

Students' Perceptions of Fake News: a Matter of Information Literacy Awareness.

INTRODUCTION

Social networks are becoming one of the most important sources of news, especially among young people. The traditional media, in particular, are steadily losing ground, both in terms of perceived reliability and as a preferred news source (Reuters, 2019; Statista, 2019; Notley et al. 2017). Even in their role as 'mediators' between news-makers and the public, media are suffering a form of disintermediation. Celebrities, politicians and protagonists of the world of culture bypass all of the 'old' media by communicating directly with the public via channels such as Twitter or Instagram (Mazzoleni, 2017). At the same time, however, we are witnessing a transformation in the epistemic perception of online information sources: trusting in a source because some form of recognised outside authority guarantees it is giving way to trusting in a source because we personally believe it to be authoritative and credible, often independently of its institutional role or expertise (Fonagy et al., 2017).

This problem is a risk for society as a whole now that people are exposed to news and content that is inexact or entirely untrue: what is now known as 'fake news' (Zhang & Ghorbani, 2020) (Lazer et al., 2018). Though fake news is generated inadvertently at times, it is very often the result of processes designed to change attitudes and opinion in a variety of social and political contexts (Wardle & Derakhshan, 2018). Some scholars thus distinguish 'dis-information' (i.e., information that is false and deliberately created), 'mis-information' (defined as information that is false although the person disseminating it believes it to be true) and mal-information (which is genuine information or opinion shared to cause harm, e.g., hate speech, harassment, etc.) (Wardle & Derakhshan, 2017). A significant amount of news originates on mainstream media websites and is then posted and discussed on social networks. On the other hand, some news does not come from readily traceable and verifiable sources and generally concerns issues that the public views as having a strong emotional impact. Consequently, it features communication styles, intentionality and content calculated to cause surprise, exasperation or indignation (Bakir & McStay, 2017).

BACKGROUND

There are many studies about fake news, alternative facts and post-truth, but only a few of them focus on undergraduate students and even less on secondary school students. This age group is crucial because it is representative of iGen and Gen Z mindset and habits. It is the generation which is studying right now, and that educational systems can vaccinate against such issues. Those studies report that students are engaged with the news (Head et al., 2018) and well aware of the fake news phenomena (especially on the Internet). They know the importance of verifying the news, but often they do not do it (Melro & Pereira, 2019; Rush, 2018). Generally, they are self-confident in their ability to detect fake news and misinformation, but they overestimate their ability. They are usually able to detect a fake news headline, but they cannot detect more subtle ways of conveying such news, for example, references to unauthoritative sources (Cruz & Morais, 2020; Hülken Dönmez et al., 2018). They lack the experience to understand if a source - or a channel - through which the information reaches them (e.g. social media) is trustworthy (Himma-Kadakas, 2017). When they realise that they need training, they are eager to discuss and learn how to improve (Ranieri, Di Stasio & Bruni, 2018). Typically, if in doubt, they ask for confirmation to friends

and people they trust (Hülken Dönmez et al., 2018). In fact, one of their primary sources and mediators of news are their social relations (such peers and professors). It is with them that news is discussed, understood and trusted (Head et al., 2019).

A broader study carried out in 27 countries found that only 41% of the public can understand whether the content received via social media is true or false (Ipsos-MORI, 2018). Moreover, although people are aware of the effects of fake news, they can also become inadvertent vehicles for its spread: recent studies on the topic estimate, for example, show that around 25% of Americans say they have shared unverified news stories (Barthel, Mitchell & Holcomb, 2016). Often, such stories are shared in social networks after only a few seconds spent in deciding how trustworthy the story's source may be. For the most part, these rapid decision processes are unconscious (Bakir & McStay, 2017). They are influenced by varying degrees of bias when the content deals with political or social topics that are particularly sensitive (Asri & Sualman, 2019). It should also be borne in mind that a great deal of fake news is designed to deceive (Dentith, 2017).

Younger generations—those of school and university age—use social media most and are naturally more exposed to fake news (Mese & Aydin 2019; Smith & Anderson, 2018; Lenhart et al., 2010). They have trouble reasoning critically about the content of their social media feeds (McGrew et al., 2017; Ilomäki et al., 2016). Sharing rates also appear to be high, even though some studies have found that only 44% of tweens and teens (aged 10-18) feel that they can tell fake news stories from real ones (Robb, 2017). Significantly, a high percentage of this age group (over 60% in some studies) say they shared a story they later found was untrue at least once (Chen et al., 2015). The act of sharing itself is crucial and involves many cognitive processes that take place in three stages: before, during and after sharing. The most critical factors are mostly heuristic in nature (Flanagin, Winter & Metzger, 2018), e.g., the source's reputation, whether others have already shared the news, and whether multiple sources provide the news. At the moment of sharing (i.e., clicking on the share button), the target is decided: one person only, or a wider group. After sharing, we start waiting for feedback, and if we receive feedback that does not confirm the new story, we can decide whether to comment on it as fake or delete it from our feed. Another aspect is no less critical: very often, news shared confirms rather than contradicts our beliefs. This attitude is well known and is referred to as 'confirmation bias' (Flaxman, Goel & Rao, 2016). We can thus conclude that fact-checking is by no means easy: the psychological and cognitive processes it entails, show that people seldom check immediately whether the content is real (Leeder, 2019). They may do so only after the news is questioned by their contact group (Wang & Fussell, 2020).

From the educational standpoint, then, teachers must be able to develop Information Literacy skills in their students. Even before the fake news phenomenon started attracting widespread attention, the world of education had begun to discuss what action could be taken to improve students' critical thinking skills in searching for and evaluating online information (Eales-Reynolds et al., 2013; Mason, Boldrin, & Ariasi, 2010; Ku et al., 2019). Today, these skills are seen as part of broader frameworks, such as those outlined by the International Society for Technology in Education—ISTE (2016) or by DigComp, the Digital Competence Framework stemming from the Recommendation of the European Parliament and Council (Carretero, Vuorikari & Punie, 2017). In addition to skills in Information Literacy, Communication and Digital Content Creation, these frameworks generally refer to high order thinking skills, viz., those needed to analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. In 'Information and data literacy', for example, DigComp 2.1 calls for three specific competencies (see Table 1).

Table1. DigComp 2.1 Framework for Dimension 1: Information & Data Literacy (2018)

Information and Data Literacy Competences
1.1 Browsing, searching, filtering data, information and digital content

Information and Data Literacy Competences

1.2 Evaluating data, information and digital content

1.3 Managing data, information and digital content

As the framework suggests, this is not merely a matter of technical abilities (Competence 1.1). Using search engines at a basic level is not difficult: every day, Google processes over 3.5 billion searches (Internet Live Stats, 2020), making it possible to access humanity's knowledge as never before in history. However, we have trouble dealing with this enormous flood of information: the smartphones that never leave our sides are the source and the reason we suffer from what has been dubbed Information Overload (Matthes et al., 2020; Lee, Son & Kim, 2016). Information Overload is one of the causes that prevent us from engaging in reflection and critical thinking as we select and evaluate data (Competence 1.2) and organise information (Competence 1.3).

Educators often struggle to employ these frameworks to teach critical thinking through online Information Literacy activities (Godbey, 2018). This is not so much because they do not recognise the importance of the problem, as because the issue is so recent that their educational background has rarely prepared them to deal with it using appropriate methodologies (Yevelson-Shorsher & Bronstein, 2018; Godbey & Dema, 2017; Batool & Mahmood, 2016; Stockham & Collins 2012). The findings of the exploratory survey presented herein provide insights into how teachers' ability to teach Information Literacy skills can be improved.

METHOD

Methodology

The exploratory quantitative-qualitative survey used a questionnaire to explore students' perceptions of the problem of fake news. The questionnaire was adapted from that used in the Eurobarometer survey (2018) and was administered to students before a workshop on Information Literacy. The questions investigated these dimensions:

1. Students' perception of their Information Literacy competencies in finding accurate, authoritative information online,
2. Perception of the importance and accuracy of different information sources,
3. Frequency of use and level of trust in old and new media.
4. Personal experience with fake news and opinions regarding it.
5. Ways of stopping the spread of fake news and views about which institutions are most able to teach critical thinking.

A mixed-method approach was used to analyse the data provided by the questionnaire. A 5-point self-anchoring Likert scale was used for most questions. Consequently, the means are expressed for a scale ranging from 1 to 5 where 3 is the neutral central option, 1 and 2 reflect negative judgements, and 4 and 5 reflect positive judgements. A pre-analysis was carried out for each question, i.e., it was determined whether the respondents could have been influenced by how the question was phrased, and whether the response scale was appropriate. In the subsequent analysis stage, appropriate statistical considerations were applied for each case. As a probabilistic sample was not used, the results were analysed using simple descriptive indices with the SPSS software. Though the latter cannot be generalised, they nevertheless provide a good overview of how students perceive this issue.

Context and participants

A total of 185 third- and fourth-year students (M=87, F=98) from two upper secondary schools, viz., a science-oriented high school and a classics-oriented high school, participated in the survey. Participants' ages ranged from 16 to 18 (average age =17 years).

Research questions

As the study's purpose was to explore the issue of fake news and the channels through which it spreads, the research questions were as follows:

1. What are students' perceptions about their ability to recognise and evaluate fake news, and thus of their own Information Literacy skills?
2. What are students' perceptions of the trustworthiness of old and new media in terms of the risk of coming across fake news?
3. What are students' perceptions of the institutions that are best able to fight fake news and the methods they could use.

Results

Self-perceived competence at finding and evaluating online information

Over 65% of the students believe that, on the whole, they are good or very good at navigating the Web and finding the information they need, while 46% consider themselves to be very skilled at using Web tools (search engines, social networks, etc.). This confidence in their own technical and practical abilities is reflected in their perceived ability to evaluate the credibility of the information they find: 42% judge it to be adequate and 43% good or excellent (see Table 2).

A breakdown by gender shows evident differences: while 56% of the male interviewees tend to have a positive view of their ability to use search tools and 53% think highly of their ability to evaluate results, females are significantly more uncertain in their perceptions, as only 38% have confidence in their use of search tools and 33% in their evaluation abilities. From the standpoint of metacognitive reflection on the efficacy of one's search abilities, more males (56%) than females (37%) state that they learn useful search strategies from their own experience (see Table 2).

Table 2. Students' self-perceived ability to find and evaluate online information

	Gender	1 Very poor (%)	2 Poor (%)	3 Average (%)	4 Good (%)	5 Excellent (%)	Median	IQR
How do you rate your ability to find information on the Web?	TOT	0.0	3.7	32.1	49.2	15.0	4	1
	M	0.0	3.5	27.9	46.5	22.1	4	1
	F	0.0	4.0	36.4	50.5	9.1	4	1
How do you rate your skill with search tools?	TOT	1.1	14.4	38	40.1	6.4	3	1
	M	1.2	11.6	31.4	45.3	10.5	4	1
	F	1.0	17.2	43.4	35.4	3.0	3	1
How do you rate your ability to evaluate online information?	TOT	0.5	14.4	41.7	39.0	4.3	3	1
	M	0.0	8.1	38.4	46.5	7.0	4	1
	F	1.0	20.2	45.5	31.3	2.0	3	1
How do you rate your ability to learn useful search strategies from the experience?	TOT	2.2	6.5	45.4	35.7	10.3	3	1
	M	2.3	2.3	39.5	45.3	10.5	4	1
	F	2.0	10.1	50.5	27.3	10.1	3	1

Self-perceived ability to decode information

Another interesting aspect concerns students' perception of their abilities to decode the information they find (see Table 3): 78% state that they have trouble in understanding Web search results and/or their sources. The critical factor here is probably the difficulty of selecting documents at the student's comprehension level (e.g., choosing between a popularising account of climate change and a document dealing with the same issue in more scientific language).

Table 3. Students' self-perceived ability to decode information

	Gender	1 Strongly disagree (%)	2 Disagree (%)	3 Neutral (%)	4 Agree (%)	5 Strongly agree (%)	Median	IQR
It is easy for me to understand the results of a web search.	Male	3.0	10.0	29.0	47.0	10.0	4	1
	Female	0.0	5.0	48.0	39.0	7.0	3	1
	TOT	1.6	7.6	39.0	43.3	8.6	4	1
I can immediately recognise the sources of the information I find	Male	2.0	14.0	48	33.0	3.0	3	1
	Female	3.0	21.0	44	31.0	0.0	3	1
	TOT	2.7	17.8	45.9	31.9	1.6	3	1

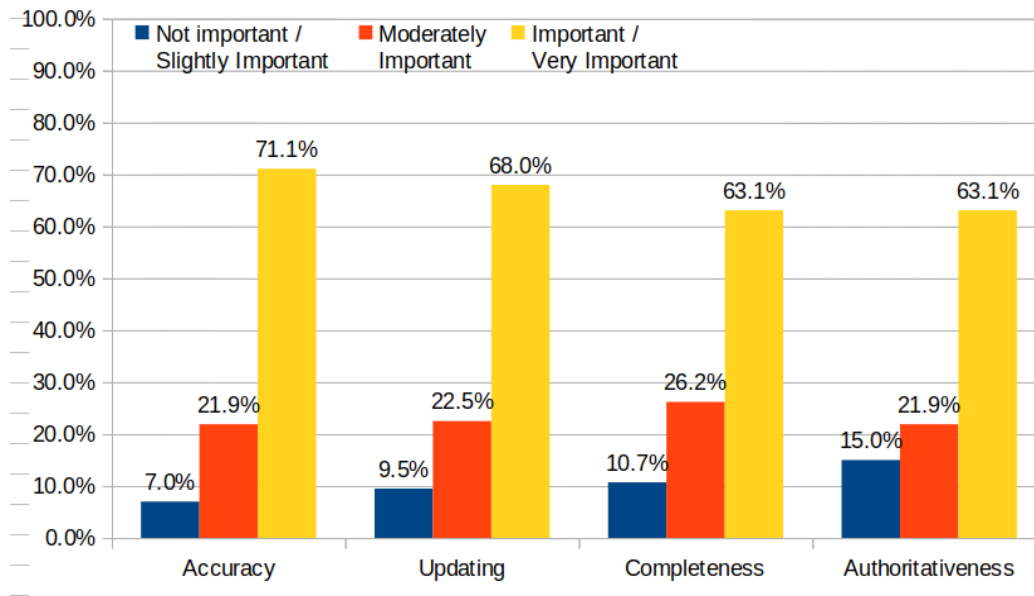
Perceived quality of online information and sources

Though 46.5% of the respondents state that they do not know the difference between a primary and a secondary source, 62% agree or strongly agree that it is important to evaluate how authoritative data sources are. A worrisome 38% believe it has little or no importance. This is confirmed by students' difficulty in understanding the differences between an authoritative source and one which is not authoritative: 35.9% report that they are never or hardly ever able to do so. To gain a fuller understanding of the importance that students assign to several key aspects of source reliability (Figure 1), they were asked to respond to a more detailed set of questions taken from the CRAAP (Currency, Relevance, Authority, Accuracy and Purpose) Test (Blakeslee, 2010). Questions about Purpose were not used, as this was analysed separately. The data confirm that students attach comparatively little importance (63.1%) to the source's authority (Mean=3.83). Accuracy is the dimension that is perceived to be most critical, with 71.1% of the students considering it important or very important (Mean=3.92): an accurate news story seems to be perceived as more reliable. Currency is ranked next in importance, with 68% (Mean=3.88), as dis-information or mis-information frequently involves recycling old news as if it were current. Lastly, 63% (Mean=3.69) of the respondents see the relevance of the information as important or very important (see Table 4 and Figure 1).

Table 4. Students' beliefs about important aspects of news

Q. How much do you think is important (in a Web search) to evaluate:	1 min (%)	2 (%)	3 (%)	4 (%)	5 max (%)	Mean	Std. Dev.
Accuracy	1.1	5.9	22.2	41.6	29.2	3.92	0.92
Currency	2.7	7	22.2	36.2	31.9	3.88	1.03
Completeness	2.7	8.1	26.5	43.2	19.5	3.69	0.97
Authoritativeness	1.6	13.5	22.2	25.9	36.8	3.83	1.12

Figure 1. Perceived importance of the key qualities of online information.



Fully 40% of the students stated that they were not able to identify inaccuracies and/or errors in the information conveyed by the media (television, radio, online newspaper) in targeted online searches (Q16, Table 5). Only 38.4% reported that they often/always check the source of a news item they consider important, while 39.6% never or almost never do so (Q20). In addition, only half— 44.9%—reported that they always look past the first page of results returned by a search engine, showing their desire to carry out more thorough online searches (Q19). Most students—69%—expressed great confidence in their ability to use different media to find information (Q10): this can be considered significant from the standpoint of critical thinking, as checking a news item appearing in different areas of the Web (YouTube, websites, social networks) is important in determining the item's reliability.

Table 5. Students' habits about Web searching

Question Number	1 min (%)	2 (%)	3 (%)	4 (%)	5 max (%)	Mean	Std. Dev.
Q10	1.6	7	22.2	37.8	31.4	3.90	0.98
Q16	1.6	10.8	28.6	38.4	20.5	2.74	0.96
Q19	9.2	16.2	29.7	29.7	15.1	3.25	1.17
Q20	9.2	30.3	31.9	18.4	10.3	2.90	1.12

Frequently used sources: types and usage patterns

Social media and messaging apps are the most frequently used information sources (mean 3.88), followed by video-sharing platforms (mean 3.87) and television (mean 3.74). A breakdown by gender shows that video-sharing platforms are used more frequently by males (66% often/very often) than by females (58% often/very often). The proportion is reversed for television, which is preferred by 67% of the females and only 57% of the males. The old media is not very popular with the sample, as fewer than 25% of the students make use of printed and online newspapers and magazines, radio and press agencies (see Table 6).

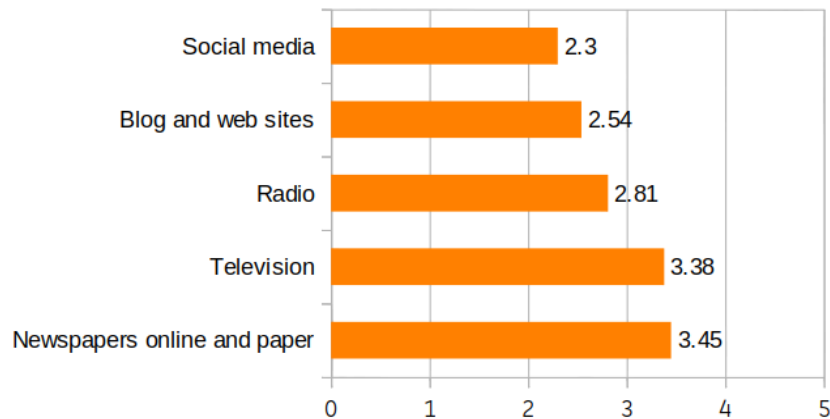
Table 6. Most frequently used information sources

Q. What information sources do you use most frequently?	Gender	Often + Very often (%)	Mean	Median
Social networks and messaging apps	TOT	62.2	3.88	4
	M	60.5	3.87	4
	F	63.6	3.89	5
Video sharing platforms (YouTube etc.)	TOT	61.6	3.77	4
	M	66.3	3.93	4
	F	57.6	3.63	4
Television	TOT	62.2	3.74	4
	M	57.0	3.56	4
	F	66.7	3.90	4
News aggregators	TOT	47.0	3.26	3
	M	45.3	3.28	3
	F	48.5	3.24	3
Blogs/online forms	TOT	28.1	2.72	3
	M	25.6	2.74	3
	F	30.3	2.71	3
Radio	TOT	22.2	2.44	2
	M	15.1	2.19	2
	F	28.3	2.66	2
Online sites of traditional newspapers	TOT	17.8	2.41	2
	Male	15.1	2.27	2
	Female	20.2	2.53	2
Online-only newspapers	TOT	14.0	2.14	2
	Male	9.3	1.93	2
	Female	18.2	2.31	2
Printed newspapers	TOT	7.0	1.86	2
	Male	10.5	1.94	2
	Female	4.0	1.80	2
Press agencies	TOT	5.9	1.68	1
	Male	8.1	1.72	1
	Female	4.0	1.65	1

Trust in different media

After the attention received by the fake news debate in recent years, students show a certain awareness of the problem of how much trust can be put in the media (Figure 2). Interestingly, television and newspapers enjoy much higher levels of trust than social media and blogs.

Figure 2 Perceived trust in old and new media (Mean)



Students' responses concerning how often they come across fake news in different media confirm the low level of trust in social networks, blogs and websites (Table 7). However, participants also report high frequencies in newspapers and television, contrasting with the earlier statement of trust in these media (Table 6).

Table 7 Perceived frequency of fake news in different media

Q. In what media do you most frequently come across fake news? (multiple answers possible)	Freq.	%
Social media	137	74.1%
Blogs and websites	74	39.9%
Printed newspapers and their online sites	60	30.8%
Television	28	15.1%
Radio	9	4.9%

Perceived influence of fake news in the public debate on specific topics

The students state (see Table 8) that the areas where they most frequently come across fake news are those involving celebrities' private lives and health. In the latter case, this is perhaps because of the enormous media attention directed in recent years to the question of vaccinations. Politics occupies third place, while safety and security is the topic where fake news is said to be least- frequently encountered. Many students emphasise—albeit indirectly—the problem of confirmation bias in the news, that splits public opinion:

[..] these hoaxes often speak right to the 'gut' of the people who receive them, and so they tend instinctively to believe them. ---A.

It is interesting to note the low percentages for minorities and, above all, immigration, even though this is an extremely controversial issue at present and thus not infrequently targeted by fake news.

Table 8 Perceived influence of fake news in different social areas

Q. What topics did the fake news you came across in the last two years involve? (multiple answers possible)	Freq.	%
Celebrities' lives	110	59.50%
Health (e.g., vaccines)	99	53.50%
Politics	85	45.90%
Immigration	70	37.80%
Entertainment and show business	66	35.70%
Science and technology (e.g., fake reviews or misleading studies)	64	34.60%
Environment (e.g., climate change)	53	28.60%
Economy and finance	52	28.10%
Minorities (e.g., religious, ethnic, sexual orientation)	51	28.00%
Safety and security	38	20.50%

What actions are most useful for stopping the spread of fake news?

According to the students, effective action for stopping the spread of fake news can be taken on two fronts: education/training at school and university to improve people's Information Literacy (60.5% agree or strongly agree), and media responsibility: the media should put reliable references (hyperlinks to documents from certified sources) directly in the news they promulgate (64.3% agree or strongly agree, see Table 9).

Table 9 Perceived usefulness of actions against fake news phenomena

Q. What actions are most useful for stopping the spread of fake news?	Agree + Strongly agree (%)	Mean	Median
Help readers in evaluating news when and where they read it (e.g. links to sources and references)	64.3	3.79	4
Educate readers and develop media literacy for a critical approach to news	60.5	3.70	4
Invest in technological solutions to enhance their ability of content checking (in particular, user-generated content) to avoid fake news proliferation	53.0	3.50	4
Support civil society organisations and platforms to monitor and detect fake news (e.g. Wikipedia/Wikimedia model)	48.6	3.40	3
Improve cooperation with other organisations in media industry	43.8	3.33	3
Invest in new ways to do journalism (evidence based)	44.3	3.28	3

Which actors should take action to stop the spread of fake news, and how?

The final section of the questionnaire focuses on the action that can be taken to fight fake news. According to the students, schools and universities (62%), public authorities (60%) and the media as a whole (60%) are in the best position to act, followed at a considerable distance by the managers of the principal online platforms (30%), citizens themselves (25%) and civil society organisations/associations (19%). In this connection, it is interesting to note that educational institutions are considered to have the

greatest responsibility for taking action. As regards what action should be taken, the students believe that it is essential to help people evaluate information in the context where they read it. For example, links ought to be placed whereby the source of the information can be checked directly (64% agree or strongly agree with this action). The idea of educating people (both adults and students) to improve their information literacy and develop a critical attitude to news also garnered considerable approval (61% agree or strongly agree, see Table 10).

Table 10 Students' preferred actors against the spread of fake news

Q. Which actors should take action to stop the spread of fake news (multiple answers possible)	Freq.	%
Schools and universities	115	62.2%
Public authorities (e.g. EU, governments, etc.)	111	60.0%
Media industry (all the medias, journalists, etc.)	111	60.0%
Online platforms	57	30.8%
Citizens	47	25.4%
Civil society organisations/associations	35	18.9%
None	10	5.4%

Which teachers at school should educate about fake news?

Interestingly, the teachers whom students would most like to see dealing with fake news education are those in technological subjects (70.3%) and the humanities (64.6%), while teachers of theoretical and applied sciences follow at a considerable distance (see Table 11).

Table 11 Perceived role of different subject areas in stopping the spread of fake news

In your opinion, which teachers (in which subjects) should teach about fake news? (multiple answers possible)	Freq.	%
Technological subject (computer science, etc.)	130	70.3%
Humanities (Italian, history, foreign languages, religion, etc.)	119	64.6%
Theoretical sciences (mathematics, physics)	36	19.5%
Applied sciences (biology, chemistry, etc.)	33	17.8%

DISCUSSION

The data indicate that the participants inflate their perceived ability to find and evaluate the sources and content of information, as has been consistently confirmed in the literature (Carlsson & Sundin, 2020; Cruz & Morais, 2020). For instance, out of 53 studies analysed in a systematic review (Mahmood, 2016), 41 found that undergraduate students overestimated their Information Literacy skills. This could be a typical instance of the form of cognitive bias known as the Dunning-Kruger effect (Dunning, 2011). Indeed, an extremely high percentage of the participants—96%—have a high overall opinion of their evaluation skills. In general, moreover, participants state that they are satisfied or very satisfied with the results of their searches (85%) and also feel capable of learning and progressively improving their skills in this area. In reality, however, almost 40% of the students admit that they have difficulty understanding whether a source is authoritative, and only 38% always or often check the sources of news that may be

fake. It was not possible to carry out field tests to assess students' actual Information Literacy performance. It will be the subject of a subsequent study.

Two further apparent contradictions came to light. The first is that the majority of respondents maintain that they do not look for news on social networks, as is also demonstrated by their awareness of fake news on such media. Nevertheless, they sustain that social networks are their main source of news, as over 62% use them frequently or very frequently. The latter percentage, in any case, is very high by comparison with the findings of other similar studies: Shearer (2018), for example, reports a more modest 35%. We are probably dealing here with an 'incidental' effect (Boczkowski, Mitchelstein & Matassi, 2017; Marchi, 2012): in other words, participants seem to stumble upon news on a variety of social media without actively looking for it. The second, and related, contradiction concerns the considerable trust that students put in 'old' media, i.e., the press and, above all, television (54%). This perception, which is also confirmed by the fact that they state that fake news is less frequently encountered on these channels, would appear to correlate with high levels of exposure: the greater the exposure to TV news and newspapers, the higher the level of trust in these media (Enli & Rosenberg, 2018).

Television is probably perceived as a trade-off between reliability and ease of access to news, even if it is not a medium with which one can interact directly: looking actively for information is one thing while being subjected to it is another (Jackson & Farzaneh, 2012). To reconcile these apparent contradictions, we can hypothesise that most of the students have a rather passive attitude towards information, which is exactly what was found for the previous generation of students, even though they did not yet have online social networks (Weiler, 2005). Today's students are flooded by a constant stream of news from the old and new media that is very difficult to avoid, and often results in information overload (Park, 2019; Head et al., 2018; Bontcheva, Gorrell, & Wessels 2013). In this connection, many students regard information overload as highly detrimental to fact-checking, in many cases referring explicitly to the problem:

news travels really quickly and people don't have the time or energy to check whether what they're reading is true ---A.

most of the time people don't want to check whether it's right or not and prefer, out of laziness, to believe what they read ---R.

people just don't have time to look into the news they read ---G.

Lastly, it is essential to note that participants have a very positive opinion of schools and the institutions—and consequently a great deal of trust—as regards teaching students and the public to think critically when seeking and evaluating online sources. When asked which school subject is the more suited for teaching the critical thinking skills needed to evaluate online sources, the students chose technological subjects and the humanities, with nearly the same high percentage of students indicating a preference for each of these two subject areas. That demonstrates an awareness that critical thinking about online fake news is a complex issue. Consequently, two sets of skills are important: those needed to deal with technology, and the metacognitive/reflexive/ethical skills that only a humanistic education can impart.

CONCLUSION

Though the findings presented here cannot be generalised beyond the national and regional setting where the survey was carried out, they can nevertheless provide insights for developing training programs for curbing fake news. Many educational activities designed specifically for the development of Information Literacy skills focus on the most effective procedures for evaluating information online through more or less complex methods, but we can thus suggest a sort of *meta-measures* that, in addition to seeking to develop technical skills, effective search strategies and critical thinking, can:

1. Help students focus on their attention capacity (Anderson & De Palma, 2012). As we have seen, students' attention capacity is limited, and is easily saturated by the flow of information to which they are exposed: the greater the flow, the less able we are to judge (and thus look for more information online) whether news may be true or false (Qiu, et al., 2017);
2. Make students aware of the tendency to overestimate their ability to find and evaluate online information (Hebert & Duet, 2019; Mahmood, 2016; Michalak & Rysavy, 2016);
3. Assist in designing interdisciplinary fake news education programs, involving teachers from technical and humanistic subject areas in order to develop content and processes that consider the technological, ethical, legal and psychological aspects of the problem.

These meta-approaches should be part of projects that stimulate students to take an active part in stopping the spread of fake news in online social settings and encouraging a critical attitude in dealing with information flows.

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