quantitative (with some qualitative elements). The basic research instrument was an anonymous online questionnaire distributed to all regions of the Czech Republic (using the Czech Republic’s own database of schools). The data collection took place from 1 February 2021 to 15 June 2021. In the following weeks, the evaluation of the partial results and their interpretation took place. Selected items were also subjected to relational analysis using t-tests. *Statistica* statistical software was used for detailed data analysis.

The research included four thematic parts, in this text we focus only on the part dedicated to the perception and critical assessment of false information in the online environment with the working title *Czech teacher in the world of information*.

**2.3. Population and sample**

A total of 2155 teachers from all over the Czech Republic aged 21-82 participated in the research. The average age was 47.21 years (median 47, mode 56). 77.82% were women and 22.18% were men. The characteristics of the research population (age, education, gender) correspond to the official statistics of the *Ministry of Education, Youth and Sports* of the Czech Republic.

Most of the teachers who participated in the research have a pedagogical education at the master's level (78.10%), university education without pedagogical education with additional pedagogical studies was confirmed by 8.72% of the respondents.

64.17% of the respondents were primary school teachers (22.69% were primary school teachers of the first level, 41.48% were primary school teachers of the second level), 24.73% were secondary school teachers. Most of the respondents were from the Moravian-Silesian Region (13.64%), Olomouc Region (10.72%), the Capital City of Prague (9.33%) and the South Moravian Region (8.68%).

The normality of the distribution of the research sample was tested based on the age of the respondents. According to the presented histogram of the monitored variable supplemented with the Shapiro-Wilk test for testing normality  $SW-W = 0.9826$ ;  $p = 0.0000$  indicates a normal distribution of the research sample.

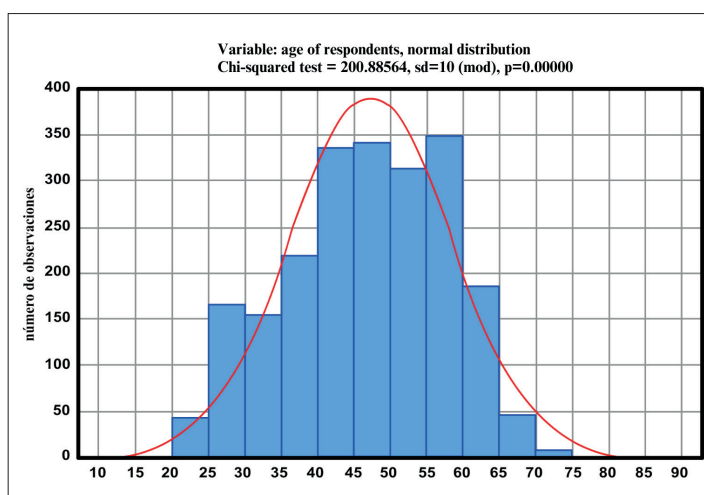


Chart 1. Characteristics of the research population.

## 2.4. Research tool

A special questionnaire was developed and divided into 5 parts:

The initial part (7 questions) was devoted to demographic data (gender, age, region, educational attainment) and information related to the teacher's experience (what type of school he/she teaches at, what subjects he/she teaches, how long he/she has been teaching, etc.).

The second part (13 questions) was devoted to teachers' active use of media (newspapers, magazines, television, internet portals, etc.). In this part we asked which media teachers regularly follow, which ones they consider trustworthy, which ones they would recommend to their students, whether they can indicate which media belong to the public media, etc.

The third part (3 thematic groups of questions) of the questionnaire focused on the recognition of different types of true and false information. This part was divided into 3 areas,

- information about the European Union,
- information related to the COVID-19 pandemic and
- information related to politics, technology and history.

This part of the questionnaire included a total of 45 statements (some of which were then used in the calculation of the final results).

All statements included in this section were publicly known and widespread, the battery of questions contained both true and false (disinformation, conspiracy) information. Teachers were given the opportunity to indicate whether they agreed, disagreed, or did not know the statement (a scale was used to measure this). In the following sections of this text we work with the results of this part.

The fourth part included 3 questions focused on the distinction between public and private media, the recognition of verified and unverified profiles on social networks and spam.

The fifth part was aimed at teachers in relation to media education and its teaching in school settings and contained a total of 14 items.

The validity and reliability of the questions included in the questionnaire were verified with a test group of teachers (21 persons) and subsequently corrected to make the questions unambiguous and fully understandable. The questionnaire was then extended to all schools in the Czech Republic through its own online system *Researcher 1.0*.

## 2.5. Research objectives

Several research objectives/questions were formulated in the framework of our research, which were further operationalized. Specifically, we pursued the following:

1. What type of media do teachers actively use (in their personal lives, in teaching, etc.)?
2. Which media do teachers find credible?
3. Whether they can name which media belong to the so-called public media (and distinguish them from e.g. commercial media).

4. How is media education implemented in their school environment?
5. Which media do they actively use in their teaching?
6. Are Czech teachers able to distinguish true news from false news (disinformation, misinformation, conspiracy)?

In this text, we focus only on research objective number 6 –teachers' ability to distinguish which information in the public space is true and verified from information that is false and that can be considered misinformation or misinformation. The teachers involved in the research were given a didactic test containing a battery of statements, which were then assessed by the teachers with regard to their truthfulness. The results were then evaluated and converted into a final score. The battery of questions and the teachers' success in detecting truthfulness is presented in the following sections of this text. Thus, the primary research questions for this part of the study were:

1. Are Czech school teachers able to distinguish true from false information?
2. What is their success rate in recognizing true and false statements?
3. How many teachers admit that they are unable to decide whether a statement is true or false at a given moment?
4. Do teachers know the technical ways of tagging official profiles in social networking environments?

### 3. Results

In our research, we focused on whether Czech teachers are able to assess the truthfulness of selected statements that include both true and verified information and false content (including various forms of hoaxes, misinformation, conspiracies, etc.). Teachers were given the opportunity to indicate whether they considered the statement to be true or false, whether they were unsure of the answer and simply did not know, or whether they were unable to critically evaluate the information (e.g. they did not have enough information about it, did not understand the topic, etc.).

Teachers were presented with a battery of 34 statements that were divided into 3 main topic areas:

- A. Information and misinformation about the European Union,
- B. Information and misinformation about the COVID-19 pandemic
- C. Other information and misinformation from the world.

The assessed statements included highly frequent disinformation, but also satirical news mapped by both domestic and foreign fact-checking servers (*Snopes, Manipulators, Hoax.cz, etc.*), which have significantly affected social networks in the Czech Republic (especially *Facebook*) in the last 5 years. A large part of the statements has been refuted by official governmental and supranational institutions, in the case of COVID-19 e.g. the *Ministry of Health* of the Czech Republic or *WHO*, in the case of misinformation about the European Union directly by the EU institutions (detailed analyses of the statements are freely available on the websites of these organisations)<sup>1</sup>.

Each thematic area was evaluated separately. It was mapped how many teachers identified the statement correctly, how many incorrectly, but also how many teachers admitted that they were not able to critically evaluate and assess the statement.

#### 3.1. True and false information about the European Union

The topic of the European Union is a very sensitive one in the Czech Republic and trust in the European Union in the Czech Republic fluctuates quite a lot (according to *Eurobarometer* data, it was only 39% in 2019-2020, rising to 48% in 2021) (*Evropská komise, 2021*). The Czech Republic's membership in the European Union is then associated with a lot of false or distorted information, hoaxes and misinformation that are disseminated through the internet and which are gradually being denied by the EU representation in the Czech Republic. And it is from these media disseminated reports that we selected a set of 9 statements which were then assessed by the respondents of the research –teachers. A large part of the statements in our research are also regularly explained by the *European Commission* Representation in the Czech Republic through specialised websites (*Evropská komise, 2023*).

##### 1) The European Union wants to ban the letter “ř”

A specific feature of the Czech language is the letter and vowel “ř”, which is not used in any other European country. However, the news that the European Union wants to ban this specific letter from the Czechs –precisely because it is not used anywhere else and is therefore unnecessary– has spread through the internet. However, this is a satirical report, not true information (**Nutil, 2016**) This report has nevertheless managed to create a wave of hatred against the European Union in the online environment.

The message was correctly identified by 80.79% of the teachers surveyed and was considered untrue. 9.33% stated that they did not know and could not judge the statement for its truthfulness. Only 2% of the teachers identified the report as true information.

**2) The European Union has banned us from producing rum**

This statement belongs to the typical hoaxes and misinformation that appear in the Czech media space in connection with the European Union regulations. The European Union regulates only the name –the word rum should be used to describe a drink made from sugar cane distillate (Czech rum was made from alcohol and rum essence). After joining the European Union, the product started to be referred to as Tuzemský or Tuzemák. Another part of this myth is the issue of flavourings used in the production of rum, which contain carcinogenic substances, to which the European Union has drawn attention –here the Czech Republic has been granted an exemption. Czech Tuzemák has therefore not disappeared from the market (*Evropská komise, 2023*).

64.5% of the teachers correctly assessed the statement about the ban on rum production, while 10.86% of the teachers considered this statement to be true. 10.02% of the teachers said that they could not judge the statement because they did not have enough information about it.

**3) The European Union has decreed that no curved bananas may be sold**

The European Union does not regulate the curvature of bananas, it only regulates what parameters the goods should have in each quality class. 76.47% of the teachers assessed this statement correctly, 11% said they could not assess the statement. Only 2.88% of the teachers were incorrect in confirming the truth of the statement.

**4) Following an European Union's decision, products labelled as "spreadable butter" had to be renamed**

This is true information, again related to the regulation of names –the European Union has never banned the production of spreadable butter but has demanded the unification of names– the term butter can be used on the common European market to describe products that contain 80% milk fat, which Czech spreadable butter did not meet.

56.29% of teachers correctly identified the statement as true. 21.67% rated the statement as false (the high error rate may be due to respondents confusing the regulation of the name of the product with its prohibition), and 8% said they could not judge the statement.

**5) A European Union regulation required that doughnuts be packaged in microtene bags to 'eliminate the risk of contamination and to preserve their health and quality during the period of sale'**

This is one of the myths associated with the European Union –the well-known "doughnut decree" was created by the *Ministry of Health* of the Czech Republic in 2002 and was not based on any European regulations, its validity ended a few years later. However, it still survives as a myth.

The statement was correctly assessed by 54.29% of teachers and evaluated as false. 10.95% of teachers then rated the myth as true. 12.85% could not decide and 16.75% said they could not judge the statement. The increased number of respondents who stated that they could not judge the statement indicates that they were not familiar with it.

**6) As a result of the Czech Republic's accession to the EU, legislation has been introduced that de facto bans classic Czech slaughterhouses**

This is again an untrue statement, the organisation of domestic slaughterhouses is regulated directly by the laws of the Czech Republic and the accession to the EU and subsequent membership has not led to any change in the legal regulation of domestic slaughter of pigs (*Zastoupení Evropské komise v ČR, 2016b*).

51.04% of respondents correctly identified the statement as untrue, 13.09% as true (i.e. incorrect). 18.61% again stated that they could not assess the statement (this is probably again a less widespread myth).

**7) The European Union has ordered the phasing out of conventional incandescent light bulbs from the market**

Indeed, the European Union has ordered the gradual withdrawal of conventional incandescent bulbs from the market, following an agreement between national government representatives and members of the *European Parliament* (including those from the Czech Republic) (*Zastoupení Evropské komise v ČR, 2016a*). 53.13% of teachers correctly identified the statement as true. 14.76% were wrong and identified it as false, 14% said they could not judge the statement.

**8) The refugee quotas introduced by the European Union oblige us to accept a certain number of refugees from war-affected countries (Syria, Eritrea, Iraq)**

It is a more complex statement and a more complex statement: although the refugee quotas oblige us to accept a certain number of refugees, the Czech Republic has refused to accept these quotas and has not respected this regulation. Thus, the statement can be seen from different angles –on the one hand, there is the EU's commitment, but on the other hand, there is the Czech Government's refusal to be bound. This has also led to different ways of evaluating the statement.

36.06% of the teachers evaluated the statement as true, 33.78% as false, 14.66% could not decide and 11.09% could not evaluate the statement. This statement and its evaluation are not included in the final score.

**9) The Czech Republic gives more to the EU than it receives from it**

The Czech Republic is a net beneficiary –it is one of the Member States that receive significantly more from the EU budget than it puts into it (*Irozhlas, 2021*) This myth is often associated with other issues such as the diversion of funds out of the Czech Republic (e.g. in the case of corporate profits) or EU subsidy fraud– but this is not primarily a problem of the EU, but of the Czech Republic's own legislation and its own subsidy recipients (and their potential fraud).

59.58% of teachers correctly identified the statement as false, only 8.26% agreed with the statement. Again, 11.09% stated that they could not assess the statement.

Interesting results are also provided by the Student's T-Test, in which we looked at whether there were differences in the responses of women and men. For example, in the case of the statement that the Czech Republic gives more to the EU than it receives from it, men performed significantly better ( $\alpha = 0,05$ ) than women. See the following graph for more details.

### 3.2. Overall results (educators' assessment of the truth of claims)

On the basis of the analysis of the above statements about the EU, it can be said that 62% of the respondents from among Czech teachers can correctly determine their truth (average values of 8 statements). 10.57% of the respondent teachers determined the truth of the statements incorrectly (average values of 8 statements).

Given that 13.02% of teachers indicated that they could not judge the statement at this time, it is possible that the final score could improve but also worsen. This is because one of the characteristics of media literacy is the ability to admit that I do not have enough relevant information at a given moment to judge a given statement.

### 3.3. Teachers and the coronavirus pandemic

The COVID-19 pandemic has swept the global media space and brought a great deal of information and misinformation related to the origin of the disease, its treatment, testing, preventive measures, vaccination, etc. That is why we focused the second thematic area on this topic and let the educators evaluate a total of 19 statements.

In the analysis, we chose a variety of statements that comment on the characteristics of the virus (COVID-19 is just a common flu), its origin (COVID-19 was developed and spread by Bill Gates' team), its spread (COVID-19 is spread by suspicious planes, packages from Aliexpress), its goals (COVID-19 is used to reduce the population, it is a biological weapon, COVID-19 is spread by 5G networks), etc. For most of the questions, teachers correctly identified the misinformation or conspiracy associated with COVID-19, as well as being able to separate statements that are true from conspiracies and speculations for which there is no evidence.

Among the statements assessed, we also included statements that are more difficult to verify and which we did not include in the final assessment of the whole section. These were the following statements:

#### 1) The numbers of deaths with COVID-19 do not match the reality presented in the media

28.12% of the teachers rated this statement as true, 27.70% rated it as false, 16.29% of the teachers could not decide and another 23.94% could not evaluate the statement.

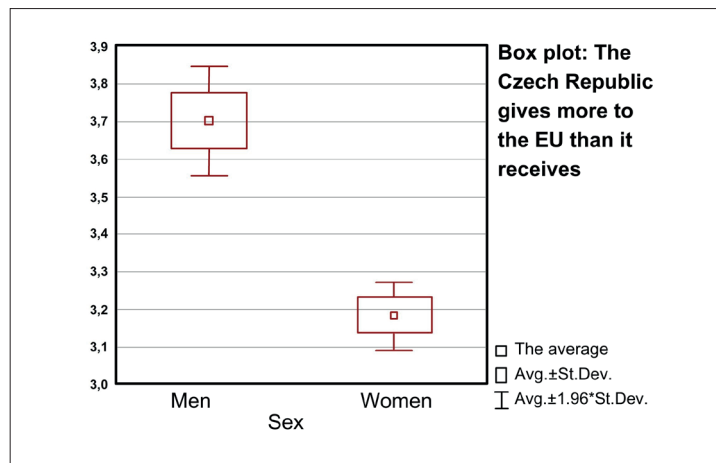


Chart 2. The Czech Republic gives more to the EU than it receives. Methodological note: We coded the questionnaire items that were scaled as follows: 5 = strongly disagree, 1 = strongly agree. Similarly, we observed whether the response of men or women was true or false. Thus, in this case, men who express disagreement with the statement score better.

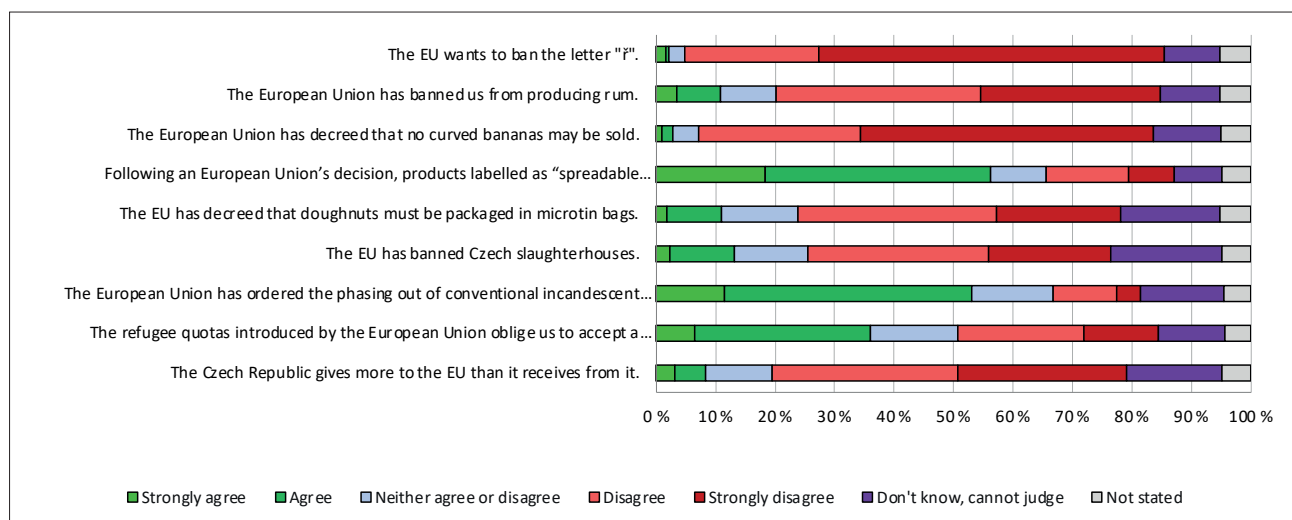


Chart 3. Teachers and information about the European Union (teachers' assessment of the truth of the statements), n=2155.

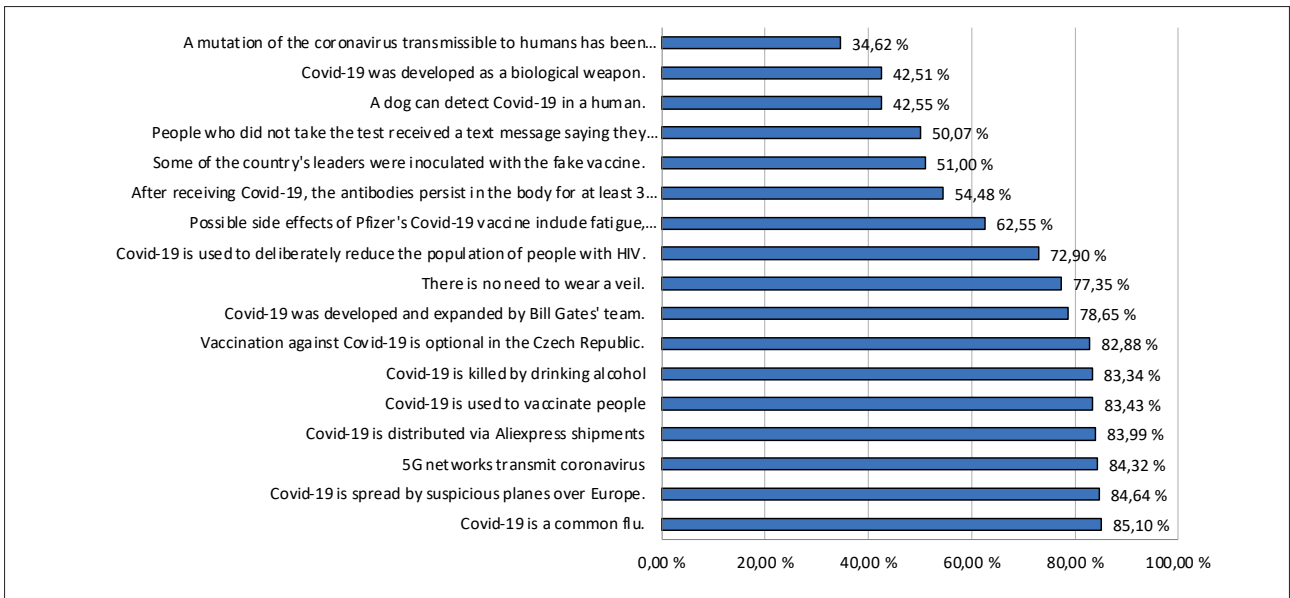


Chart 4. Educators and COVID-19 (correct assessment of statements), n=2155.

The ambivalence of the respondents is logical, as a number of persons died in a COVID positive state, but the disease itself may not have been the primary cause of death (it only accelerated other health problems). Data presented on the official website of the *Ministry of Health* of the Czech Republic ([www.mzcr.cz](http://www.mzcr.cz)) can be defined as deaths of persons with COVID-19 (Daňková; Zvolský; Dušek, 2020). However, it is pure speculation whether the media are lying to us and purposefully distorting the information.

**2) Measures introduced by the State against the spread of the coronavirus restrict freedom and democracy**

29.88% of the teachers marked this statement as true, 41.76% of the teachers marked it as false, 21.81 could not decide. Many institutions are seeking an answer to the question of whether the measures introduced by the State against the spread of coronavirus restrict freedom and democracy, and the *European Parliament* has also drawn attention to the problem (Grogan, 2022). It is clear that the COVID-19 pandemic has affected people's lives and that some human rights and freedoms have had to be curtailed. It must be said that the *Charter of Fundamental Rights and Freedoms* itself provides for the restriction of rights when they are measures necessary in a democratic society for the protection of the rights and freedoms of others, for the protection of public order, health, morals, property or the security of the State. The question is whether the rights have been restricted adequately to the situation.

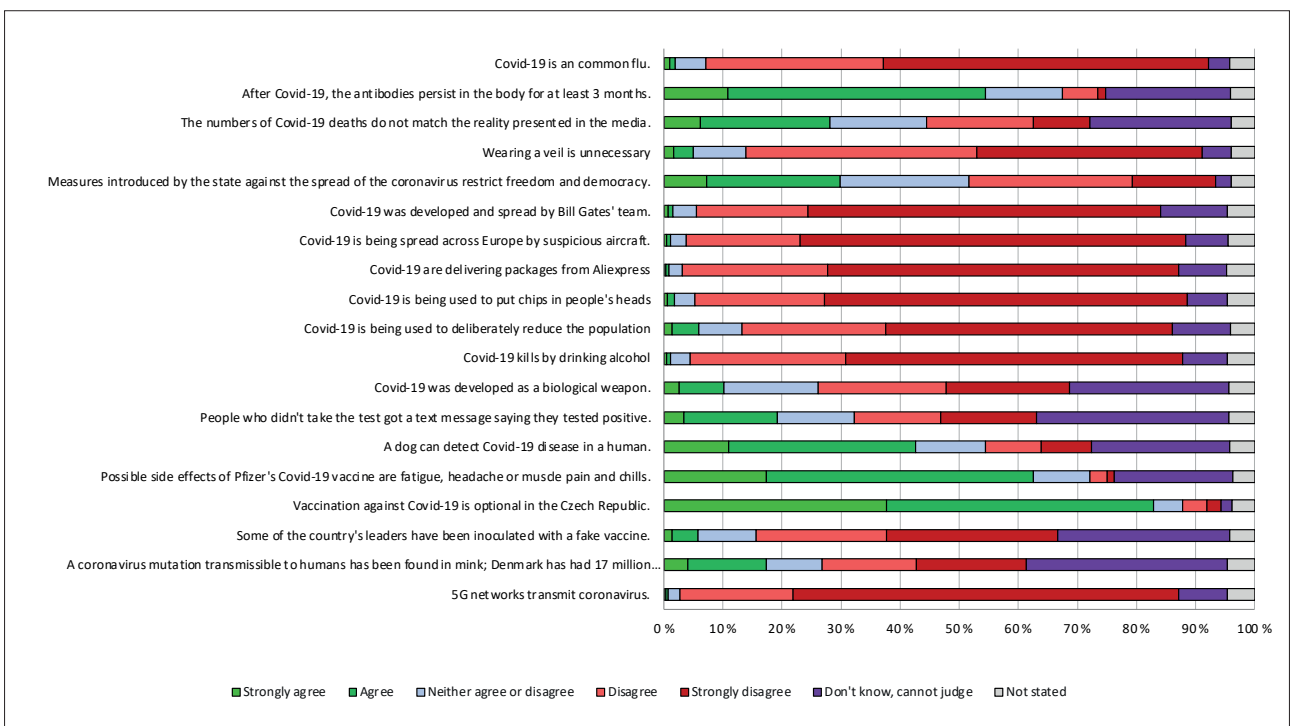


Chart 5. Overall results (teachers' assessment of the truth of the statements), n=2155.

### 3) People who didn't take the test got a text message saying they tested positive

The information that people who didn't take the test received a text message saying that they were positive (Jadrný, 2020) took a very interesting turn. This message was indeed originally a hoax and alarmist message, however, it was mimicked by online perpetrators and misused for so-called phishing (fraudulent solicitation of personal information). The original alarm message was thus misused to commit fraudulent activity.

This message was evaluated as true by 19.16% of respondents and false by 30.90%, however, due to the ambiguous conclusion caused by the publicized phishing cases, we evaluate both types of answers as acceptable and do not include this question in the final score.

#### Summary

Based on the analysis of the above statements related to the COVID-19 pandemic, 67.91% of the teacher respondents were able to correctly identify the truth of the statements (average of 17 statements). 4.56% of the teacher respondents were able to incorrectly identify the truth of the statements (average of 17 statements).

Given that 15.09% of teachers indicated that they could not judge the statement at this time, it is possible that the final score could improve but also worsen. This is because one of the characteristics of media literacy is the ability to admit that I do not have enough relevant information at a given moment to judge a given statement. However, the question is whether I choose a relevant source of information when verifying the information.

### 3.4. Teachers and information from the world around us

In this section, we presented educators with a total of 17 statements that included several different types of information to assess the truthfulness of the statements. On the one hand, educators had to assess statements that can be classified as conspiracy (chemtrails, *NWO*, etc.), statements that fall into the realm of hoaxes and misinformation, and historical myths that have persisted to the present day and are commonly believed (e.g., the height of Napoleon, Viking helmets).

We have also included several real events from history, for which knowledge of historical realities is necessary to judge (e.g. photographs of the dead, tea in British army tanks, nomination of totalitarian dictators for the Nobel Peace Prize, etc.).

We will now look at some statements and their assessment:

#### A. Conspiratorial statements

##### The Americans didn't land on the Moon in 1969, it's a giant hoax

74.8% of the teachers correctly identified that this is not a true statement and that Americans actually landed on the moon. Conspiracy theorists, on the other hand, claim that the moon landing was fictitious and all was made in film studios, which conspiracy theorists say can be determined from official film footage and photo documentation. However, all of the conspiracists' arguments have already been repeatedly refuted (Godwin, 2019; Link, 2019).

##### Aircraft deliberately disperse chemicals that serve to reduce the population

The so-called chemtrails theory is one of the very popular and widespread conspiracy theories (Llanes-Álvarez *et al.*, 2016; Xiao; Cheshire; Bruckman, 2021), yet 80.7% of teachers correctly identified that it is not a true statement. Only 1.16% identified the statement as true.

##### The attack on the World Trade Center in the USA on 11 September 2001 was planned and executed by US intelligence services

64.13% found this statement to be false, but this does not mean that the rest of the teachers believe in the conspiracy theory about the attack on the World Trade Center (Sardarizadeh, 2021) –only 4.59% of the teachers interviewed believe this theory.

##### The world is controlled by a select group of people who want to establish a world order (the so-called *NWO*)

Conspiracies about the so-called establishment of a world order by a group of powerful people (Barkun, 2012) are a common part of chain letters and various websites. However, 57.12% of the educators rated this statement as untrue, while 7.01% of the educators surveyed believed in conspiracies about the *NWO*. 18.75% of the educators also stated that they were unable to judge the statement.

##### The 2020 US presidential election was purposefully rigged in favour of Biden

We included this statement in our set in the context of the massive wave of disinformation and conspiracies spread by ex-President Trump and others in the wake of the US election (Sardarizadeh, 2021; Tollefson, 2021). Therefore, we were interested in how Czech educators would react to this statement. 64.87% said that the statement was untrue and that they did not believe in conspiracies related to the manipulation of the US elections. This conspiracy was supported by only 4.92 % of teachers. 17.68 % of teachers again remained cautious and said that they were unable to judge the statement.

#### B. Hoaxes and other disinformation (hoax classics)

We've also included several notorious hoaxes in our set of statements:



### If you put an egg between two mobile phones calling each other, it will boil within an hour

This is a classic hoax that is more than 20 years known (*Hoaxes.org*, 2006). Still only 58.79% of educators rated the statement as false. Only 1.62% believed the hoax. However, more than a quarter of the educators (28.26%) also stated that they could not evaluate the statement and were unsure whether cooking an egg this way could actually happen.

### If we have to withdraw money from an ATM in an emergency situation (someone is blackmailing me), we can just enter the PIN backwards and it calls the police

This is a well-known worldwide hoax (*Biryukov*, 2015), which was correctly detected by 59.49%. Only 2.8% of the interviewed teachers caught on to this statement. However, a large number of educators (26.50%) again stated that they could not judge the statement and did not have enough information to judge it.

## C. Historical myths that have persisted to the present day

In this section, we have included statements that are historical errors or propaganda of the time, but which have persisted to the present day. Teachers have often made mistakes in this section.

### Napoleon had a complex about his height, which was below average for that time. Hence the term “Napoleon complex” in psychology

This is one of the most famous and widespread myths, as Napoleon was in fact taller than average and the myth of his short height was created by a miscalculation of English and French measurements (different sizes of inches) and also by contemporary propaganda (*Mclivenna*, n.d.).

65.94% of the teachers rated the statement as true and believed that Napoleon would indeed be small in stature. Only 13.32% of teachers rated the statement as false. Thus, it can be said that this myth is still quite successful after two hundred years.

### Vikings had horned helmets

Another myth is that Vikings had horned helmets (which we also see in many fairy tales, films, advertisements, etc.). In reality, Vikings did not have horned helmets (they would have been difficult to fight with, easy to rip off the head, etc.) and this myth came about thanks to Richard Wagner's opera *The ring of the Nibelungs* in the 19<sup>th</sup> century (*Gritton*, 2017).

52.95% of the teachers agree that the Vikings did indeed have horned helmets, so they misjudged the statement. 21.21% of the teachers said that the statement was false, while 12.58% of the teachers said that they were unable to evaluate the statement.

## D. Historical truths

We have also included several historical truths with the statements, but historical knowledge is necessary to assess them. Therefore, we also do not include them in the final assessment of the success of detecting false statements.

### In 19th century England, it was common to photograph deceased relatives in poses as if they were alive (for example, seated)

This is true (*Bell*, 2016). 21.25% of educators correctly identified. 10.90% then rated the statement as false and 50.39% said they could not evaluate the statement. Here our assumption that knowledge of the topic + historical reality is necessary for this type of statement is evident.

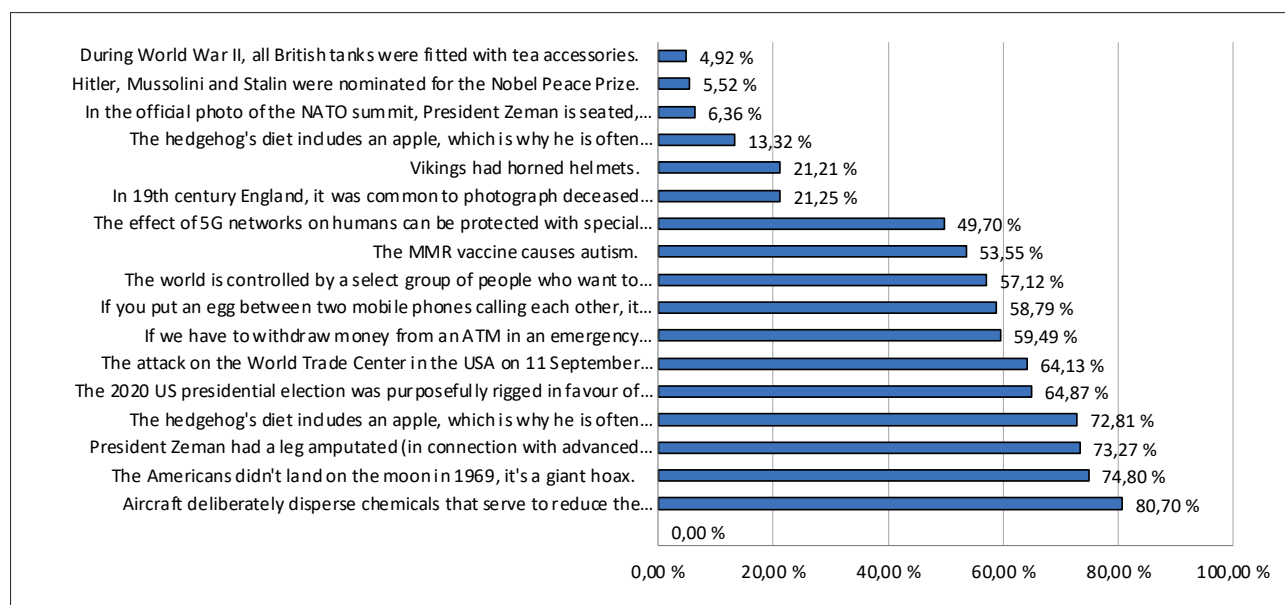


Chart 6. Educators and information from the world (correct assessment of statements), n=2155.

**During World War II, all English tanks contained tea brewing accessories**

Again, this is a true statement, (O'Brien, 2019) which only 4.92% of teachers correctly identified, while 17.45% identified the statement as false. Importantly, 58.93% of educators responded that they could not evaluate the statement.

**Hitler, Mussolini and Stalin were nominated for the Nobel Peace Prize**

This is again a historical truth, the above dictators were indeed nominated for the Nobel Peace Prize (Mendes, 2019). This statement was correctly identified by 5.52% of the teachers, but 72.16% of the teachers identified it as untrue, while 12.85% of the respondents could not judge the statement.

**4. Summary**

On the basis of the analysis of the above statements, it can be said that 53.53% of the respondent teachers can correctly determine the truth of the statements (average values of 14 statements). 16.79% of the respondent teachers determined the truth of the statements incorrectly (average values of 14 statements). We excluded from the evaluation 4 statements that require specific historical knowledge and for which the number of teachers who could not judge the statement was above 45%.

Given that 18.67% of educators indicated that they could not assess the statement at this time, it is possible that the final score could improve but also worsen. This is because one of the characteristics of media literacy is the ability to admit that I do not have enough relevant information at a given moment to judge a given statement. However, the question is whether I choose a relevant source of information when verifying the information.

**General summary**

Based on the results of verifying the truthfulness of 38 statements (divided into 3 thematic groups, not including statements for which more than 45% of teachers were unable to assess the statement for various reasons) that contained false information (hoaxes, conspiracies, misinformation, but also true information), we can say that on average:

61.14% of Czech teachers are able to correctly judge the truthfulness of statements (even 66.78% of teachers in the area of EU-related misinformation).

15.59% of Czech teachers admit that they are not able to assess the statements in a relevant way (with respect to ignorance of facts, ignorance of the issues, etc.). This is a rather positive finding - educators are aware of their limits with regard to knowledge and are able to work on themselves.

10.41% of Czech teachers misjudge the truth of the statements made, believing false content, misinformation, conspiracies, hoaxes and myths.

**5. Discussion**

**5.1. Revision of teacher training as a necessity**

The global transformation of human society and the ever-increasing importance of digital technologies and the internet in people's lives bring with them increased demands for knowledge and skills to navigate this world. At the moment we are experiencing an information pandemic (infodemic), characterised by an extreme increase in online content, which, however, does not undergo any process of checking, reliability or validity.

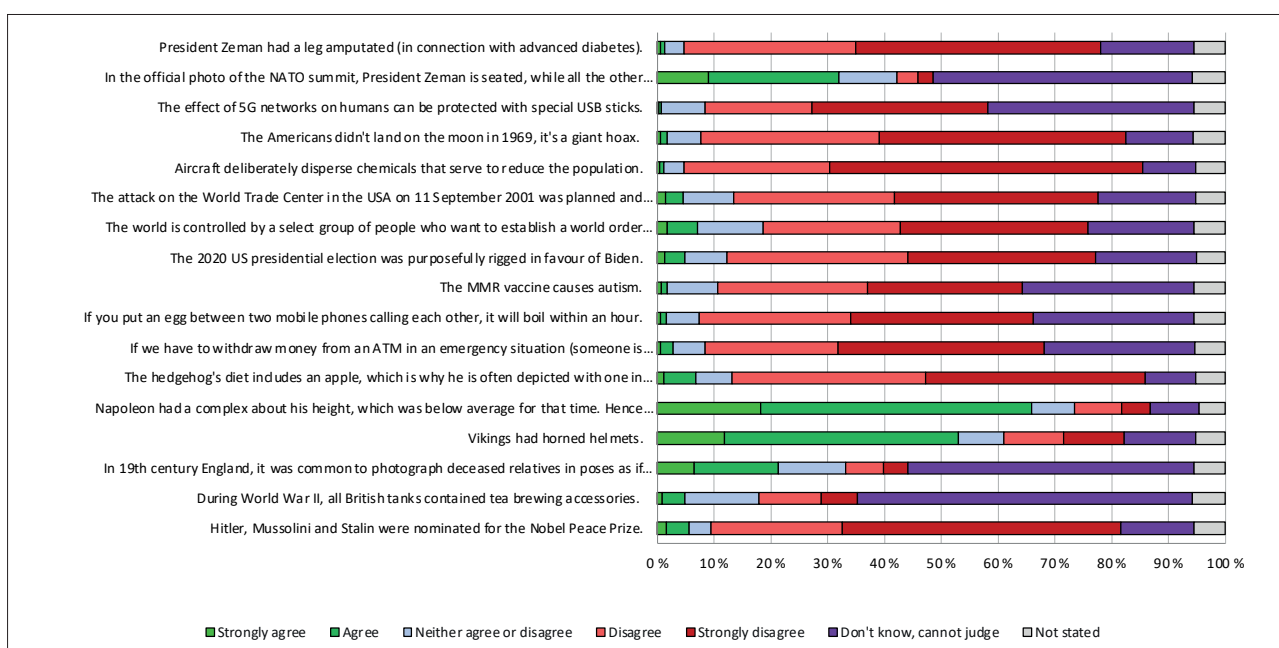


Chart 7. Overall results (teachers' assessment of the truth of the statements), n=2155.

It is imperative that the education system responds to these changed conditions and includes topics related to online content validation in the educational curriculum already at primary school level. This is happening to a very limited extent, and education systems very often rely on external providers of these forms of education (companies, the non-profit sector, etc.) rather than integrating these issues into their own curricula –especially in the form of compulsory subjects. Research Czech teacher in the world of media (Kopecký *et al.*, 2021) investigated, among other things, whether Czech teachers consider media education and teaching related to verifying information to be important, and 91% of teachers actually stated that media education is important –and this already in primary school (35% of teachers stated that they want topics related to misinformation and identifying relevant sources of information to be taught in their school). At the same time, 21% of teachers said they did not agree that the number of hours devoted to media education should be increased at the expense of other subjects.

A major problem is the formal teacher training (implemented through university education at pedagogical, philosophical, natural science and other faculties) in the Czech Republic, which often responds to the changed social situation with great delay and inconsistency, and there are great differences between faculties preparing future teachers. Media education appears very little in teacher training and in most cases takes the form of only optional electives, which often do not pass through all teacher training programmes.

## 5.2. Selected problems related to the implementation of media education in the Czech school environment

The lack of teacher training in the field of media education is not the only problem encountered in the implementation of teaching in practice –in the environment of primary and secondary schools in the Czech Republic. There are several problems:

### Lack of a fixed time allocation for teaching media education

The time space for the implementation of media education in the environment of Czech schools comes from the so-called available hours, the use of which is decided by the schools themselves. It can easily happen that media education will not be taught at all, or its share will be minimal.

### Lack of responsibility for the implementation of media education

One of the key problems facing media education is the lack of responsibility for the implementation of media education among specific teachers with specific qualifications (e.g. teachers of civic education, mother tongue, etc.). In other words, the responsibility for the implementation of media education is shared, which leads to the fact that it is very often implemented in practice in a very limited form.

### Fear of a swelling educational curriculum

Other problems related to the implementation of media education in schools include teachers' concerns about the ever-increasing curriculum (syllabus). The results of our research show that teachers are concerned that more intensive implementation of media education in education would lead to an increase in educational content and thus bring more teaching load.

### Parents disagree with the implementation of media education

In recent years, many untruths (and in some cases outright misinformation) have been spread in the public space about media education, leading many parents to have distorted ideas about the implementation of media education at school. Among the numerous misinformation were, for example, statements that media education is only “political training”, that it is “brainwashing” (Erhart; Kropáčková, 2018), that the goal of media education is to present the “only right truth”, etc. Unfortunately, these statements are very often spread by top representatives of Czech politics, often very active disseminators of disinformation content in the online environment. However, the school must not resign itself to this situation and patiently remind the importance of media education and its implementation.

### The very nature of media education as a dynamic field

Media education is a very dynamic field. This dynamism is due to the rapid advances in the field of information and digital technologies, which in turn give rise to new phenomena that curriculum documents and system changes cannot quickly reflect. These are, in particular, the so-called ‘new media’ that have emerged from the digitisation of traditional media. For example, the *Framework Curriculum for Primary Education* does not make specific reference to phenomena such as disinformation, social networks, algorithms or personalised advertising. This rigidity of curriculum documents is partly compensated by projects whose outputs are also online, so that they can be updated according to modern trends, but the basic curriculum document does not force teachers to respond to these changes in society. This creates a discrepancy between what surrounds people in real life and how this world is reflected in school. For example, Jirák, Šťastná and Zezulková writes:

“In the future, therefore, the basic principles of media education will need to be rethought towards an understanding of the principles of new media and their constitutive role in shaping society and its activities” (Jirák; Šťastná; Zezulková, 2018).

### Fragmentation of educational materials

Related to the previous problem is the fact that teachers themselves do not know where to look for new materials. There are several resources for media education, the most dominant of which is probably the One World in Schools project,

but these may not suit everyone. These online resources do not even have a clear plan for how to teach media education throughout the year and tend to focus on specific topics. Another problem may be the lack of materials for certain subjects (e.g. mathematics, geography, etc.).

Media education with a focus on education cannot currently be studied in the Czech Republic either as part of a bachelor's or master's degree at a university. Czech universities do offer a media studies programme, but it does not focus on education. The only field of study that deals with media education in education is the doctoral programme *Literacy and Media Education in Education* at the *Faculty of Education of Palacký University in Olomouc*, which, however, is a combination of didactics of literature and media education, so it is not a "pure" form of studying media education.

## 6. Limits and perspectives of the study

Although the data collection through the electronic questionnaire was targeted and the instrument was distributed directly to specific teachers, it is difficult to check the identity of individual respondents and to ask complex and challenging questions using this instrument. Here it would be appropriate to follow up with e.g., qualitative research.

Due to the size and number of items in the questionnaire, it was not possible to give an exhaustive explanation of the individual items of the research instrument, which could have caused a meaning discrepancy between the researcher's and respondent's perceptions.

The research instrument does not reflect the whole spectrum of the media world, the media space, only its subparts. Similarly, it does not map teachers' media literacy as a whole, but only its subparts.

## 7. References

- Barkun, Michael** (2012). "New world order conspiracies: the new world order and the illuminati". In: Barkun, Michael. *A culture of conspiracy apocalyptic visions in contemporary America*. California Scholarship Online, pp. 39-64. ISBN: 978 0 520238053  
<https://doi.org/10.1525/california/9780520238053.003.0003>
- Bell, Bethan** (2016). "Taken from life: the unsettling art of death photography". *BBC news*, 5 June.  
<https://www.bbc.com/news/uk-england-36389581>
- Biryukov, Vladislav** (2015). "Fact or fiction? Reversing your PIN can call the police in an emergency". *Kaspersky official blog*, November 16.  
<https://www.kaspersky.com/blog/fact-or-fiction-inverted-pin-code/10559>
- Ciroková, Kristýna** (2022). "Potrestejte žáka, co mě nahrál, žádá učitelka, která šířila dezinformace". *Seznam zprávy*.  
<https://www.seznamzpravy.cz/clanek/domaci-kauzy-potrestejte-zaka-co-me-nahral-zada-ucitelka-ktera-sirila-dezinformace-198997>
- Daňková, Šárka; Zvolský, Miroslav; Dušek, Ladislav** (2020). *Mortalitní data, kódování a vymezení umrtí na Covid-19*. Strana 2 z 11.  
<https://onemocneni-aktualne.mzcr.cz/doc/zemreli-COVID-19-metodicky-rozbor.pdf>
- Erhart, Michal; Kropáčková, Renata** (2018). "Neziskovky jako terč? Podle Volného vymývají dětem mozky, pomáhají tam, kde stát zaspal, oponuje Gajdůšková". *Irozhlas*.  
[https://www.irozhlas.cz/zpravy-domov/lubomir-volny-spd-alena-gajduskova-cssd\\_1808081346\\_haf](https://www.irozhlas.cz/zpravy-domov/lubomir-volny-spd-alena-gajduskova-cssd_1808081346_haf)
- Evropská komise* (2021). "Eurobarometr 2021: důvěra česků v EU je nejvyšší od roku 2013". *Business INFO*. Cz.  
<https://www.businessinfo.cz/clanky/eurobarometr-2021-duvera-cechu-v-eu-je-nejvyssi-od-roku-2013>
- Evropská komise* (2023). *Evropský rok dovedností 2023*.  
[https://ec.europa.eu/czech-republic/news/euomyty\\_cs](https://ec.europa.eu/czech-republic/news/euomyty_cs)
- Goda, Jakub** (2019). "Hlavné správy a Zem a vek patria podľa prieskumu medzi najdôveryhodnejšie médiá medzi učiteľmi". *Rubriky*.  
<https://dennikn.sk/blog/1571691/hlavne-spravy-a-zem-a-vek-patria-podla-prieskumu-focusu-medzi-najdoveryhodnejsie-media-medzi-ucitelmi/?ref=in>
- Godwin, Richard** (2019). "One giant... lie? Why so many people still think the Moon landings were faked". *The Guardian*, 10 July.  
<https://www.theguardian.com/science/2019/jul/10/one-giant-lie-why-so-many-people-still-think-the-moon-landings-were-faked>
- Gritton, Jim** (2017). "Wagner and the trope of the horned helmet".  
[https://www.researchgate.net/publication/335219184\\_Wagner\\_and\\_the\\_Trope\\_of\\_the\\_Horned\\_Helmet](https://www.researchgate.net/publication/335219184_Wagner_and_the_Trope_of_the_Horned_Helmet)
- Grogan, Joelle** (2022). "The impact of Covid-19 measures on democracy, the rule of law and fundamental rights". *Think tank*.  
[https://www.europarl.europa.eu/thinktank/en/document/IPOL\\_STU\(2022\)734010](https://www.europarl.europa.eu/thinktank/en/document/IPOL_STU(2022)734010)
- Havrilesky, Thomas** (1972). "The information explosion, technological innovativeness and the competitive ethic". *Land economics*, v. 48, n. 4, pp. 347-356.  
<https://doi.org/10.2307/3145311>

- Hoaxes.org* (2006). "How to cook an egg with two cell phones". *Hoaxes.org*, February 7.  
[http://hoaxes.org/weblog/comments/how\\_to\\_cook\\_an\\_egg\\_with\\_two\\_cell\\_phones](http://hoaxes.org/weblog/comments/how_to_cook_an_egg_with_two_cell_phones)
- Irozhlas* (2021). "Česko z Rozpočtu EU získalo o 38,7 miliardy více, než do něj odvedlo. Zůstalo tak čistým příjemcem peněz". *Irozhlas*, 29, července.  
[https://www.irozhlas.cz/ekonomika/eu-rozpocet-ministerstvo-financi-alena-schillerova-strukturalni-fondy\\_2107291544\\_ere](https://www.irozhlas.cz/ekonomika/eu-rozpocet-ministerstvo-financi-alena-schillerova-strukturalni-fondy_2107291544_ere)
- Islam, Md-Saiful; Sarkar, Tonmoy; Khan, Sazzad-Hossain; Kamal, Abu-Hena-Mostofa; Hasan, S. M. Murshid; Kabir, Alamgir; Yeasmin, Dalia; Islam, Mohammad-Ariful; Amin-Chowdhury, Kamal-Ibne; Anwar, Kazi-Selim; Chughtai, Abrar-Ahmad; Seale, Holly** (2020). "Covid-19 related infodemic and its impact on public health: A global social media analysis". *The American journal of tropical medicine and hygiene*, v. 103, n. 4, pp. 1621-1629.  
<https://doi.org/10.4269/ajtmh.20-0812>
- Jadrný, Petr** (2020). "Nešli na test, přesto dostali SMS, že jsou pozitivní. „je to absolutní nesmysl,“ řekla o hoaxu jágrová". *Irozhlas*, 1. Října.  
[https://www.irozhlas.cz/zpravy-domov/hoax-koronaviru-v-cesku-sms-chyb\\_2010010746\\_pj](https://www.irozhlas.cz/zpravy-domov/hoax-koronaviru-v-cesku-sms-chyb_2010010746_pj)
- Jiráček, Jan; Šťastná Lucie, Zezulková, Markéta** (2018). *Mediální výchova jako průřezové téma*. Praha.  
[https://www.npi.cz/images/podkladov%C3%A11\\_studie/medialni\\_vychova.pdf](https://www.npi.cz/images/podkladov%C3%A11_studie/medialni_vychova.pdf)
- Kopecký, Kamil; Szotkowski, René; Voráč, Dominik; Mikulcov, Klára; Krejčí, Veronika** (2021). *Czech teachers in the world of media*. Olomouc: Palacký University in Olomouc.
- Link, Devon** (2019). "Fact check: Moon landing conspiracy theory misrepresents footprint". *USA Today. News*.  
<https://eu.usatoday.com/story/news/factcheck/2021/09/17/fact-check-moon-landing-conspiracy-theory-misrepresents-footprint/8380230002>
- Llanes-Álvarez, Carlos; San-Roman-Uría, Alberto; Nunes-Nancabu Paulo; Ruiz-Gippini, María; López-Landeiro, Patricia; Franco-Martín, Manuel-Ángel** (2016). "Chemtrails: an overview of the phenomenon". *European psychiatry*, v. 33, n. S1, pp. 450-450.  
<https://doi.org/10.1016/j.eurpsy.2016.01.1635>
- Mclivenna, Una** (2021). "Was Napoleon short? Origins of the 'Napoleon complex'". *History.Com*.  
<https://www.history.com/news/napoleon-complex-short>
- Mendes, Claudia** (2019). "The irony - Nobel Peace Prize nominees included Hitler, Stalin and Mussolini". *War history online*, February 24.  
<https://www.warhistoryonline.com/instant-articles/nobel-peace-prize-nominees.html>
- Modrako, Alicia** (2020). "Exkluzívny prieskum medzi učiteľmi: Nedôverujú vláde a mnohí si myslia, že sa chystá čipovať ľudí".
- Nutil, Petr** (2016). "Hoax: EU chce zrušit písmeno Ř". *Manipulátoři.Cz*.  
<https://manipulatori.cz/hoax-eu-chce-zrusit-pismeno-r>
- O'Brien, Joseph** (2019). "Tiger tanks & tea: The British cup of char in war". *War history online*, 10 March.  
<https://www.warhistoryonline.com/world-war-ii/tiger-tanks-tea-the-british-cup.html>
- Sardarizadeh, Shayan** (2021). "11 September 2001: The conspiracy theories still spreading after 20 years". *BBC news*, 10 September.  
<https://www.bbc.com/news/58469600>
- Tollefson, Jeff** (2021). "Tracking QAnon: How Trump turned conspiracy theory research upside down". *Nature*, v. 590, n. 7845, pp. 192-193.  
<https://doi.org/10.1038/D41586-021-00257-Y>
- WHO* (2023). *Infodemic*. World Health Organization.  
[https://www.who.int/health-topics/infodemic#tab=tab\\_1](https://www.who.int/health-topics/infodemic#tab=tab_1)
- Xiao, Sijia; Cheshire, Coye; Bruckman, Amy** (2021). "Sensemaking and the chemtrail conspiracy on the Internet: insights from believers and ex-believers". *Proceedings of the ACM on human computer interaction*, v. 5, n. 454.  
<https://doi.org/10.1145/3479598>
- Zastoupení Evropské komise v ČR* (2016a) "Euromýtus: Brusel nám zakázal žárovky". *Euroactiv*, 29 August.  
<https://euractiv.cz/section/energeticka-ucinnost/news/euromytus-brusel-nam-zakazal-zarovky>
- Zastoupení Evropské komise v ČR* (2016b). "Euromýtus: konec zabijaček v českých - euractiv.Cz". *Euroactiv*, 9 December.  
<https://euractiv.cz/section/cr-v-evropske-unii/news/euromytus-konec-zabijacek-v-cechach>
- Zheng, Min; Marsh, Jesseca K.; Nickerson, Jeffrey; Kleinberg, Samantha** (2020) "How causal information affects decisions". *Cognitive research: Principles and implications*, n. 5.  
<https://doi.org/10.1186/s41235-020-0206-z>