





Secondary education students and media literacy in the age of disinformation

Los estudiantes de secundaria y la alfabetización mediática
en la era de la desinformación

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ABSTRACT

This paper presents an up-to-date overview of how students in Compulsory Secondary Education (ESO) in Spanish public schools, aged between 11 and 16, approach the media, how they inform themselves, the degree of journalistic discrimination they have, and how they deal with the news in times of an infodemic and disinformation. In addition, it explores the opinion of teachers on the media deficits they perceive in their students. The main research technique used in this study was a descriptive, cross-sectional survey of 1,651 ESO students from all over Spain with a confidence level of <95% and a $\pm 3\%$ sampling error. In order to delve deeper into some of the main aspects pointed out by students, 77 in-depth interviews were conducted with teachers from all over Spain. The main results highlight that high school students are mainly informed through social networks, television, and their family or friendship groups; that they have difficulties in discriminating between information and opinion; and that, although they consider themselves capable of differentiating between news and hoaxes, more than half are unable to distinguish between fake and real news. According to the teachers in some of these schools, media consumption among students is non-critical, fuelled by the compulsive consumption of audiovisual and digital media.

RESUMEN

Este estudio presenta una radiografía actualizada de cómo los estudiantes de Educación Secundaria Obligatoria (ESO) de centros públicos españoles, de entre 11 y 16 años, se aproximan a los medios de comunicación, cómo se informan, el grado de discriminación periodística que poseen y cómo se enfrentan a las noticias en un momento de infodemia y desinformación. Además, se explora la opinión de sus profesores sobre los déficits mediáticos que perciben en sus estudiantes. La principal técnica de investigación empleada en este estudio ha sido la encuesta de corte descriptivo y transversal a 1.651 estudiantes de la ESO de toda España con un nivel de confianza <95% y un $\pm 3\%$ de error muestral. Para ahondar en algunos de los principales aspectos señalados por los estudiantes se han realizado 77 entrevistas en profundidad a docentes de toda España. En cuanto a los principales resultados destacan que los estudiantes de secundaria se informan principalmente a través de las redes sociales, la televisión y sus grupos de familia o amigos; que tienen dificultades para discriminar entre información y opinión; y que a pesar de que se consideran capaces de diferenciar entre noticias y bulos, más de la mitad no distinguen entre una noticia falsa y una real. Según el profesorado de algunos de estos centros, existe entre los estudiantes un consumo mediático acrítico potenciado por el consumo compulsivo de lo audiovisual y lo digital.

KEYWORDS | PALABRAS CLAVE

Media and information literacy, secondary education, adolescence, disinformation, critical consumption, media. Alfabetización mediática e informacional, educación secundaria, adolescencia, desinformación, consumo crítico, medios de comunicación.

1. Introduction

Nowadays, any teenager between the ages of 11 and 16 has the same access and exposure to media content as any adult. As many as 94.8% of adolescents have a mobile phone with internet connection and the average age at which they access these devices is around 11 years old, or even younger (UNICEF, 2021). Fifteen-year-olds have gone from spending 21 hours a week on the internet in 2012, to 35 hours a week in 2018, according to data provided by the OECD. These data demonstrate that there is a need to train students to discriminate between information and opinion and to enhance their critical thinking in the face of information 'ambiguity' (PISA in Focus, 2021). In other words, media education that involves a "critical analysis of messages, ethical and responsible creation of content and citizen interaction" (Marta-Lazo, 2018: 48).

However, the difference between young people and adults when it comes to consuming mass media is not only determined by age, technological resources or life experiences, but also by the fact that the points of reference in the media, or opinion leaders in Lazarsfeld's words, of both generations are becoming increasingly further apart. In addition to this, we encounter the uncritical acceptance of the content generated by these social referents in the web 2.0 by today's youth: "It is precisely the age groups with the highest level of familiarity with Internet safety measures that pay the most attention to internet referents such as influencers" (ONTSI, 2021: 159). In most cases, the opinion that teenagers receive from their influencers does not pass through the filter of the media, where there are certain quality standards that guarantee the veracity of the information. For more than a decade, studies have been highlighting how adolescents uncritically accept and prioritise the aesthetics and language proposed by the media (Dussel & Trujillo-Reyes, 2018; Valdivia-Barrios, 2010), an aesthetic and language that is far from a "paused and reflective" consumption, as we are faced with a narrative more typical of memes and slogans (Carrera, 2016).

This situation highlights the difficulties an adolescent has today in consuming information in a conscious and critical way. On the other hand, the importance of improving media and information literacy skills in schools through the national curriculum is becoming evident (Medina-Cambrón & Ballano-Macías, 2015; Osuna-Acedo et al., 2018; Pérez-Ortega, 2016; Wilson et al., 2011). This latter measure is supported by Europe, which has long been advising member countries (European Commission, 2018), in line with the warnings of international organisations such as the UN (Aguaded, 2012), of the need to introduce media and information literacy (MIL) in schools and to make it a measurable skill. From this perspective, a new platform has been created in Spain, promoted by a hundred professors of Communication and Education, in favour of educommunication in Spain, which claims the need to incorporate teachers specialised in Communication into the Spanish educational system (Marzal-Felici & Aguaded, 2021). This initiative supports the long-standing demands of the Federation of Spanish Journalistic Associations (FAPE) for the inclusion of a media literacy subject at secondary school level.

1.1. Media literacy in formal education in Spain

The relevance of the project resides in the fact that, in Spain, there is no national-scale research nor any up-to-date reports from the time of the pandemic that allow a better understanding of the reality of media literacy in public ESO establishments, at least not from the point of view of students and the opinion of their teachers within the same social situation, that is conducted in a practically synchronous way and that approaches the present context truthfully. Furthermore, this paper comes in the wake of the COVID-19 confinements and their consequences for secondary school students themselves: 57.9% of Spanish adolescents' report feeling saturated with Internet and social media use during confinement (UNICEF, 2021). ESO is the most neglected stage in the field of information, although it is, without a doubt, the most relevant, since it serves as a bridge to the adult world (vocational training, university studies, etc.).

Some academic studies have approached the subject on a regional level. For instance, Medina-Cambrón and Ballano-Macías (2015): 256 studied media implementation in some schools in Catalonia and concluded that "the existence of media and ICT education depends on the will of a few conscientious and committed teachers"; the research led by Manuel Castells and Inma Tubella which analysed the process of Internet integration in primary and secondary education in representative schools in Catalonia

(Mominó et al., 2008); or the work of Aguaded et al. (2015) who analysed the degree of media competence in the dimension of technology in the primary and secondary school population in Andalusia, where they observed a deficiency. There is also national research that has explored the level of students' media competences and the presence of media content in the different subject areas at different educational stages (García-Ruiz et al., 2014).

Some research has analysed the role of the different individuals with whom adolescents spend most time in a social environment (family and school), with the understanding that media education should be based on all the individuals who actively participate in the life of this group. Therefore, it is necessary for families to pay attention to the way in which young people consume media content and to encourage critical and responsible consumption (González-Fernández et al., 2018). This should also be addressed at school, where teacher training in media literacy is essential (Gutiérrez-Martín & Torrego-González, 2018; Martínez-Izaguirre et al., 2021). Other authors have focused on different educational stages such as primary education, where media literacy can begin to be developed (Pérez-Rodríguez et al., 2015), or higher education, with emphasis on careers or studies related to communication or information sciences (Tucho et al., 2015). At university level, there is also a growing interest in the use of new technologies, such as social networks, in lecturers' teacher training practice (Bista, 2015; González-Aldea & Herrero-Curiel, 2020; Tang & Hew, 2017), with an emphasis on the implementation of new educational applications and platforms in the classroom.

The COVID-19 health crisis has only highlighted all the weaknesses in media skills in society, "in the midst of a health and information pandemic, it is clear that media literacy should be an absolute priority on the agendas of our educational authorities and representatives" (Marzal-Felici, 2021: 12). This does not mean that the adolescent population is more media illiterate than the older population; however, they are more vulnerable if they do not have sufficient tools to cope with the enormous amount of information they receive on a daily basis. In short, drawing up a map of needs at the compulsory secondary education stage, with the help of the centres involved, seems essential in order to comply, not only with the guidelines that come from Europe, but also with a deeper and more internal reflection that starts with the question of whether we would prefer to have citizens who simply learn how to use technology or who go a step further in understanding the uses and contents that are conveyed through it.

On the basis of the current state of affairs presented in this paper, the general objective of the project is to obtain an in-depth analysis of the current state of media literacy among students in compulsory secondary education in Spain. The specific objectives that address the different aspects of the object under study are listed below:

- Analyse the reading habits of secondary school students.
- Find out which digital media or digital platforms secondary school students use for information.
- Analyse whether secondary school students are able to discriminate between news and opinion genres.
- Find out students' aptitude for identifying disinformation circulating on the Internet.
- Find out what some of the teachers think about the media skills of their pupils.

2. Material and methods

2.1. Design and sample of the study

This study is based on a methodological three-way approach that combines descriptive and cross-sectional quantitative research through surveys and qualitative interviews through unstructured standard interviews, thus enriching the quantitative analysis. In this way, a mixed research design was followed, combining qualitative and quantitative approaches to data collection and analysis.

The study sample consisted of all the secondary school students enrolled in public schools throughout Spain, excluding those belonging to Secondary Education for Adults. According to the latest advanced statistical data on the academic year 2020-2021 published by the Ministry of Education and Vocational Training (2021), the population of this study is 1,354,684 students enrolled in public ESO centres, so it was established that the sample should be at least 1,060 students, with a confidence level of <95% and a $\pm 3\%$ sampling error. In the end, a sample of 1,651 students was obtained.

The sample was selected by random sampling from a list provided on 18th January 2021 by the "State Register of Non-University Teaching Centres", which is part of the "Deputy Directorate-General of Centres, Inspections and Programmes" of the Ministry of Education and Vocational Training. At that time, there were 4,518 centres in Spain with the characteristics required by this research.

In order to explore this quantitative data further, it was decided to interview teachers involved with the students being surveyed and who were familiar with the curricular content of their schools. The qualitative sampling of this part of the project was based on grounded theory and the principle of theoretical saturation in two phases of Francis et. al. (2010). It specified "a priori" that teachers from all the autonomous communities and cities of Spain should participate in the interviews and it was established that interviews should be stopped when no new themes emerged, according to the analysis of co-occurrences carried out with the Atlas.ti software. The interviews (n=77) were coded according to the General Data Protection Regulation¹.

2.2. Instruments and procedure

The main instrument of measurement in this research was the questionnaire, with an initial survey with 25 closed, direct, single-response questions, four of which collected only descriptive data about the respondent and another 21 divided into three dimensions as follows: five items in the first dimension, nine in the second and seven in the third. A pre-test was then carried out on 25 and 26 February 2021 with a small sample of students. Following this pilot questionnaire, three closed items were removed from the "media consumption" dimension and made open-ended in order to delve deeper into the students' social network and media references. In addition, on the recommendation of the legal team of the university to which the research project is affiliated and in line with the General Data Protection Regulation, the descriptive data item 'population' was removed in order to respect the principle of minimum data consultation. Thus, the final research questionnaire consisted of 23 items: three items to collect demographic data from respondents and 20 items divided into three dimensions as shown in Table 1.

Dimensions	Items
Reading habits and reading comprehension	5
Media consumption	8
Aptitudes in the face of disinformation	7

The questionnaire was administered through Google Forms with the help of the teachers involved, who used the tutorial sessions in order to ensure the questionnaires were completed successfully.

As for the other instrument used in this study, the interview, questions based on the literature review prior to the study were developed in order to ascertain the teachers' opinions. The dimensions studied during the conversation were as follows:

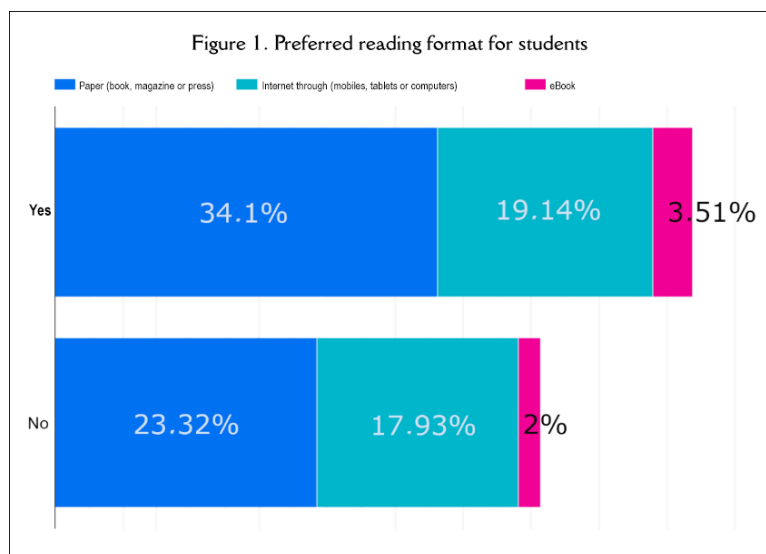
- Integration of media literacy in the classroom, where they were asked about the concept of MIL, the transversality of this competence, the subjects where it was addressed, as well as their perception of the inclusion of this competence in education laws.
- Needs perceived by teachers. Although all questions were related to the teachers' perceptions of the students' needs, many answers provided information regarding the training demands of teachers in the pre and post COVID-19 context.
- New challenges for teachers. In this dimension, innovative ways of motivating students within the classroom in MIL were discussed.

As a standard unstructured interview, additional questions, all related to the object of study and adapted to the context of the interviewee, were incorporated in the vast majority of the interviews. During the interview, these were incorporated at the discretion of the interviewer, as established by the relational interactive approach. The operationalisation of codes and categories was carried out with the Atlas.ti software from the transcripts of the 77 interviews, from which 1,402 units of analysis were extracted with the assignment of 197 codes to each of them. After a process of inter-subjective verification, 1,283 units of analysis and 97 codes remained.

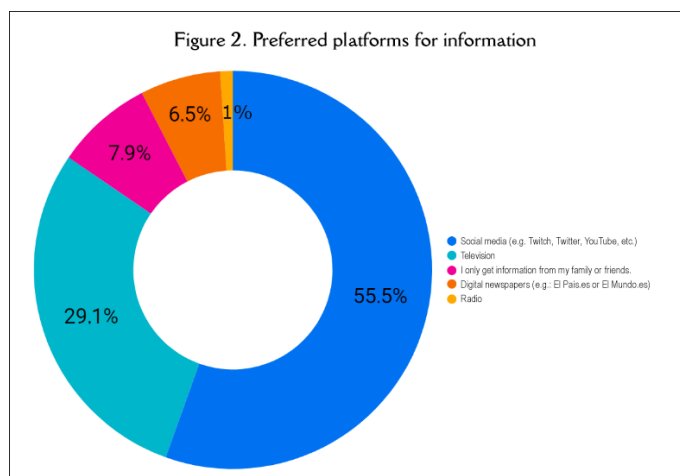
3. Analysis and results

3.1. Reading and media habits

Out of all the secondary school students surveyed, 56.75% say they like to read, compared to 43.25% who confess that they do not like to read. Of the students who highlight their love of reading, 34.1% (n=563) prefer the paper format, followed by the Internet or digital format with 19.14% (n=316) and, less significantly, the e-book with 3.51% (n=58). On the other hand, 23.32% (n=385) of students who state that they do not like reading, also indicate paper as their first choice, although to a lesser extent than the group of students who do like reading. This is followed by preference for the Internet, 17.93% (n=296) and, finally, 2% (n=33) of students choose e-books (Figure 1).



Bearing in mind that the Internet is the place where young people spend most of their time, one of the questions was whether they were able to correctly understand the texts that they read online. Although almost 88% of respondents said that they do understand what they read on the Internet correctly, half of them, 44% (n=727) said that they only need to read the text once to understand it and the other 43.9% (n=725) said that, although they understand it, they sometimes need to look up the meaning of some words. The remaining 12% indicated that they do not understand the text and specified it as follows: 6.8% (n=113) confessed that if the text is long, they are easily distracted, 3.8% (n=62) that they need to read it a couple of times and 1.5% (n=24) state that they need someone to explain it to them.

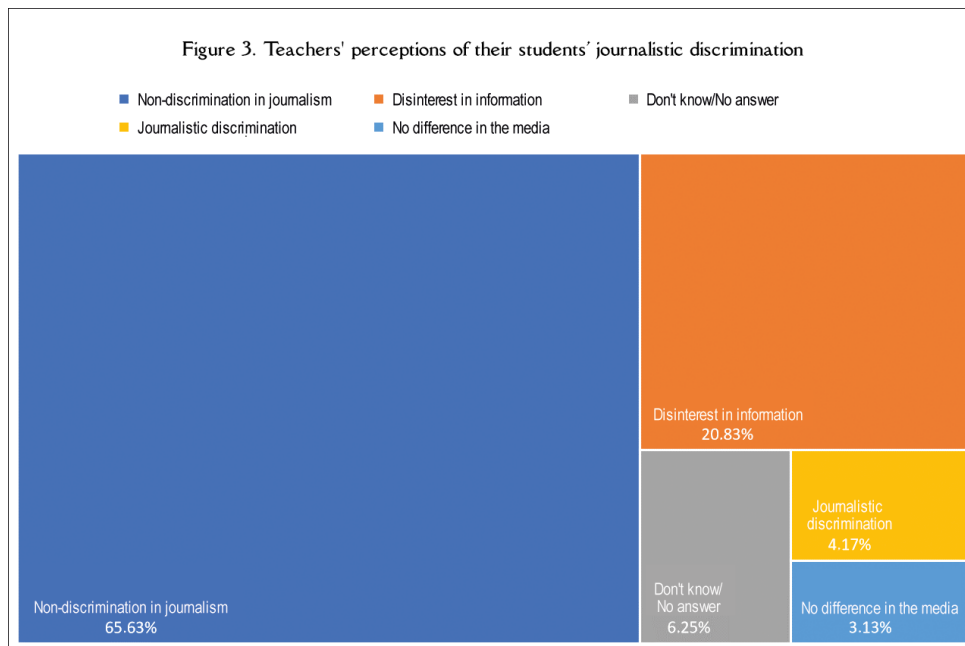


In terms of preferred platforms for consuming news (Figure 2), 55.5% of secondary school students prefer social networks, followed by 29.1% who prefer television. Furthermore, 7.9% of the students surveyed say that they are only informed by their family or peer groups, 6.5% consult the news through digital newspapers and 1% say that they get their news from the radio.

3.2. Information discrimination among secondary school students

A total of 92.1% of secondary school students say they are able to discriminate between information and opinion genres, while 8% of respondents say they are not able to differentiate between information and opinion. However, when faced with a task involving identifying whether a text is informative or opinion, the results indicated that more than half of the students surveyed, 64.4% ($n=1,063$) confuse an opinion piece with information, compared to 35.6% ($n=588$) who identify it correctly. In the case of the news genre, the number of correct and incorrect answers was similar, with 52.2% ($n=862$) getting it right and 47.8% ($n=789$) stating that it was opinion. Thus, there is a notable difference between students' self-perception of their ability to discriminate between journalistic genres and reality.

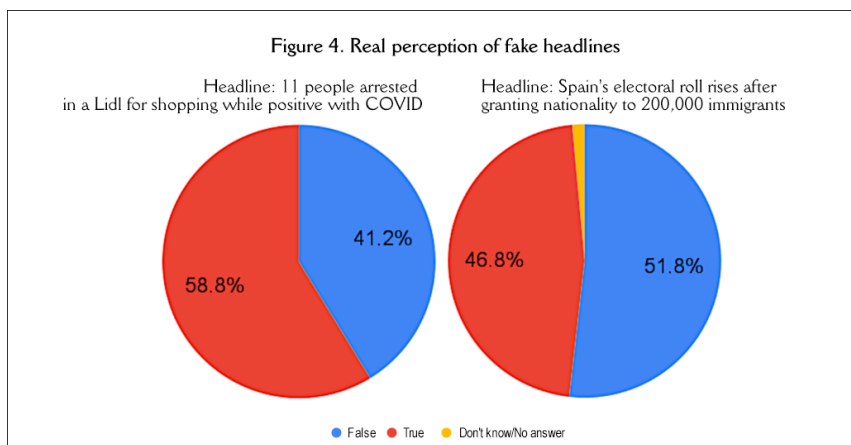
On the other hand, the students' high self-perception of themselves does not coincide with the opinion of their teachers, 65.63% ($n=63$) of whom, in the interviews conducted with them, categorically stated that secondary school students do not know how to differentiate between news and opinion genres when they consume information on a daily basis (Figure 3). In terms of teachers' perceptions, 20.83% ($n=20$) believe that students show a lack of interest in information when it comes to learning about the reality surrounding them, 4.17% ($n=4$) believe that students do, in fact, discriminate between information and opinion, and 3.13% ($n=3$) believe that the responsibility lies with the media, where it is difficult to differentiate between information and opinion content. Finally, 6.25% of the teachers were unable to answer whether they considered their students to be able to differentiate between the two genres.



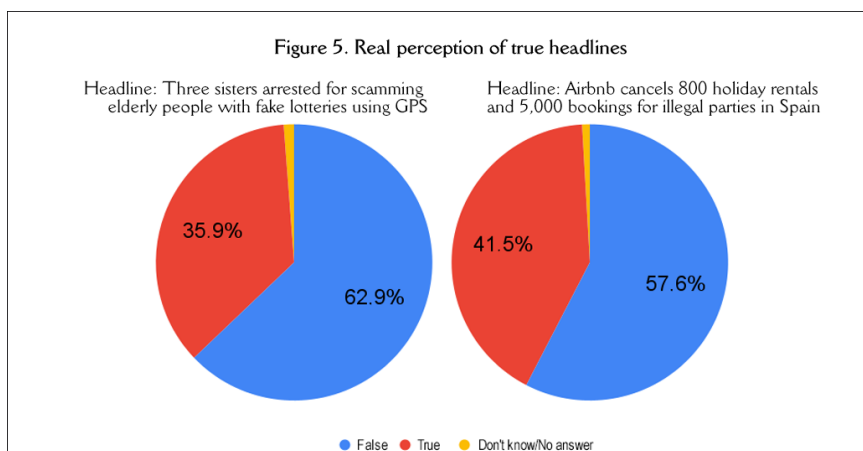
3.3. Aptitudes of secondary school students in identifying disinformation

Given that the phenomenon of disinformation and the viral nature of fake news is greatly amplified by the speed at which messages circulate on social networks, and the fact that any user can produce messages easily, students were asked whether they usually share information they receive via these platforms with friends or acquaintances. More than half of the students (59.2%) said they did, compared to 40.8% who said they did not. As for their self-perception of their ability to distinguish between fake and real news,

more than half of the respondents (58.8%) consider themselves capable of differentiating between the two, compared to 41.2% who recognise that they are not able to distinguish between them. However, after providing them with several true and false headlines², the results show differences from their own beliefs. In terms of the identification of false headlines, more than half (51.8%) considered a headline containing false information about immigration to be true. The false headline about Covid-19 was identified as a hoax by 58.8% of students (Figure 4).



In terms of identifying headlines that contained real information, more than half of the students labelled them as false. A total of 62.9% of respondents considered the headline related to a scam involving the elderly to be false, compared to 35.9% who got it right, and 57.6% also considered the news about Airbnb to be false compared to 41.5% who considered it to be true information (Figure 5).



According to their teachers, secondary school students have a number of deficiencies related to media literacy that make them more vulnerable to disinformation and fake news. The secondary school teachers interviewed pointed out the following characteristics of their students' way of consuming information:

- **Uncritical media consumption:** according to 38% of the teachers interviewed, their students do not question or doubt the content that they receive through the mass media; in their view, it is a question of media naivety where they consider technology as a dogma of faith.
- **Compulsive consumption:** 21% of teachers say that students are continuously exposed to different content that reaches them through their mobile devices and that this does not help them to digest or consume all the messages they receive in a more reflective way.
- **Disinterest in information:** 17% indicate this disinterest as a deficit that they also noted in journalistic discrimination. Teachers consider that students are not interested in getting

information or accessing media beyond what they can find on their social networks. What they exclusively seek is entertainment.

- Digital divide: 10% of the teachers interviewed from various schools reported that some students have deficiencies in writing an e-mail or using telematics applications. One of the reasons for this is that some families do not have internet or electronic equipment at home, such as a computer, and in some households, there is only one computer for the whole family. This divide reinforces the deficits in MIL.
- Audiovisual consumption: 5% indicate that most of the content consumed by secondary school students is video and/or images. According to the opinion of these teachers, this type of content is consumed compulsively and without processing what they are watching.

With regard to the interest shown by secondary school students in the media literacy content that their teachers introduce in some subjects (relevant news coverage, work based on news items, audiovisual fragments or content related to social networks), it should be noted that 50.65% of teachers consider that students are motivated by these activities, compared to 36.36% who say that they do not perceive this motivation and almost 13% who are not clear about it.

4. Discussion and conclusions

The general objective of this research was to find out how secondary school students interact with the different media content they have access to, in order to understand their media consumption habits in post-pandemic times. Media and information literacy is still a pending subject in secondary school curricula. Although some of the teachers interviewed consider that students are not yet mature and that upper secondary school is perhaps the most appropriate time to introduce issues related to MIL, the truth is that this intervention in media education is probably happening too late since, as has been seen in the reports referred to in the theoretical framework, access to media content or social networks through mobile devices is occurring at increasingly younger ages. This reality makes it necessary to know what adolescents between 11 and 16 years of age are doing with this content and, of course, to know the opinion of their teachers, who are the ones on the front line trying to bring this transversal competence, which is something of a mirage in compulsory secondary education centres, into the classroom.

Regarding the reading habits of secondary school students, it should be noted that, contrary to what one tends to think, the majority of students have admitted that they enjoy reading and those who say they like to read, prefer to do so in paper format. This is in line with the latest report presented by the Spanish Publishers' Federation, which indicates that, in 2020, after the confinement, the number of frequent readers of books during leisure time has grown, reaching 79.8% in the 10 to 14 age group and 50.3% in the 15 to 18 age group. The Internet is the second format of choice for secondary school students, while e-books do not seem to be incorporated into students' reading habits, at least for the time being.

The secondary school students surveyed indicate that social networks and television are the platforms they use most when it comes to getting information or consulting news. This reinforces the findings of more recent studies on the media habits of young people (Ballesteros et al., 2020). In this study, young people aged between 15 and 29 years specifically indicate that television is their first choice (52.6%), followed by social networks (41.4%). This is something that varies in our study, where it seems that in the age group studied (11-16 years), social networks are preferred. In both cases, social networks and television deal with narratives that are very close to this audience and are largely carriers of "infotainment", a television phenomenon that has spread to the rest of the media (Berrocal-Gonzalo et al., 2012). What is relevant, both in this study and in the one mentioned above, is that family members or peer groups are the third option indicated by young people for receiving information, even ahead of digital newspapers, something that favours disinformation and the proliferation of fake news. The least consulted medium is radio, precisely one of the most informative media, which helps to understand why these secondary school students are not able to name any journalist other than influencers, as has been confirmed in the research presented here. The main results detected indicate that secondary school students, despite being used to surfing the internet and using social networks on a regular basis, show a deficit in basic skills related to

media literacy, ranging from the correct discrimination of journalistic genres (information vs. opinion), to the lack of skills in distinguishing between real and fake news (PISA in Focus, 2021). These results do not differ much from those found in the general population with questions of the same nature asked by the Psychology of Testimony research group of the Complutense University, in which it was found that 6 out of 10 Spaniards claimed to distinguish a fake news story from a real one, but in reality, 86% confused them (Simple Logic, 2017).

Another finding is that secondary school students' self-perception of their ability to discriminate between truthful information and misinformation is higher than their results in distinguishing between false and true headlines. This is a similar conclusion to that found in the study on observed and self-perceived information literacy skills of secondary school students in a high-performing PISA region in Spain (García-Llorente et al., 2020), where, again, students' self-perception of what they could do was higher than reality.

Secondary school teachers report a lack of critical thinking when dealing with media content. This could be due to compulsive consumption, generated by the widespread use of mobile devices that contribute to distraction and difficulty in concentrating, or lack of interest in information. In view of this, students should be provided with certain defence mechanisms against the media so that they do not uncritically take messages on board, and it should be the only vaccine against the infoxication that citizens face on a daily basis and which has been worsened by the recent years of the pandemic.

Some teachers indicated that students are motivated to work in the classroom on aspects related to the media or the content they find on the Internet. This motivation on the part of students is likely to be greater depending on the way in which teachers integrate content into their subjects and stimulate their students. According to Buckingham (2005), in order to achieve this level of enjoyment, it is necessary to first work on a metalanguage that helps them to describe and critically analyse the media events that surround them.

Among some of the findings that have emerged from the research, and which teachers themselves have highlighted, is the digital divide. It would be interesting to further investigate whether, in Spain, these socio-cultural inequalities between communities determine a certain inequality in the acquisition of media competences among pupils. In fact, a recent study by the UC3M-Santander Institute of Big Data relates greater consumption of news in traditional online media with greater purchasing power and higher levels of education, compared to consulting news through networks such as Facebook, which is associated with lower purchasing power and lower levels of education (Ucar et al., 2021).

The work presented in this paper opens up several lines of research to continue exploring the current state of media literacy at secondary school level. There are aspects determined by socio-economic variables in the different Autonomous Communities in Spain that are becoming relevant and significant and should be further explored. Likewise, it would be useful to go deeper into the answers that students have given about their media consumption and to work, from a more psychological perspective, on the functions and dysfunctions that the media content they consume fulfills in their daily lives and how the different social networks they use are determined by their peers, school or family. In addition, a gender perspective could be addressed in determining whether or not the motivations of men and women are different. In this case, focus groups would have been useful as a complement to the techniques used, but the limitations of time and resources make it necessary to seek other sources of funding to continue developing a project that is very much alive and could be replicated on an international level to compare what is happening with this same population in other countries.

Notes

¹ The Respondent Coding Table can be found in the Figshare data repository at doi: <https://doi.org/10.6084/m9.figshare.16586942.v3>. This has been done in accordance with Article 25. 2 of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data.

² The false headlines come from two hoaxes that spread through social networks and have been extracted from the verification platform Newtral, which was responsible for denying them. The real headlines correspond to two news items taken from the EFE news agency.

Authors' Contribution

Idea, E.H.; Literature review (state of the art), E.H., L.R.; Methodology, L.R.; Data analysis, L.R., E.H. Results, E.H.; Discussion and conclusions, E.H.; Writing (original draft), E.H.; Final revisions, L.R., E.H.; Project design and sponsorship, E.H.

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