MEDIA LITERACY: THE MISINFORMATION ANTIDOTE

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Abstract

The spread of fake news and conspiracy theories is a substantial societal concern. In the age of social media, teens are especially prone to consume and share misinformation. This is calling for a reliable method to teach teens to distinguish fake from facts, by nurturing their critical and analytical skills and encouraging self-directed learning. By reviewing the literature, this paper found that misinformation is driven by a range of psychological, social, and political factors. Being exposed to misinformation leads to problematic consequences such as rejection of science, mistrust in the health system, and not participating in important aspects of society. We argue that integrating media literacy in secondary education in a cross-curricular way is the most effective approach to tackle fake news and conspiracy theories. We developed a media literacy strategic plan that proposes possible instructional practices to prepare students for active citizenship by guiding their engagement with the media, and to encourage them to think critically. We believe that the integration of media literacy education could prepare students for an age plagued by misinformation.

Keywords: fake news, conspiracy theories, media literacy, critical thinking, social media

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Purpose of Study and Central Questions

Fake news can be defined as false news stories masked as real news that is deliberately presented in order to damage someone's reputation or even for economic gain through advertisement or trending by tapping into a popular topic. Hunt Allcott and Matthew Gentzkow define fake news as "news articles that are intentionally and verifiably false and could mislead readers" (Allcott and Gentzkow, 2017, p. 213). Conspiracy theories are defined as "an attempt to explain harmful or tragic events as the result of the actions of a small powerful group" (Reid, 2020). Fake news and conspiracy theories have been around for a long time, but they have never been so damaging and dangerous as they are today.

In this paper, we aim to characterize the causes and consequences of fake news and conspiracy theories, as well as to provide possible solutions on how to tackle these issues. For this purpose, we answer the following three central questions: (1): **What are the causes, through which fake news is spreading, and how do we spot them?**, (2) **What effects does the spread of fake news in all of its forms have on social, political, and psychological aspects of people's lives?**, and (3) **What teaching and learning practices can support students' critical engagement with media in order to recognize misinformation and prepare them for active and responsible citizenship?**

Fake news stories and conspiracy theories were always an issue, but they were never as consequential as they are at present. There is much information from different sources on the internet but not all this information is real and reliable. Though fake news is not new, it is now worrisome because of social media popularity which facilitates interaction and diffusion of new ideas (Zhou and Zafarani, 2018). For instance, in an article published in the Nature journal, and during the 2016 US elections period, just over 7 million tweets (out of 30 million tweets analyzed) were either spreading fake or biased news (Bovet & Makse, 2019).

According to Marchi (2012), teenagers tend to show disinterest in the traditional way of receiving news, which is basically through television, radio, and journals; instead, teenagers were more interested in news on social media websites. The reason behind this was partly the disinteresting way traditional news stories are presented (Marchi, 2012), and this means that a large number of young people are referring to social media websites to receive the news. This allows for fake news to proliferate and spread.

In other examples, fake news acted as a means to change historical facts. In 2010 an online community on Facebook spread information that Nelson Mandela died in prison in the 1980s, although he lived until 2013 and became the first black president of South Africa. A good example of the use of fake news on social media is even the use of Twitter and other platforms by ISIS. The latter ran a highly advanced online operation to influence people and persuade them to join. The scope of propaganda and fake news information spread by ISIS on Twitter was immense, many people were affected by it and a few of those people became members of the terrorist group (Klausen, 2015).

Researchers argue that sometimes fake news spreads quickly between close family members, as they have found that social media users more trust information that comes from friends and family. (Wasserman and Madrid-Morales, 2019). Some authors highlight financial and ideological motivations that underlie the production of fake news (Tandoc et al., 2018). Others have conducted numerous studies and have identified common traits in people who readily absorb fake news, misinformation, and believe in conspiracy theories. Some of these traits include dogmatism, religious fundamentalism, and delusionality (Bronstein et al., 2019). In other cases, belief in conspiracy theories was associated with a high level of anxiety, and a lower level of knowledge (Sallam et al., 2020). Goertzel (1994), in

one of the early studies on conspiracy theories, has suggested that believing in conspiracy theories was related or part of a "monological belief system" (p. 741) where faulty conspiracy beliefs and ideations reciprocally support each other (Goertzel, 1994). In parallel with these findings, believing in conspiracy theories was found to be negatively correlated with both analytical thinking and level of education (and hence socio-economic status) (Georgioua, Delfabbroa & Balzanb, 2019). Other studies have consistently found three factors that could explain the negative correlation between conspiracy beliefs and education level. First, a higher level of education leads to a decreased chance to adopt simple answers for major, complex events; people in this education level feel more in control of their environment; and lastly, they consider themselves as belonging to a higher social ranking than those with lower education levels (Van Prooijen, 2017).

Fake news and conspiracy theories inspire many forms of undesirable effects, and such effects span a range of fields and ultimately lead to damage in social, environmental, and health settings and this is precisely why this issue is alarming. Conspiracy theories are the root cause of why some people refuse to trust modern medicine practices, in the form of refusing to take vaccines to prevent serious illnesses. This has led to the resurfacing of some of the already cured diseases (Douglas et al., 2019). Studies show that those who are exposed to anti-vaccine conspiracy theories show less intention to vaccinate (themselves or their children) (Jolley and Douglas, 2014). Belief in fake news has also been found to be associated with a decreased engagement in political life, which eventually leads to unequal political participation, and this poses dangers to democracies. Franko (2012) argues that socio-economic status is an important aspect of political representation, and ultimately ends up impeding any meaningful institutional change (Franko, 2012). Fake news is used as the main tool of propaganda in non-democratic countries or countries with a low level of democracy. Thus, one of the dangerous effects of social media is the rise of nationalism and racism. It is very easy for people on these platforms to spread misinformation and fake news in order to influence other people and persuade them to perpetuate these dangerous ideas. This illustrates the vicious role of social media and fake news, and this is alarming, especially now, during the Covid-19 pandemic.

We have seen many examples of people who do not believe that Covid-19 is a real virus. One example of conspiracy theories claims that the virus was synthesized in a laboratory, arguing that it has been intentionally spread, despite evidence of the virus being traced back to a seafood market in Wuhan, China. Some of the people who support this theory also believe that pharmacological companies are behind the creation of the virus, since they would be the ones profiting because people have to purchase their vaccines/treatments. Another dangerous conspiracy theory that rose in popularity states that the virus is a hoax, a fabrication. In a study conducted in the US, Pennycook et al. (2020) found that many people disseminated false information related to the virus because they failed to reason appropriately if the content is true or not before sharing (Pennycook et al., 2020). In a way, the global aspect of the virus provided the perfect conditions for the proliferation of conspiracy theories. People look for explanations and meanings in almost everything that they encounter, so imagine what they will do when faced with such a dystopian reality.

We must not forget that the virus is global, and this means that we should expect the people's reaction to being magnified. The latter was a mixture of panic and suspicion. It is very much expected to have people make wild accusations concerning the origins of the virus or to believe in conspiracy explanations. It is important, nevertheless, to try and think about what could be done to shield the people from drifting into such destructive thoughts and ideas. We have mentioned how conspiracies have undermined global health status by attacking modern medicine practices. The current situation shows the clear need for global intervention in an attempt to reverse the direction in which we are heading.

Being able to identify misinformation in social media platforms is an important step in the media literacy process. Thus, if we manage to explain the dangers of fake news effectively, we would be spreading awareness about this issue, and we would also be encouraging people to change their behaviors and attitudes, contributing to the solution for the fake news problem. There are other ways to teach people to discern between trusted and untrusted news stories. One of the ways of doing so is by checking the source of the story. In general, reliable websites end in .gov (government website), .org (organization), or .edu (educational institution). This is a simple strategy to examine the news stories we see. In some cases, and in an attempt to battle the spread of misinformation, some programs were created for the sole purpose of detecting fake news stories (websites such as Hoaxy and Snopes). However, much fake information is created in a way that is almost undetectable by computer programs. Moreover, despite these efforts, it is not guaranteed that everyone will use them. However, the efficiency of these methods is somehow questionable, seeing the number of people who decided to accept and endorse false information. Thus, tackling the roots of the problem happens through comprehensive critical thinking and media literacy programs.

Researchers have produced extensive research for the aim of presenting solutions to this issue. Most of the solutions revolve around cultivating a generation of critical thinkers. Schunk (2011) argues that skills are classified into specific and general, and critical thinking is one of many general skills. The latter, he claims, are crucial in learning key cognitive, motor, and social skills, and that they facilitate learning in general by involving different cognitive processes (Schunk, 2011). This points to the importance of cultivating general skills, and especially critical thinking, among learners.

What makes the job of the educators even more difficult is the fact that journals do not always follow a moral code of ethics. In fact, Rusbridger (2018) explains this issue in depth. He argues that editors should realize that journalism is, or rather should be, a public service, much like the police or the fire department; however, the author claims that the fact that it is facing an economic threat, journalism found itself justifying themselves on the grounds of making a profit (Rusbridger, 2018). This is an obvious example of the malicious path news reporting has taken, and this is another reason to work in the opposite direction, in an attempt to limit the destructive effects of fake news. There is increased responsibility on media outlets to deliver quality news reporting, and at the same time, there is even more responsibility on the receivers of news to question what they see and hear. It is difficult to control the actions of the media companies, journals, and tv news stations. It is much more effective to try and cultivate a generation of critical thinkers.

Media literacy, one of the main pillars of combating fake news, has been receiving increasing attention lately (Hobbs, 2011; Potter, 2010). Researchers claim that media literacy "is not about teaching students what to think; rather, it emphasizes the process of helping people arrive at informed choices that are consistent with their own values through active, reflective, collaborative and self-actualizing practice of reception and production" (Hobbs, 2011, p.427-428). The Presidential Committee of the American Library Association claims that Media literacy requires one to be able to judge when certain information is needed, where to find it, and how to effectively evaluate that piece of information (American Library Association, 1989). Researchers argue that media literacy is about cultivating a pedagogy of Inquiry learning and denounce the superficial "how-to" teaching of social media (Hobbs, 2011). This shows that in some instances, the concept tends to be misunderstood, and if it was applied correctly, it might help tackle the spread of misinformation.

Many researchers have highlighted the importance of fostering critical thinking skills at a young age. The partnership for 21st-century skills, an initiative devoted to creating a unified framework for learning, strongly advises that teaching critical thinking in order to prepare students to post-secondary

academic challenges. Among others, Jolly and Douglas (2016) found that it is much easier to shield people from the detrimental effects of fake news by teaching them how to think critically before they fall into the trap of believing fake news stories or adopting conspiracy beliefs (Jolly and Douglas, 2016). Seeing the importance of teaching critical thinking at the school level, in order to avoid the detrimental effects of fake news, prompted us to look towards integrating critical thinking in the school curriculum. Hence, the main purpose of this present study is to identify the best action plan to implement a course designed to teach high school students critical thinking and media literacy skills in an attempt to develop those skills so that they could prepare students for an age plagued by misinformation. However, some difficulties arise at this point. One of them is how do we make sure that the critical thinking skills that students would learn in schools are transferable to everyday life practices? The assumption is that if students are taught how to think critically in the classroom, then they would be shielded from falling in the trap of believing in fake news in real-life contexts. This will be one of the challenges in this study.

Targeted Audience

The first target audience of the current media literacy plan are students of secondary education. Our plan aims to prepare adolescents with the knowledge and skills to tackle fake news through the introduction of media literacy education. The idea is that our intervention will guide them on how to critically judge the information given on media and more specifically, social media and online newspapers, where fake news is mostly spreading. Literature indicates that it is easier to shield people from the detrimental effects of fake news by teaching them how to think critically before they fall into the trap of believing fake news stories or adopting conspiracy beliefs. Thus, we argue that people should be taught media literacy at a young age. Since students in secondary education have a better ability to grasp critical thinking skills, we decided to focus on secondary rather than primary education.

Naturally, given that our plan takes place in the formal sector of education, another crucial target group is high school teachers. They will be responsible to put the plan into action. Our plan will provide teachers with some insights into educational theories and practices to effectively teach media literacy to secondary students. This not only entails that all teachers should be familiar with media literacy concepts and skills, but also, teacher training and teacher assessment programs should take place in order to guarantee high levels of competency and efficiency in their teaching practice.

Other stakeholders include journalists that will be invited to bring their expertise into classroom workshops and talks. The role of journalists includes exploring topics such as journalistic standards and ethics, causes and consequences of fake news and conspiracy theories, and the role of news in shaping individual and social identity. The participation of journalists in the fight against fake news is crucial, and so their participation in the plan of equipping students with media literacy competencies.

Research Strategy

Literature selection

Several methods were followed to ensure a high-quality literature review. First of all, a thorough search for peer-reviewed articles/journals was conducted examining the topics under study. Searches were based on a number of keywords: fake news, conspiracy theories, social media, critical thinking, and media literacy. The search for articles was carried out through different platforms. The most commonly used ones were Google Scholar, Jstor, ScienceDirect, and ERIC. In some instances, references of some

key articles were checked to find related articles. Top journals in the field of educational sciences, psychology, political sciences, and health sciences were consulted. Such journals included Political Behavior, Health and Psychology, the Public Library of Science (PLOS), British Journal of Psychology, The Psychologist, Journal of Experimental Social Psychology, Journal of Media Literacy Education, Computers and Education, etc. Some of the sources were books and publications by the European Union.

Types of articles collected

This study used around 78 articles, reports and policy briefs. These were divided into several themes. First, in order to investigate the topic of fake news, concerning the definitions and the social, political, and psychological contexts, around 26 articles were studied pertaining to the topics of social media, fake news, or both. Moreover, we examined 16 articles that explore the causes and consequences of conspiracy theories. Lastly, around 23 articles in relation to media literacy and critical thinking were studied. This includes methods to teach media literacy or to incorporate it in the curriculum and a few articles that tackle teacher training. Resources that concern media literacy included some reports drafted by the UN or a related body. Around 11 other articles were examined for different purposes (biases, consequences of political participation, etc.). In some cases where information would not be accessible in online journals, we relied on newspapers and magazine articles (Time, The Guardian, USA Today), an educational learning book (Schunk, 2011), and conference reports. There was an occasional overlap of topics in one study. Most of the articles used were quantitative, and few included qualitative methods (systematic literature reviews and compilations of sources).

Literature Review

Definitions and History of fake news and conspiracy theories

Researchers have produced extensive research in an attempt to uncover the reasons behind belief in faulty information, be it fake news or conspiracy theories. But first, a distinction between the two often overlapping concepts is needed. Fake news is not a new phenomenon.

There exist many definitions of fake news. Allcott and Gentzkow (2017) define fake news as news stories and pieces of information that are fabricated and purposely false. These are presented with the sole intention of misleading readers (Allcott & Gentzkow, 2017). In other cases, fake news was defined as "misinformation that has the trappings of traditional news media with presumed associated editorial processes" (Lazar et al., 2017, p. 1094). Fake news, as a specific type of disinformation, means false information that is spread deliberately to deceive people (Shu et al., 2017). In some cases, satirical information was misunderstood as factual information so this could also be in the same category, and according to Allcott and Gentzkow, (2017) some reasons behind the creation of fake news stories could be economic gain, partisanship, or for propaganda (Allcott & Gentzkow, 2017).

Conspiracy theories are somehow different. They have been around across history and have been linked to genocides, witch hunts, and prejudice (Douglas et al., 2019). Keeley (1999) defines a conspiracy theory as "a proposed explanation of some historical event (or events) in terms of the significant causal agency of a relatively small group of persons the conspirators acting in secret" (Keeley, 1999, p. 116). Keeley argues that the most dangerous feature of conspiracy theories is that it includes "prognostication", which means prophesying future events. Another key component of conspiracy theories is the "theory" part which entails that this practice aims primarily at explaining phenomena.

This leads us to the third component of conspiracy theories which is the existence of an official story that theorists are aiming to undermine (Keeley, 1999).

Reasons people believe and spread fake news and conspiracy theories

Psychological factors

Psychological factors behind believing and sharing fake news can be explained by epistemic and existential motives.

Epistemic motives

Literature found some cognitive processes as explanations to explain conspiracy beliefs such as lower level of intelligence (Stieger, Gumhalter, Tran, Voracek, & Swami, 2013) and acceptance of epistemically unwarranted beliefs (Lobato, Mendoza, Sims, & Chin, 2014). Additionally, some studies found that people with lower analytical competencies and lower levels of education are found to be more prone to conspiracy beliefs (Swami, Voracek, Stieger, Tran, & Furnham, 2014), (Georgiou, Delfabbro, & Balzan, 2019).

Existential motives

Douglas, Sutton, & Cichocka (2017) found that when people's existential needs are threatened, they are more likely to believe in conspiracy theories. Grzesiak-Feldman (2013) found positive correlation between higher levels of anxiety and conspiracy thinking. Some studies found that when people feel powerless and have low self-esteem, they tend to turn to conspiracy theories more often (Abalakina-Paap, Stephan, Craig, & Gregory, 1999).

Social Factors

Studies have demonstrated the effect of some social factors on the belief (and endorsement) of fake news. Goyanes and Lavin (2018) argue that there exist gender differences. For instance, they have found that men are far more likely to believe fake news than women do, despite the fact that there are more women users than men; also, it seems that the chance of sharing false political information increases with age; however this could be explained by the fact that the young generation is not particularly interested in politics (Goyanes and Lavin, 2018). Many studies identified several social causes for belief in conspiracy theories. Cichocka et al. (2015) argue that belief in conspiracy theories was positively correlated with group narcissism, and marginally positively correlated with collective self-esteem. Lantian et al. (2017) studied endorsers of conspiracy theories and found that those people are more likely to have higher need to feel unique. That is to say, conspiracy theories believers might be holding (or endorsing) such beliefs because they assume that they have a rare piece of information that no one knows about. This might explain the previously mentioned positive correlation between collective self-esteem (Lantian et al., 2017). Moreover, research is showing that conspiracy theories prevail among disadvantaged groups: such groups would be more apt to believe that someone is trying to conspire against them which essentially suggests that conspiracy beliefs are linked to defensiveness.

Political factors

Conspiracy theories are by default self-sealing. A conspiracy theorist would argue that different, unrelated events are masterfully coordinated by malevolent forces, and upon asking for proof, the theorist would claim that the conspirators operate stealthily and leave no evidence (Douglas, Sutton, & Cichocka, 2017). Research has found that people are more likely to believe that their political opponents are responsible for malicious acts or plots than when this accusation targets their political group (McClosky & Chong, 1985). This is paralleled by Taber and Lodge (2006) with their research

on political misperception: they suggest that fake news is more easily accepted by people who are highly partisan and by individuals with prior opinions on an issue.

However, concerning leftism and rightism, democrat-leaning voters were less prone to sharing fake news than right-leaning voters (Goyanes & Lavin, 2018). Regardless of the latter finding, other research found that the far left and far right both follow the same political belief patterns, especially intending to attribute public affairs to conspiracies (McClosky & Chong, 1985). This might be explained by the ingroup-outgroup argument discussed earlier, which is one of the social factors that cultivate conspiracy theories ideations.

Social media as principle disseminator of fake news

Social media has become a part of our everyday life. Social media is the term often used to refer to new forms of media that involve interactive participation (Manning, 2014), where people communicate and share information with each other. However, this huge amount of information that is shared online is very difficult to control, and that is partly why not all the information shared is true and reliable. These difficulties are the reason behind the proliferation of "Fake News", and that is a big issue on social media.

Even though fake news has been an issue for years, the pinnacle of this problem manifested itself through social media platforms and during the 2016 US presidential campaigns and elections, as researchers found the circulation of a large number of fake news through Facebook and Twitter, mainly through bot profiles (Bovet & Makse, 2019). In fact, increasing bodies of research are suggesting that fake news significantly influenced the 2016 US elections (Gunther et al., 2018). Moreover, other researchers also argue that fake news remained a key player in American politics in the period following the 2016 elections (Azzimonti and Fernandes, 2018; Spohr, 2017). A study by NewsWhip (2018) has found that even after modifying the Facebook algorithm, fake news stories are still resurfacing (NewsWhip, 2018). Despite Facebook's efforts to limit the spread of fake news over the platform, research has shown that flagging incorrect information was mildly effective at best (Clayton et al., 2019). However, in some cases, when this policy was in action, unflagged fake news were often perceived more accurate (Pennycook and Rand, 2017). According to Guynn (2016), fake news shared on Facebook had created significant public confusion about all current events (Guynn, 2016). In some instances, it is simply an opportunity to use fake news websites as a revenue source for advertising (Sydell, 2016). Media specialists claim that all the policies and actions created to fight misinformation through fact-checking is not proving effective (Levin, 2017). In addition, Ghosh and Scott (2018) argue that fake news is looking as increasingly uncontrollable (Ghosh and Scott, 2018). As the internet matured, no proper planning has been made to check and control fake news.

The effects of fake news and conspiracy theories on people's lives

Fake news and conspiracy theories affect the lives of individuals as well as society as a whole. Being exposed to inaccurate information leads to many problems such as confusion and doubt. After encountering fake news, people are likely to become uncertain about the accuracy of their knowledge, to doubt whether their ideas are correct and to become reliant on inaccurate ideas. (Rapp & Salovich, 2018). Exposure to conspiracy theories brings even more negative consequences. Involvement in conspiracy theories can adversely impact people's social, physical, and mental well-being.

Science Denial

Research indicates that people are likely to undermine science when they are involved in conspiracy theories. Conspiracy theories about climate change, vaccine, HIV/AIDS and Genetically Modified Food (GMO) are all examples of science denial for people who believe and spread this misinformation.

Many people believe that climate change is a hoax managed by corrupt scientists who are chasing climate research funding. The belief that climate change is a hoax is associated with the rejection of climate science claims. Jolley and Douglas (2014) found that individuals who were exposed to climate change conspiracy beliefs are less likely to engage in climate-friendly behaviors. Specifically, people's intention to reduce their carbon footprint was negatively correlated with exposure to the climate conspiracy theory.

Health choices

Studies that examined the effect of medical conspiracy theories found a positive correlation between health-related conspiracy beliefs and health choices. Anti-vaccine conspiracy theories are spreading among people indicating that vaccines are harmful and that their side-effects are hidden from the public to ensure that the governments and pharmaceutical companies make a profit (Jolley & Douglas, 2017). For instance, the most popular belief about the side-effects of the MMR vaccine is that it causes autism. Believers in anti-vaccine conspiracy theories are less likely to vaccinate their children (Jolley & Douglas, 2017). Not vaccinating enough people (advisable 95% of the population), puts people at risk of dangerous diseases that are preventable with vaccines.

In line with consequences anti-vaccine conspiracies have on people's lives, it is important to mention these effects during the current COVID-19 pandemic. Fake news concerning vaccines come in the form of erroneous claims about the safety, the effectiveness, the side effects, and the elements used to make the vaccine. One of the popular conspiracy theories regarding vaccines is that vaccines are a cover-up for implanting microchips into people. Although no evidence is found to support the claim about microchips, many people believe and spread this conspiracy. Given that a positive correlation exists between anti-vaccine beliefs and reduced vaccination intention (Jolley & Douglas, 2017, it is important now more than ever to stop the spread of these conspiracy theories.

Some widespread conspiracy theories about COVID-19 also include that "the virus is a hoax", "The spread of the virus is a deliberate attempt to reduce the size of the global population", "The real reason for the lockdown is to impose mass surveillance" and "The elite have created the virus to establish a one-world government" (Freeman et al., 2020). People who share these beliefs are less likely to take measures to protect their lives and indirectly endanger the lives of others. Not only individual lives, but the entire society is affected by negative effects associated with the beliefs in conspiracies and people's behavior.

Political Engagement

Conspiracy theories are also found to influence people's political engagement and behaviors. People who believe and spread conspiracy theories are likely to be less involved in politics (Jolley & Douglas, 2014), and are less likely to vote, donate and volunteer (Uscinski & Parent, 2014). Conspiracy theories are also found to diminish trust in government (Einstein & Glick, 2015). Given that Einstein and Glick (2015) highlighted that "citizen trust has long been viewed as a critical component of a functioning democracy", political consequences of conspiracy theories are also very important to mitigate.

Integrating Media Literacy course in secondary education

The current media landscape has been marked by the spread of 'fake news' and conspiracy theories, which is showing harmful effects on democratic societies. Because we found that some cognitive bias such as 'confirmation and disconfirmation biases' can represent a crucial barrier in tackling fake news and conspiracy theories, we believe that Media literacy education and in particular the development of critical thinking can help students are more aware "how our biases impact the way we seek, accept,

share and act on information" (Miller, 2016). Evidence shows that students who participated in media literacy initiatives, including educational programs involving journalists, were less vulnerable to disinformation and misinformation (McDougall et., 2018).

Media literacy is commonly described as a set of knowledge, skill and habits of mind that encourages an active, reflective, collaborative, and self-actualizing practice of reception and production of media contents, necessary competencies to become political agents in a democratic society (Mihailidis & Thevenin, 2013). The development of critical thinking and analytical competences were found to be the key components in Media literacy education, through a pedagogy of asking questions about media form and content, including issues of authorship, purpose, cultural context, audience and impact (Hobbs, 2010). Reflecting on how fake news and conspiracies are spread, and on the contribution they have in destabilizing society and promoting feelings of helplessness, disillusionment, mistrust, suspicion, and fear, it is crucial to build media literacy competences.

This paper proposes integrating a media literacy course in secondary education for several reasons. First, it is more difficult to reach and involve adults into educational activities than it is for children that are already students. Second, Goertzel (1994) found that young people were more likely to believe in conspiracy theories. Lastly, literature indicates that exposing people to accurate scientific information before they are already exposed to the conspiracy belief is found to be beneficial to refute the effect of these conspiracies (Jolley & Douglas, 2017). Thus, it is important to teach people media literacy at a young age. Given that students in secondary education have a better ability to grasp critical thinking skills, this article will focus on secondary rather than primary education.

Literature is inconclusive whether media literacy should be promoted across the curriculum (Carver, Wiese, & Breivik, 2013), or as a separate course of media literacy education. To the best of our knowledge, media literacy education is not taught as an independent mandatory school subject in any European country (McDougall et., 2018). This paper argues that it would be more beneficial to incorporate media literacy as cross-curricular and integral, or modular. This is because more evidence supports the plan to integrate media literacy across the curriculum then as a separate course. We aim to demonstrate the potential to better include pedagogical practices focused on media literacy in secondary schools.

Media literacy Strategic Plan (MLSP)

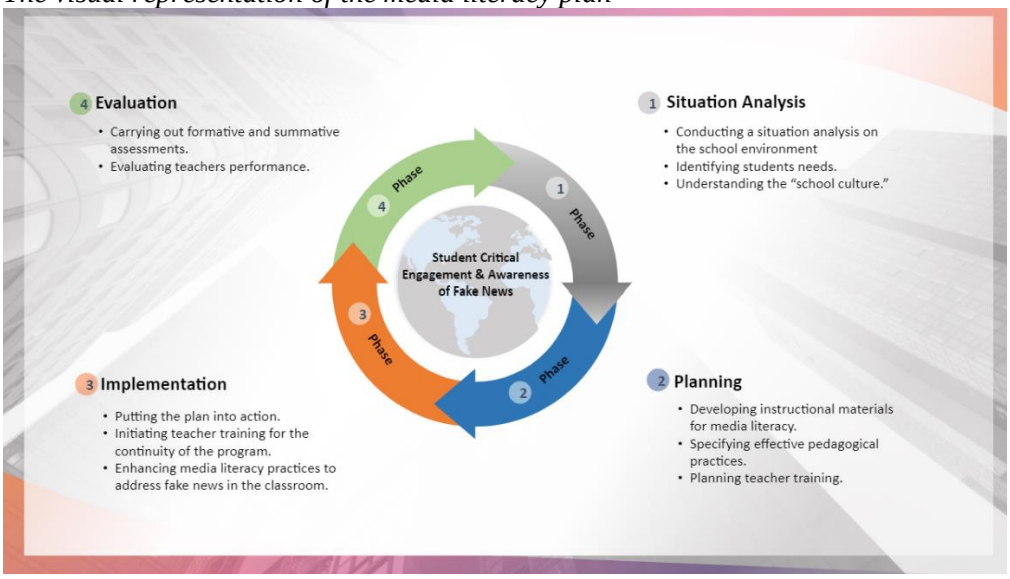
Because of the increased prominence of fake news and conspiracy theories in our culture today, which may contribute to destabilizing society and promoting feelings of disillusionment, suspicion, and fear, it's more important than ever to teach media literacy competencies among youths.

In this paper, we will investigate the competencies needed to better detect fake news and conspiracy theories spreading on social media through the integration of media literacy in the school curriculum at the secondary level, as part of mother tongue education, history, geography, civic and citizenship education, science education, or Media Studies. Because young people draw largely on their media experiences from outside the schools (Martens, 2010), the ultimate goal of our plan is to create a link between school-based education and the out-of-school media literacy practices, so that students can transfer the knowledge and skills learned in the class into their everyday experiences with media.

Below is the visual representation of our media literacy strategic plan for developing student's media literacy and critical thinking competencies.

It is a multi-phase strategy that consists of four interrelated phases: (I) analysis: an analysis of the school environment, student's needs, and school culture is conducted, (II) planning: instructional materials about media literacy are developed, some pedagogical practices are presented, and teachers preparation is planned, (III) implementation: all that is planned is put into practice, starting with teacher training, monitoring and enhancing media literacy practices for addressing fake news in classrooms, and lastly (IV) evaluation: formative and summative assessments are administered to evaluate students' performance and teachers' effectiveness is measured using different methods.

Figure 1:
The visual representation of the media literacy plan



Phase I: Analysis

Understating the School Context

Prior to starting any program, strategy, plan, initiative etc., in the field of education, it is of paramount importance to conduct a situation analysis on the educational setting. Richards (2001, p.91) defines situational analysis as "an analysis of factors in the context of a planned or present curriculum project that is made in order to assess their potential impact on the project. These factors may be political, social, economic, or institutional." In our context, the situation analysis aims at identifying factors at the institutional level; it endeavors to collect information on the current situation of media literacy approach, its integration (if it's integrated), its potential and challenges according to the goals and vision of the school.

Research shows that schools should provide support in terms of schedules for facilitating the use of pedagogical practices, such as exploring a television advertisement, reflecting on recorded news extracts, role-playing discussion, written activities, through which cross-curricular skills can be developed (Tanriverdi & Apak, 2010). Another source of support should come from school principals whose advocacy and leadership skills may help in creating a conducive learning environment for successful integration of media literacy (Polizzi, 2011).

In addition, the situation analysis will identify the perceptions of students on fake news and their media literacy competence in detecting this kind of disinformation. Equally important, an analysis of teachers'

willingness and readiness to learn and teach media literacy skills and critical thinking skills will be carried out. The teachers', administrators, and principal's active engagement in this strategy determine the success, effectiveness, and continuity of the strategy.

By drawing on Morris's work, Richards (2001) underscores the importance of the school climate for achieving change: he observes that: "Within an institution there may be a strong and positive climate to support innovation, one where there is effective and positive leadership and where change is received positively. On the other hand, there may be a climate where teachers distrust one another and the administration and have no firm commitment to the school." (p.97)

Therefore, analyzing the school climate before the implementation of our Media literacy strategic plan will help us develop a basic understanding of the school context and lay the ground for devising how the plan should be implemented in the school, what is to be included and what is to be excluded.

Phase II: Planning

Teaching and learning practices to address disinformation

Hobbs (2019) argues that Media literacy education should be student centered, interactive and experiential, that is in order to involve the students by taking an active role in their learning and becoming critical readers and thinkers. There are various classroom-based methods to teach media literacy education, most of which are based on active learning. Active learning enables students to shape their learning while exploring, creating, discussing, sharing ideas, and learning from one another through collaboration. The participation in one's learning is believed to enhance “students' critical, analytical, creative and reflective thinking” (McDougall et., 2018). By developing critical thinking skills, students are prepared to raise questions, criticize and read "behind the lines", crucial skills for active citizenship, based on democratic values and attitudes (Martens, 2010).

Teaching methods such as discussions-based learning, critical thinking practices, active inquiry and collaborative learning cover the all competences of media literacy education based on Hobb's framework (2010), which we will describe more in detail in the implementation phase.

More specifically addressing the problem of ' fake news' and 'conspiracy theories', Media literacy education should prepare students to understand the types of misinformation and disinformation and apply them to different examples; think critically about the people who create false information, how they look like, how they may be interpreted from the different audience and how they spread, and finally understand how the 'information disorder' affects democracies (UNESCO, 2018).

One of the approaches that appear to be effective to address disinformation and fake news based on critical thinking is 'Inoculation Theory' (Compton, 2013). Inoculation programs introduce students to the logical fallacies that are normally used in disinformation in order to encourage them to critically evaluate and process the information on a deeper level.

The 'Inoculation Theory' was used in multiple initiatives to help young people recognize 'fake news'. In the Uk and the Netherlands, an online game where players manipulate digital news and social media by creating their own 'fake news' has shown success in building resistance to 'fake news' among teenagers (Roozenbeek & Linden,2019).

Another effective initiative which took place in many countries against the spread of fake news and conspiracy theory is to engage journalists into classroom workshops and talks to teach students how to distinguish 'real news' from ' fake news', as well as how to evaluate and reflect upon conspiracy theories and their impact on society (McDougall et., 2018).

Through their expertise, journalists can help students to understand how stories are selected, who produces the content, what methods are used to make them feel authentic, what types of arguments are used, what is emphasized, what is omitted, and what do 'fake news' and conspiracy theories tell us about society, culture, and ourselves (UNESCO, 2018).

Developing Instructional materials for Media Literacy

Learning materials for media literacy and critical thinking need to be developed by material designers. For meeting the needs of the students and reaching the goal of the strategy, sufficient core skills and knowledge about media literacy and critical thinking should be covered in instructional materials. But before listing these skills, it is worth mentioning the components that constitute the instructional materials as this will help us later in the implementation phase.

In their book The Systematic Design of Instruction, Dick et al., (2015) maintain that several components of an instructional package are to be considered when designing instructional materials.

- **Instructional materials** include the content—whether written, mediated, or facilitated by an instructor—that a learner uses to achieve the objectives. Instructional sources include "student workbooks, activity guides, problem scenarios, computer simulations, case studies, resource lists, and other such materials are also part of the instructional materials" (Dick et al., 2015, p.259).

In our context of media literacy against fake news, a set of 21st skills competencies and expertise such as multimedia communication, complex problem solving, collaboration, critical thinking skills must be woven into the instructional package and content. Instructional materials should provide content-relevant information and authentic examples of fake news to gain media literacy knowledge and skills to be efficacious consumers of information, and critical thinkers in their engagement with all sorts of information within which fake news is omnipresent (Freeman & Lynd-Balta, 2010).

- **Assessments**: The evaluation objectives should not be disregarded when designing the instructional materials on media literacy. Students' performance on detecting false information from the truth should be tested using real-life exercises of fake news from different media platforms. In order to be media literacy competent, students should also be tested in each ability of the Hobb's analytical framework (2010) that will be described in detail during the implementation phase.
- **Course management information**: as Dick et al (2015) explain, an instructor's manual - a general description of the total package - should include the needs of the institution, the appropriateness of the environment and the resources available for supporting the environment (e.g.,, knowledge repository, skilled tutor, time, personnel, facilities, equipment, money).

As we already mentioned in the analysis phase, the environment should be conducive for integrating media literacy; for instance, students should have access to laptops, data shows, technological sources for engaging in active learning and developing media skills.

Moreover, as Hobbs (2010) suggests, students and faculty can work together to create a series of curriculum material which will be adapted to students interests and needs that will accentuate "basic media literacy skills: comprehension, analysis and evaluation.''

Phase III: Implementation

Teacher training for Media literacy

The first phase of implementation is to initiate teacher preparation to ensure that instructors are equipped with theoretical knowledge, skills and attitudes to critically assess media and effectively teach media literacy and critical thinking skills (Bulger & Davison, 2018).

It is argued that Media literacy skills should cover all curricular subjects requiring teachers of all subjects to be familiar with these skills to position media literacy as an "instructional or pedagogical strategy for teaching and learning across subject areas, not as a separate subject" (Meehan et al., 2015 p. 85). Therefore, we suggest Media literacy to be a cross- curricular theme, as it is believed to be a crucial condition for generating a "democratic citizenship understanding" among students (Akar-Vural, 2010), but it is also possible to implement it in the form of a single course.

For a successful teacher training, several things must be taken into consideration.

For instance, teachers need to be prepared for diverse classrooms in order to achieve democratic and inclusive classrooms and the curricular design has to be sensitive to cultural differences, and to the problems and needs of each local community where the curriculum must be implemented (UNESCO, 2008). Therefore, teachers should be equipped with the right competencies to analyze the complex interactions between instructional methods, individual information processing and social differences among their students.

More importantly, teachers must encourage a specific set of values for an effective Media literacy education. Among these values, the UN report mentions appreciation of the role of communication, of freedom of expression, and of the role of intercultural dialogue. Furthermore, teachers are prompted to encourage open-mindedness in relation to media and technology, sensitivity and to different genders and ethnicities, and to respect and tolerate those with differing cultures, tradition, or views (UNESCO, 2008).

The Alliance for Media Literate America drafted a specific set of questions central to media literacy training. Such questions would help students evaluate the accuracy of a given piece of information, and thus should be included in media literacy teacher training. They recommend asking seven questions to check for authorship, purpose, economics, impact, content, technique, and credibility. The questions are intended to help engage students in a guided practice of critical thinking. For instance, some of those questions are: "who made this message" (authorship), or "who is the target audience" (purpose), or "is this a fact or an opinion" (credibility) (Alliance for Media Literate America, 2007).).

Instructional Practices of Media Literacy Education

The phase of implementation includes the delivery of instructional practices for developing student's media literacy skills and critical thinking skills that will help students to detect fake news.

It is structured based on Hobb's (2010) analytical framework of the five 'essential competencies' of media literacy: Access, Analysis and evaluation, Creation, Reflection, Action/agency. These competencies support each other in a cyclical process, fostering learners' active engagement through the processes of accessing and creating media contents. There is a relationship between this approach and constructivist learning in the sense that media literacy education promotes active, self-reflecting and collaborative activities, especially through the dimension of agency, that prepares students for an engaged and responsible citizenship. Moreover, Hobb's framework well suits our idea of democratic

education and critical pedagogy, that aim to create classroom cultures and teacher–student relations that encourage students' self-directed learning.

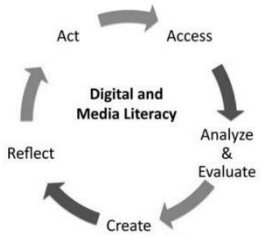


Figure 1: Essential competencies of Digital and Media Literacy

Source: Hobbs (2010)

Access: The competence of accessing media refers to the ability to find and use media skillfully, including the ability to share suitable and valuable information with others (Hobbs, 2010).

Media literacy knowledge and skills should be learnt and practiced across different types of media, focusing on social media and online newspapers to spot fake news and conspiracy theories, in order to learn how to distinguish reliable from misleading information.

Moreover, students should be aware that especially in social media, information is filtered based on the user's existing beliefs and preferences and one's opinion is constantly rewarded, with a risk of creating "echo chambers" (K.Y.L. Ku, et al.).Therefore, Miller (2016) emphasizes that students need to learn how to effectively access news from different sources and to seek out information from a variety of points of view, to address possible bias and to make discriminating choices about quality and relevance. Accessing media in the classroom and working with multimodal media texts can help students to compose and organize ideas, design, and create meaning (McDougall et., 2018).

Analysis and evaluation: The competence for analyzing and evaluating media can be defined as the ability to understand messages and utilize critical thinking skills to analyze the quality of messages, probity, credibility, and point of view, while bearing in mind potential impacts or consequences of messages (Hobbs, 2010,) Media literacy education entails active scrutiny of the media information we are bombarded with. Students ought to be able to meticulously analyze information in a variety of forms and genres by identifying the producer, the use of language practices, the intended aim of a media message in its socio-cultural setting, the author’s perspective, and evaluating the quality and credibility of the content (Hobbs, 2019). A thorough examination of the contents and a comparison of different sources of information that address the same topic might encourage students to use and develop critical thinking skills, to unveil how media form message content (Hobbs, 2010).

Creation: The competences for the making of media content in a variety of forms, requires ingenuity in the use of language, visuals, sound, and new digital techniques and technologies, and awareness of the purpose, audience, and composition techniques (Hobbs, 2010, p.19).

Creating content is an important phase in media literacy education because it encourages students to become active and critically-minded producers rather than being merely passive consumers, and it also supports students' critical thinking, cultural competences and social skills, deepening respect for the diverse talents of individuals (Gruszczynska et al, 2013; Harshman, 2017)

Reflection: Reflecting on media content means to "[apply] social responsibility and ethical principles to one's own identity and lived experience, communication and conduct" (Hobbs, 2010, p. 19).

It is important that students acquire new ideas, perspectives and knowledge and make sense of what they read through an active interpretation of texts. In doing so, students not only reflect on media contents, but also on one's lived media experience and identity.

Record-keeping activities can help students to self-monitor and reflect on one's experience with media and media usage patterns, deepening awareness of personal habits (Ibidem).

Reflection in media literacy education can be nurtured through discussion-based as well as collaborative learning, that help deepen understanding as knowledge and meaning are always socially constructed. Media literacy education should enable students to understand the complex relationships between a specific media content and the socio-economic and cultural context in which the media in question was created, disseminated and consumed.

Moreover, through confrontation in classroom discussion students become aware that the same message can be interpreted in different ways, increasing one's critical attitude towards media, and therefore, media literacy (Rosenbaum et al.,2008).

Reflection on media can also promote students' ethical and socially responsible use of media to address issues such as fake news, disinformation, radicalization and conspiracy theories (McDougall et., 2018).

Action/agency: The dimension of agency refers to the competence to participate in society through the media based on democratic values and attitudes. Engaging in citizenship through digital technologies includes collaborating and sharing knowledge on an individual and collective basis in an appropriate form and medium. (Hobbs, 2010). Moreover, when a dimension of agency is included in media literacy programs, "students can practice the skills of leadership, free and responsible self-expression,conflict and resolution,and consensus building" (Akar-Vural, 2010., pp. 741-742).

For Mihailidis and Thevenin (2013), media literacy core competencies should aim to empower new generations to become "critical thinkers, creators and communicators, and agents of social change" for an engaged citizenship in a participatory democracy. Therefore, media literacy education should encourage students to collaborate with one another to identify the challenges (for example fake news), research these issues through critical analysis of media and other sources of information, and collaborate in the creation and dissemination of alternative means of communication that raise awareness of these problems and prompt political action (Ibidem).

Game-based activities in the classroom can promote an active and engaged participation while fostering students' imagination, creativity and decision-making skills, supporting reflective thinking about choices and consequences (McDougall et., 2018).

Phase IV: Evaluation

Assessment of Media literacy competencies of students and teachers

Assessing and evaluating media literacy skills and their effectiveness is still considered one of the main challenges of media literacy theory, research and practice (McDougall et., 2018) However,

the impact of Media literacy education on the curriculum can be investigated through experimental field studies or quasi-experimental research, considering the real-life characteristics of the school environment, ideally, using pre-tests and post-tests (Hobbs, 2017).

Students assessment

Hobbs (2010, p. 19) defines students' competence for analyzing and evaluating media content as the capacity to "[comprehend] message and [use] critical thinking to analyze message quality, veracity,

credibility, and point of view, while considering potential effects or consequences of messages." Therefore, formative assessment of students should be carried out during class activities, discussions and through formal assignments on their knowledge and skills for every competency of Hobb's framework (2010). They should be able to assess different types of media; evaluate the reliability of information from online sources; create media content in a variety of forms; critically reflect on one's experience with media and work individually and collaboratively to share knowledge and solve problems. Using this type of assessment will allow teachers to monitor students' progress in learning each media literacy skill. As it is mentioned above, using post-tests as a type of summative assessment will show how far students have gone in learning all Hobb's five media literacy competencies at the end of the project.

Teachers assessment

Here are numerous methods for evaluating teachers' effectiveness in teaching media literacy. First, the analysis of classroom artifacts can be used to evaluate the effectiveness of teachers' instruction. This type of assessment focuses on the efficacy of teachers' lesson plans, assignments, scoring rubrics, and students' work (Goe et al., 2008). Relying on these artifacts can show the extent to which teachers' instructional practices are effective in teaching Hobb's media literacy competencies. The researchers further argue that one of the strengths of the analysis of classroom artifacts is that it "is practical and feasible as the artifacts have already been created for the classroom" (p.17).

Second, the effectiveness of teachers' performance in teaching media literacy can be measured using teacher self-report measures. Teachers are asked to write down reports on what they did and how well they did it in the classroom. Teachers' self-reports give an opportunity to instructors to voice their unique perspective about teaching. Hence, documenting their behaviors in the classroom and their perceptions about their instruction of media literacy competencies gives insights into their un/effectiveness of their teaching.

Third, a value-added model can be utilized as a method for evaluating teachers' effectiveness by relying on students' achievements as a reflective criterion of the teachers' performance. This method underscores teachers' contribution and qualification and students' academic achievement. With regard to media literacy evaluation, teachers' effectiveness in imparting media literacy skills and competencies in students are evaluated according to the latter's achievements on standardized tests.

Limitations, Delimitations, and Biases

The proposed media literacy plan has potential limitations. First, media literacy does not represent the only way to address the problem of fake news and conspiracy theories, and it cannot be considered a permanent solution as the field of technology is evolving. Since there are different types of literacy (media, information, news, and digital literacies), media literacy education represents one of the many forms of education to recognize fake news. For instance, one study found that accurate identification of fake news was significantly associated with information literacy but not with other types (Jones-Jang et al., 2019). Media literacy education addresses multiple aspects of media and provides students with numerous skills. However, for the purpose of this paper, we focused mostly on knowledge and competence that students would need to tackle fake news and conspiracy theories. In addition, because our plan focuses mostly on personal responsibility, Media literacy education can bring students to overestimate their competences, especially when social networks are increasingly personalized information access, which can limit the effectiveness of the plan.

Other limitations of our plan concern the way we defined it, or in other words, come from our delimitations. We chose our target group to be secondary education students, rather than primary or tertiary, and therefore the plan took a certain shape based on the audience. Moreover, even though we mentioned that teachers need to be prepared for diverse classrooms, we did not personalize our plan to individual differences of students (problem behaviors, disabilities …) Another delimitation, and consequently limitation, is that we based our plan mostly on Hobb's analytical framework (2010), but other frameworks exist that can be taken into consideration to implement media literacy education.

We did not consider how teacher training would occur as we merely presented general guidelines that each school can personalize according to their specific capabilities and needs. The reason behind that is because our plan is primarily for students, and teacher training, despite being a crucial part of the process, requires specific detailed programs which we chose not to get into in our study. Finally, we didn't specify how Media literacy education would look like in an online setting, which would represent a limitation, especially in the current global pandemic. Also due to the pandemic, there is an increasing role of parents in their children's education. However, our program/intervention is not specifically tailored to that.

We tried as much as possible not to let our personal opinions and biases influence the authenticity and value of our research by justifying each choice we made using arguments from different research studies in the literature. To reduce bias in our research, we attempted to draw on different perspectives in the literature about the use of media literacy education as an effective solution for addressing the issue of fake news. In addition, since we did not specify a school in which our media literacy plan will be put into practice, we predict that bias will be reported at the level of the selection of the place.

Conclusion and Recommendations

This paper introduced media literacy education to diminish the occurrence of fake news and conspiracy theories and to mitigate their consequences for the society. The general goal of this paper is to introduce possible teaching and learning practices “to support students' media literacy, facilitate their critical engagement with the media, and support their active citizenship” (McDougall et al., 2018, p.17).

We found that the reasons people adopt fake news and conspiracy theories can be explained by psychological, social, and political factors. The main psychological motives were found to be epistemic and existential. One of the most relevant epistemic motives is the correlation between conspiracy beliefs and a low level of analytical competencies (Swami, Voracek, Stieger, Tran, & Furnham, 2014). This finding supports the need to teach the youth analytical thinking as part of media literacy. Threatening of the existential needs is also found to influence the occurrence of conspiracy beliefs. Regarding social factors, some studies suggest that men are more likely to share fake news or that sharing fake news increases with age (Goyanes and Lavin, 2018). As an example of political factors, political scandals are found to be triggered for conspiracy beliefs (Einstein & Glick, 2015).

Damaging effects of fake news and conspiracy beliefs interfere with the lives of people. Being exposed to inaccurate information can adversely impact people's social, physical, and mental well-being. Belief in a conspiracy theory is also likely to lead individuals to be less involved in important aspects of society, such as to vote (Uscinski & Joseph M. Parent, 2014), behave environmentally friendly (Jolley & Douglas, 2014), or to vaccinate their children (Jolley & Douglas, 2017). People who believe in anti-vaccine conspiracies or COVID-19 conspiracies are less likely to vaccinate and to behave responsibly according to medical advice. Rejection of science and medical advice is dangerous for the health system and the entire society. Considering all these undesirable effects, the work of this paper is

relevant for various stakeholders such as students, teachers, and journalists, but also for every person who consumes misinformation.

We developed the media literacy strategic plan that includes the analysis, planning, implementation, and evaluation phase. This plan starts with an analysis of the school environment. In the planning phase, we focus mostly on active learning practices to nurture student's critical, analytical, creative, and reflective thinking. We propose that instructional materials should provide real examples of fake news to gain media literacy knowledge. The first part of the implementation phase is to conduct teacher training, to prepare them to effectively teach media literacy. Instructional practices should teach students how to access, critically evaluate, create, reflect, and finally engage with media based on democratic values and attitudes in order to encourage students' self-directed learning. In the evaluation phase, students are to be evaluated using formative and summative assessments. Teachers' assessment is proposed to be achieved through analysis of classroom artifacts, using teacher self-report measures, and by relying on student's achievements.

Our research suggests that media literacy education should be implemented in education at school level in a cross-curricular way. Some researchers indicate possible problems with integrating media literacy across the curriculum. For instance, Hartai (2014) argues that when it is integrated in a cross-curricular form, media literacy "is deprived of its focus and loses its priority concerning its contents" (p. 64). Also, Frau-Meigs (2006) expressed concerns that "an issue that is every teachers' responsibility can quickly become nobody's responsibility" (p. 13). Thus, future research should investigate possible advantages of developing media literacy as an independent and mandatory course.

The media literacy strategic plan that we designed planned to integrate media literacy courses in secondary education. We think that future research could also focus on how to apply media literacy and critical thinking into the non-formal sector. We did not investigate this issue.

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