



Political Ideology, populism, information literacy, and critical thinking: challenges for aspiring teachers

Ideología política, populismo, alfabetización informacional y pensamiento crítico: desafíos para el futuro profesorado

Lydia Sánchez

Barcelona University. Spain.

lsanchezg@ub.edu



Sergio Villanueva Baselga

Barcelona University. Spain.

sergio.villanueva@ub.edu



Adrien Faure-Carvalho

Barcelona University. Spain.

adrienfaure@ub.edu



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ABSTRACT

Introduction: In today's democratic societies, the different phenomena of information disorders, as well as the addictive and harmful use of content and media, especially digital media, have only increased the need for training in this area. The aim of this work is to study the incidence of political positioning and the tendency to populism on the information literacy index, the self-perception of critical thinking (SCT) and the ability to detect

fake news, in students of the Master's Degree in Teacher Training in Secondary Education in Spain; an essential group in the training of future citizens capable of critically using information and media content. **Methodology:** The data were collected by means of a questionnaire applied to 716 students of this master's degree at 15 universities in Spain. These data were statistically analyzed using SPSS. **Results:** The results show that populist people have a lower level of information literacy than non-populist people; also, it is observed that people who are politically further to the left have a better level of SCT and a higher number of hits in detecting fake news, while populism does not seem to influence either of these last two variables. **Conclusions:** The need to address these dimensions separately in teacher training is emphasized, as well as the fact that information literacy and critical thinking, although valuable, do not guarantee complete protection against misinformation and populist discourse due to the prevalence of emotions in human cognition.

Keywords: Populism; Ideology; Information literacy; Critical thinking; Future secondary education teachers.

RESUMEN

Introducción: En las sociedades democráticas actuales, los diferentes fenómenos de desórdenes informativos, así como el uso adictivo y perjudicial de contenidos y medios de comunicación, especialmente los digitales, no ha hecho más que incrementar la necesidad de formación en este ámbito. El objetivo de este trabajo es estudiar la incidencia del posicionamiento político y la tendencia al populismo sobre el índice de alfabetización informacional, la autopercepción de pensamiento crítico (APC) y la capacidad para detectar noticias falsas, en estudiantes de Máster de Formación del profesorado de Educación Secundaria en España; un colectivo esencial en la formación de futuros ciudadanos capaces de usar críticamente la información y los contenidos mediáticos. **Metodología:** Los datos se han recopilado a través de un cuestionario, aplicado a 716 estudiantes de dicho máster, en 15 universidades del territorio español. Estos datos se han analizado estadísticamente mediante SPSS. **Resultados:** Los resultados muestran que las personas populistas tienen un nivel menor de alfabetización informacional que las no populistas; también, se observa que las personas que se sitúan políticamente más a la izquierda tienen un mejor nivel de APC y una mayor cantidad de aciertos en la detección de noticias falsas, mientras que el populismo no parece influir en ninguna de estas dos últimas variables. **Conclusiones:** Se destaca la necesidad de abordar por separado estas dimensiones, en la formación del profesorado, y que la alfabetización informacional y el pensamiento crítico, aunque valiosos, no garantizan una protección completa contra la desinformación y el discurso populista debido a la preeminencia de las emociones en la cognición humana.

Palabras clave: Populismo; Ideología; Alfabetización informacional; Pensamiento crítico; Futuro profesorado de secundaria.

1. Introduction

In recent decades there has been a rise of what is often referred to as "populism" (Gidron and Bonikowski, 2013; Rooduijn, 2014; Vergara, 2020), and with the increasing use of social networks by political leaders of "technopopulism" (Prior, 2021). The term "populism" refers to a complex phenomenon that can be conceptualized from different points of view. Muller (2016) defines it as a type of political identity critical of the elites, anti-plural and moralistic, which poses a serious danger to democracy; MerKley (2020) relates it to three characteristics: anti-pluralism, anti-elite and anti-experts; Laclau (2005) and Espí (2019) say that it refers to political currents that mobilize citizens based on emotional discourses. It is also often characterized by presenting simple solutions to complex issues, making explicit use of language that disqualifies the adversary, using argumentative sensationalism, hostile rhetoric, and generating hate speech (González-Aguilar et al. 2023). That is, populist discourses try to appeal to those who feel excluded and are resentful and angry with the social system: "Anger and fear clearly constitute the affective and psychological driving forces at work in those who adhere to populism." (Rosanvallon, 2021, p.44).

Despite the conceptual difficulty indicated, the emotional component is fundamental when analyzing this phenomenon (Marciel, 2022; Rosanvallon, 2021):

Given the nature of the political praxis promoted by populism, it seems clear that populist discourse will have to be more passionate than rational, and that it would have to give priority to information capable of mobilizing emotions over that which contains arguments or truthful data. It also seems clear that, because of its dichotomous vision of society, populism would prefer a simple and direct type of communication, avoiding technicalities and presenting two well-defined sides to each social problem, whose confrontation is irresolvable. (Marciel, 2022, p.7).

“The intelligence of populist movements lies in the fact that they have grasped, either intuitively or explicitly, the role played by these different types of emotions.” (Rosanvallon, 2021, p.38).

Populism, therefore, shares features of the so-called post-truth, and in this sense, there are authors who highlight the relationship of populism with disinformation (Milner, 2020) and the increase of infotainment (Berrocal Gonzalo, 2014). Post-truth is defined as "relating to or denoting circumstances in which objective facts are less influential in shaping public opinion compared to appeals to emotion and personal beliefs" (Flood, 2016). In the post-truth era, information is consumed and accepted to the extent that it satisfies emotions:

It is now being said that we live in a posttruth era in which audiences are more likely to believe information that appeals to emotions or existing personal beliefs, as opposed to seeking and readily accepting information regarded as factual or objective (Cooke, 2017, p. 212).

In this sense, populist discourses use mechanisms of persuasion far from the pretension of objectivity, from argumentation based on facts and contrasted information. Populism, without being a new phenomenon, takes advantage of this context of epistemological skepticism that current democracies experience. Froehlich (2017) has characterized this era as the "age of ignorance" in which objectivity, facts and truth value have given way to emotion, to that which simply seems credible to us because it suits our emotions (Cooke, 2018; McDermott, 2019; Strong, 2017; Lilleker and Liefbroer, 2018). And when the facts do not support the beliefs, then the postulation of "alternative facts" is resorted to. (Meneses, 2021).

In the post-truth era, it is not surprising that information disorders become more and more common. The epistemological crisis contributes to citizens lowering the level of vigilance on the credibility of the information they receive (Stanford Law School Policy Lab, 2017); to such an extent that some authors speak of "collective imbecilization" (Goulart et al. 2020) or of "digital cretins" (Desmurget, 2020). Moreover, the situation is aggravated when the media, especially digital media, contribute to ideological polarization, information bubbles, or Internet addiction. The prevalence of emotions increases distrust of scientific knowledge and expert opinion.

Populist speeches based on emotion pose a problem for democracy insofar as they create opinions far removed from the principle of rationality. For centuries, the enlightened vision of democracy has been built on a principle of shared rationality, through which we can come to hold, and share justified true beliefs (Dawkins, 2006). Such beliefs and opinions are established through empirical testing and the use of valid arguments. Thus, deliberative democracies seek consensus and opinion formation in a manner analogous to or as empirical science does (Sánchez, 2020; Sánchez and Villanueva, 2023).

However, social cognitive psychology emphasizes the tendency to reason in a biased way, so that we tend to consume information that is agreeable to us and avoid questioning our beliefs. Our cognitive structure is such that motivated reasoning predominates, that which is in the service of the initial judgments we formulate based on emotions (Haidt, 2001, 2006, 2012; Cook et al., 2017; Strong, 2017; McDermott, 2019). We tend to ignore the truth of an opinion, and even adopt the opposite one, if that opinion threatens our intuitions, emotions and ways of understanding the world (Lewandowsky et al., 2012). It is also known that once misinformation has been installed in our cognition, it is difficult to eliminate. We resist changing our minds even when presented with valid arguments and empirical evidence to the contrary (Lewandowsky et al., 2012, 2017).

"A high score indicates a low level of SCT, while a low score indicates a high level of SCT."

Faced with this situation, numerous authors, as well as institutions, insist on the need to educate and train citizens in critical thinking. For this purpose, media and information literacy- hereinafter referred to as MIL- seems to be a useful tool (Donovan, 2020; Rodríguez et al., 2021). Thus, in the Media Literacy Index 2022, it is pointed out that quality

education is one of the three factors-together with freedom of the press and the trust shown by citizens in institutions and the media- that allows Finland, Norway, Denmark, Estonia and Sweden to be placed among the top five of 35 European countries with the greatest capacity to avoid or mitigate the negative impact of disinformation (Lessenski, 2022). On the other hand, various reports by the European Commission (2018), UNESCO (2018), and the House of Commons (Reino Unido, 2019) call for the need for critical citizenship towards the media, and in particular, digital media. To promote MIL, the European Commission (2022) has developed guidelines for teachers and educators with the aim of incorporating media and information literacy into educational programs. The report News literacy and critical thinking skills in the post-truth era (Biblioteca Municipal de Belgrado et al., 2021) identifies the cognitive mechanisms that make us prone to misinformation, as well as those that help us to prevent it, including critical thinking, along with a certain skepticism when accepting content, using alerts that warn of the harm of certain information, avoiding immediate sharing of the information received, giving little touches of attention that activate analytical thinking, and preventive inoculation. Tools have also been created to train teachers (and the general population) in MIL, such as, Learn to check (<https://learntocheck.org/en/>), News Literacy Project (<https://newslit.org/>), Civic Online Reasoning (<https://cor.stanford.edu/>), or Desfake (<https://desfake.cat/>).

Education in general, and MIL in particular, can help form a critical citizenry capable of defending itself against the harmful effects of misinformation (Craft et al., 2013; Vraga et al., 2020), and populism (Estellés et al., 2020). Aspiring secondary school teachers will play a fundamental role in this regard. Given the relevance of non-critical, automatic and non-reflective thinking in human cognition, it is worth asking whether and how MIL can help to improve it. The importance of MIL in combating informational disorders is emphasized, and yet the evidence on this causal relationship is not consistent and robust, as there are other important factors that may intercede, such as ideological positioning or populist tendencies (Thorson, 2016; Borah, 2022; Borah et al., 2022,). Thus, any study that intends to analyze the relationship between MIL and critical thinking should consider how both variables are influenced or moderated by other variables such as ideology or populist tenure. In this study, the results show that ideology influences the self-perception of critical thinking and the ability to detect fake news, while the tendency to populism does not. Likewise, it is shown that people with populist tendencies have lower levels of information literacy.

2. Objective

The general objective of this work is to study the incidence of: a) political positioning and b) the tendency to populism on information literacy, SCT and the ability to detect fake news, in students of the Master's Degree in Secondary Education Teacher Training in Spain.

For this purpose, the following specific objectives have been set:

- To know the political positioning of the sample and to identify its possible relationship with the sociodemographic profiles, as well as with the specialties studied in the masters.
- To determine the level of populism of the sample and to identify its possible relationship with the sociodemographic profiles, as well as with the ideological positioning.
- To determine the information literacy index of the sample and to identify the possible influence of ideology and the tendency to populism on this index.
- To determine the self-perceived critical thinking index of the sample and to identify its relationship with ideological positioning and the tendency to populism.

- To know the false news detection capacity of the sample and to identify its relationship with ideological positioning and tendency to populism.

3. Methodology

3.1. Participants and recruitment

The following criteria were used to select the sample (intentional-criterial):

- Criterion per area: 16 compulsory subjects grouped into 5 subjects.
- Geographical (spatial) criterion: 8 autonomous communities of Spain.
- Legislative criterion: Students of the Master's Degree in Teacher Training who have studied ESO under LOE (BOE 2006).

The characteristics of the sample were decided with an opinion or intentional sampling. This technique, as stated by Rabolini (2009) "is based on the opinion of the researcher to constitute a sample of subjects according to their typical character" (p.8). Therefore, we are dealing with a non-probabilistic and subjective representative sampling, selected to analyze in a careful and controlled manner (Scharager and Armijo, 2001).

In order to recruit students for the Master's Degree in Secondary Education Teacher Training, the research team contacted numerous Spanish universities that coordinated this type of program. They were asked to pass a questionnaire to their students and were also provided with a workshop on misinformation. Fifteen of the universities contacted agreed to participate in the study: University of Almeria, University of Barcelona, University of Cadiz, University of Girona, University of Granada, University of Huelva, University of La Laguna, University of Malaga, University of Murcia, University of the Basque Country, University Rovira i Virgili, University of Santiago de Compostela, University of Seville, University of Valencia and University of Valladolid. The research team traveled to these universities to collect on-site responses from enrolled students during the 2021-2022 academic year. The questionnaire, of which 31 questions were analyzed in this study, was hosted on the Qualtrics platform and had an average completion time of 26.4 minutes. Students used their own devices (laptops, cell phones and tablets) to complete it. The seminar on misinformation, critical thinking and MIL offered afterwards lasted from 30 minutes (short version) to 60 minutes (long version).

The platform recorded a total of 830 responses. Among these, those that left more than 50% of the questionnaire unanswered were excluded from the study according to the Listwise elimination method, which was considered effective in this case (Dong and Peng, 2013). Finally, valid responses were obtained from 716 students. Participants identified their gender as follows: female (n = 395; 55.6%), male (n = 297; 41.5%), non-binary (n = 8; 1.1%), did not respond (n = 10; 1.4%). Age was calculated in age ranges with the following distribution: 18-24 years (n = 400; 55.9% of participants), 25-28 years (n = 191; 26.7%), 29-35 years (n = 64; 8.9%), >35 years (n = 61; 8.5%). Regarding their specialization in the master's program, 40.6% corresponded to Geography and History, 16.8% to Spanish Language and Literature or the co-official language of the region. The rest of the specializations accounted for less than 10% of the students. The data collected were analyzed using SPSS.

3.2. Ethics

The study received approval from the Bioethics Committee of the University of Barcelona (IRB00003099). Neither the participants nor the master's programs received any financial compensation and were motivated to participate solely on the basis of the potential learning derived from the seminars offered.

3.3. Measures

3.3.1. Sociodemographic variables

Participants answered 13 questions that included information about their age, gender, employment status, country and region of birth, educational level -both their parents' and their own-, information about their secondary education, and the specialization in the master's program for secondary teacher training they were pursuing. These variables were designed specifically for the study. Chart 6 with the overall results of the sample can be found in Annex I.

3.3.2. Independent variables

Ideological positioning and tendency to populism. To measure the two independent variables, previously validated instruments were used. In the case of ideological positioning, an ideological self-positioning scale 0 to 10 (0 = extreme left, 10 = extreme right) was used (CIS, 2020); the overall result of the sample can be consulted in Table 1.

Table 1. *Distribution of ideological positioning.*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00	49	6,8	7,0	7,0
	1,00	80	11,2	11,3	18,3
	2,00	177	24,7	25,1	43,4
	3,00	168	23,5	23,8	67,2
	4,00	83	11,6	11,8	79,0
	5,00	94	13,1	13,3	92,3
	6,00	23	3,2	3,3	95,6
	7,00	20	2,8	2,8	98,4
	8,00	6	,8	,9	99,3
	9,00	2	,3	,3	99,6
	10,00	3	,4	,4	100,0
	Total	705	98,5	100,0	
Missing	System	11	1,5		
Total		716	100,0		

Source: Elaborated by the authors.

In the case of the tendency to populism, the instrument designed by the Pew Research Center (Anderson and Jiang, 2022) was adapted to Spanish, consisting of two dichotomous response scales: (i) Ordinary people would fix the country's problems better than elected officials; (ii) Elected officials do not care what people like me think. People are considered to have a populist ideology if they check "Yes" for both statements. The overall results of the sample can be found in Table 2.

Table 2. Distribution of the tendency to populism.

		Agree	Disagree	Total
Please check whether you agree or disagree with these two statements: Ordinary people would fix the country's problems better than elected officials.	Count	245	462	707
	Row N %	34,7%	65,3%	100,0%
Please check whether you agree or disagree with these two statements: Elected officials don't care what people like me think.	Count	456	253	709
	Row N %	64,3%	35,7%	100,0%

Source: Elaborated by the authors.

3.3.3. Dependent variables

Information literacy. Variable collected by means of an instrument with five right or wrong choice questions. The instrument is an adjustment to the Spanish version of a previous five-item scale (Jones-Jang et al., 2019), which is the abbreviated version of the 40-item Online Information Literacy Test developed by Podgornik et al. (2016). Items were scored as 0 = incorrect answer and 1 = correct answer (e.g., "The most reliable, verified, concise, and complete description of an unknown specialized concept can be found in.... Correct answer: lexicon or encyclopedia"). Participants were provided with three incorrect answers and one correct answer, and the index was obtained from the sum of correct answers (i.e., range 0 to 5).

Self-perception of critical thinking (SCT). Variable collected by means of the 5-item scale defined by Maskl et al. (2015) and adapted to Spanish: 1. I don't like to think too much; 2. I try to avoid situations that involve me having to think deeply about something; 3. I prefer to do things that challenge me intellectually rather than things that don't require much intellectual effort; 4. I prefer to deal with complex problems rather than simple ones; 5. Thinking deeply and for a long time about something gives me little satisfaction. Items 3 and 4 are reverse coded. Once recoded, the average of the 5 items per participant is calculated. Since the items are negative coded, a high score indicates a low level of SCT, while a low score indicates a high level of SCT.

Detection of fake news. This variable was defined ad hoc with the aim of measuring the ability of the subjects surveyed to detect fake news. For this purpose, they were shown 5 pieces of news extracted from real media or web pages that included headline, subheadline, image, author and other contextual elements. For each of the news items, they were asked to answer Yes or No to "Do you think the information conveyed in the news piece presented above is true or false?" Of the five news items, only the first one was true. The news headlines were:

- (1) Islamic authorities give green light to Pfizer vaccine despite including pork fat (only true news);
- (2) Young Canary Islander assaulted by illegal Maghrebians dies in hospital;
- (3) Huge scandal uncovered: The COVID Vaccine destroys our immune system permanently;
- (4) 500 small boats are spotted in Algeria about to set sail for Spain: 5000 illegal immigrants could arrive soon;
- (5) Pedro Sánchez has an evil plan for the elections: give away the nationality to more than 3000 illegal immigrants inmigrantes ilegales.

4. Results

4.1. Political positioning and tendency to populism: description of the independent variables

Regarding political positioning, on a scale of 0-10 where 0 is extreme left and 10 is extreme right, the sample is at 3. There are no significant differences in ideological positioning between master's degree specialties, although there are between men (3.21) and women (2.83) (ANOVA $F=2.9$, $p=0.034$), with women being more to the left. As for the tendency to populism, 72.3% of the sample is not of populist ideology, compared to 27.7% who is. In this case, there is a higher proportion of women with a populist ideology (31.8%) than men (23%), but the difference is not significant ($p=0.14$). There is also no significant difference in relation to ideological positioning ($p=0.2$).

4.2. Influence on information literacy

The information literacy index ranges from 0 (very low) to 5 (very high). The results in the sample were, in percentages: 0=24.8%; 1=19.8%; 2=26.5%; 3=20%; 4=8.1%; and 5=0.8% (average 2.05 ± 1.15). This index follows a normal distribution ($D=0.155$, $p<0.001$) in Kolmogorov-Smirnov test, so parametric tests were applied to know the influence of ideology and populist positioning. While there is no significant relationship with ideology ($p=0.35$), there is a significant relationship with tendency to populism (ANOVA $F=10.890$, $p=0.001$), with the respective averages being 2.06 ± 1.18 for people with non-populist ideology and 1.73 ± 1.67 for people with populist ideology. That is, people with populist ideology have a significantly lower level of information literacy than those without populist ideology.

4.3. Influence on the Self-perception of Critical Thinking (SCT)

The SCT does not follow a normal distribution ($D = 0.670$, $p > .001$) in the Kolmogorov-Smirnov test. Therefore, the Spearman non-parametric test was carried out to check its relationship with ideological positioning, with which there is a significant relationship ($r=0.074$, $p=0.0539$) with the SCT. As a result, people who position themselves more to the left are those who have obtained a lower value on the scale and, therefore, have a higher level of SCT. As for the tendency to populism, an ANOVA test was carried out, which shows that there is no significant relationship between this variable and SCT ($p=0.227$). These data can be found in Table 3.

Table 3. Distribution of SCT and dependent relationship with Ideological position and Populism.

SCT		Two-variate tests			
		Ideological positioning		Populism	
Average	1.51	Spearman's Rho	0.074	F (ANOVA)	1.46
Desv Est	0.9	p-value	0.045	p-value	0.227
Kolmogorov-Smirnov	0.155				
p-value	<0.005				

Source: Elaborated by the authors.

4.4. Influence on fake news detection

Table 4 shows the hit levels for each of the news items. News items 3 and 5 were the ones that generated the most hits, while the level of hits by the subjects surveyed for news item 1 (which was true), 2 and 4 was less than 50%.

Table 4. Levels of failure and success for the 5 news items (the only true news item was (1), while the rest were fake).

	Hit	Fail
(1) Islamic authorities give green light to Pfizer vaccine despite including pork fat	35.3%	61.7%
(2) Young Canary Islander assaulted by illegal Maghrebians dies in hospital	39.4%	56.8%
(3) Huge scandal uncovered The COVID Vaccine destroys our immune system permanently	89.8%	6.4%
(4) 500 small boats are spotted in Algeria about to set sail for Spain: 5000 illegal immigrants could arrive soon	46.4%	49.4%
(5) Pedro Sánchez has an evil plan for the elections: give away the nationality to more than 3000 illegal immigrants	89%	6.8%

Source: Elaborated by the authors.

To determine the influence of ideological positioning on the degree of accuracy, a Mann-Witney test was applied (see Table 5). For news items 1, 2 and 4, which were those with a lower level of accuracy, it was shown to be statistically significant that people on the left were more accurate than those positioned on the right. As for populism, no relationship was shown with hit or miss on the news, except weakly in the case of news item 4. Despite this lack of significance, it can be observed that the levels of correctness among people with a non-populist ideology are slightly higher than among people with a populist ideology.

Table 5. Correlation between the level of accuracy and ideological positioning (shown as arithmetic mean) and populism (shown as percentages). The * show statistically significant relationships.

	News item 1		News item 2		News item 3		News item 4		News item 5	
Ideological positioning										
Hit	2.8		2.6		2.9		2.8		2.9	
Fail	3.1		3.3		3.4		3.2		3.6	
Mann-Witney p-value	0.043*		<0.005*		0.054		0.009*		0.058	
Populism										
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Hit	34.2	37.6	36.3	42.8	92.1	93.9	42.6	51.1	91.0	93.5
Fail	65.8	62.4	63.7	57.2	7.9	6.1	54.4	48.9	9.0	6.5
Chi-square p-value	0.406		0.123		0.400		0.047*		0.266	

Source: Elaborated by the authors.

5. Discussion and Conclusions

In response to the general objective of this study, the results show that ideological positioning and populism have a direct effect on variables such as information literacy, critical thinking and the ability to detect fake news.

With respect to populist tendency, this has a negative effect on the level of information literacy since the greater the populist tendency, the lower the level of information literacy detected. The explanation for this may lie in the fact that populism implies scientific skepticism and discrediting of information sources and expert

opinion (Staerklé, 2022). It seems that in people with populist ideology there is no interest in the development of critical thinking or in valuing critical thinking in the terms measured by the study. Therefore, it would be necessary to replicate the study with new instruments to measure critical thinking and assess whether this relationship is replicated. However, populism does not have a significant effect on SCT. This could be explained by the fact that supporters of populist political formations often do not realize that they are misinformed (Milner, 2020). A weak effect of the level of populism of the participants on their ability to detect fake news has also been detected in the present research, being, even so, more prone to its detection by people of non-populist ideology. This last trend would be confirmed again by the study of Henry Milner (2020), cited above, according to which the relationship between misinformation and populism is considered a new and particularly worrying element.

As for ideological positioning, the study has shown that people further to the left of the ideological spectrum have better SCT and are able to detect fake news more efficiently; further mediation studies should be conducted to understand whether SCT has a mediating effect on the detection of fake news or not, or whether it is a direct effect of ideological positioning. In any case, following the above line of thought, the study by Borah et al. (2022), on the moderating role of political ideology on COVID-19 misperceptions, showed that people positioned more to the political right are more likely to believe fake news, than people positioned more to the left. However, in the present study, ideological positioning does not show a significant effect on information literacy. This observation is also described in the work of Borah et al. (2022), referenced previously, where it is exposed that, despite the fact that left-wing people with higher information and media literacy have fewer misperceptions about the facts narrated in the news, this statement is not confirmed with right-wing participants; therefore, the authors conclude that the political ideology of a person affects his or her ability to detect fake news, regardless of his or her level of MIL (Borah et al., 2022).

We also see that populism and ideology do not generate the same statistical relationships, therefore, this study reaffirms the position that both dimensions must be separated and that populism can occur in both ideological spectrums, in line with other studies (Aslanidis, 2016; Tarragoni, 2021). In fact, when separating these variables by gender, it has been found that women are more prone to populism and to have a more left-wing political positioning, when the relationship is usually the opposite (Spierings and Zaslove, 2017). This fact thus abounds in the need to consider separately these two variables and distinguish, therefore, the effects that each one generates. As discussed above, further mediation studies would be necessary to know which of the two, ideology or populist tendencies, has a direct effect on the dependent variables studied.

To summarize, the rise of populism is largely explained by a social context characterized by skepticism, the discrediting of truth, and the spread of disinformation, in an era of post-truth. The implications at the educational level are crucial since one of the tools that democracies have to protect themselves from the damage caused by this type of phenomena is the analytical training of citizens. In this sense, aspiring secondary school teachers play a fundamental role. In this paper we have analyzed the extent to which critical thinking and information literacy are modified by the tendency towards populism and political ideology. A priori it might seem that both factors are related to these variables. However, the results do not show that there is such a relationship. We do not conclude that information literacy and critical thinking completely protect against disinformation and populist discourses. This is mainly due to the prevalence of emotions in human cognition as we have remarked in the introduction. This fact could lead us to think that, although it is not a sufficient condition, it is a necessary one. Other dimensions are also needed to reform the communicative system: fact-checking, debunking, media literacy, regulation, policy reform, and self-regulation (Nicoli et al., 2022). In this way, a co-responsible citizenship can be empowered together with governments, institutions and companies to face the risks of misinformation or inappropriate use of the media (Sádaba et al., 2023).

From the educational point of view, it seems clear that it is necessary to provide aspiring teachers with tools to help counteract the discrediting of knowledge and science that post-truth has fostered and on which populism feeds, making students

"That people further to the left of the ideological spectrum have better SCT and are able to detect fake news more efficiently."

aware of the dangers of adopting this type of epistemological stances. It is also necessary to be aware that ideological positioning has a direct impact on how we educate in MIL. MIL is not simply a list of checks or information verification actions but is also linked to values. Haidt (2012) says that there are five universal values shared by all cultures: care/harm, justice/deception, loyalty/betrayal, authority/subversion, sanctity/degradation. From these innate values it is possible to explain our immediate and non-reflective reactions mediated by emotions. According to Haidt, individuals have an innate tendency to score differently in these five categories. Individuals ideologically situated on the more conservative ideological spectrum tend to score well in all five categories, especially those related to loyalty, authority, and purity. On the other hand, individuals located in a less conservative spectrum score higher in the first two categories while rejecting the rest of the categories. It seems, therefore, that people aligned with certain values have a tendency to consume information aligned with those values, rejecting information that questions them.

For all of the above, fostering MIL from formal education should take into account this aspect of cognitive structure, which emphasizes that the consumption and use of information and the self-perception of critical thinking of each individual depends on related values and emotions. In this sense, some authors insist that corrections should not directly attack the person world-view, to avoid a counterproductive effect of reinforcing incorrect beliefs (Lewandowsky et al., 2012). Ultimately, we tend to maintain the cognitive consistency that most closely matches the values that shape our understanding of reality. This is why it is so difficult to change our minds and so easy to consume related information, even if it is false or incorrect. The promotion of AMI, although useful, cannot obviate this fact of our cognition.

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Authors' contributions:

Conceptualization: Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **Software:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **Validation:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **Formal analysis:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **Data curation:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **Drafting-Preparation of the original draft:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **Drafting-Revision and Editing:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **Visualization:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **Supervision:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **Project management:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien. **All authors have read and accepted the published version of the manuscript:** Sánchez, Lydia; Villanueva Baselga, Sergio y Faure-Carvalho, Adrien.

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AUTHORS:

Lydia Sánchez

Barcelona University. Spain.

Lydia Sánchez is Associate Professor in Audiovisual Communication at the Faculty of Information and Audiovisual Media at the University of Barcelona. PhD in philosophy from Stanford University, she focuses her research on the

democratic quality of the media, epistemology and communication theory. She is the principal investigator of the consolidated research group in Didactics of History, Geography and other Social Sciences, and Communication (DHIGECs-COM), member of the Centre de Recerca en Informació, Comunicació i Cultura (CRICC), and is part of the consolidated teaching innovation group in Communication and Audiovisual Media (In-COMAV). She is currently principal investigator of the Project: "Media Education and Information Diet as indicators of critical information analysis skills in aspiring teachers" (MEDIA4Teach).

lsanchezg@ub.edu

H-index: 11

Orcid ID: <https://orcid.org/0000-0001-7814-0087>

Scopus ID: <https://www.scopus.com/authid/detail.uri?authorId=57222320756>

Google Scholar: <https://scholar.google.es/citations?user=O9dj7XEAAAAJ&hl=es&oi=ao>

ResearchGate: <https://www.researchgate.net/profile/Lydia-Sanchez-2>

Sergio Villanueva Baselga

Barcelona University. Spain.

Sergio Villanueva Baselga is an associate professor at the Faculty of Information and Audiovisual Media. His research focuses on the study of the intersection between media, health and education from a transdisciplinary perspective, with special emphasis on the study of the disinformation phenomena. He is currently the Rector's Delegate for CHARM-EU.

sergio.villanueva@ub.edu

H-index: 7

Orcid ID: <https://orcid.org/0000-0003-4447-151X>

Scopus ID: <https://www.scopus.com/authid/detail.uri?authorId=57127214300>

Google Scholar: <https://scholar.google.es/citations?user=KCh6tFIAAAAAJ&hl=es>

Research gate: <https://www.researchgate.net/profile/Sergio-Villanueva-Baselga>

Adrien Faure-Carvallo

Universitat de Barcelona. Spain.

PhD in Art History and Graduate in Musicology. Lecturer at the Faculty of Information and Audiovisual Media of the University of Barcelona (UB), member of the research group DHIGECs-COM (Didactics of History, Geography and other Social Sciences- Communication) and member of the Center for Research in Information, Communication and Culture (CRICC). His areas of study focus on the musical experience from the fields of education, sound technologies and audiovisuals.

adrienfaure@ub.edu

H-index: 6

Orcid ID: <https://orcid.org/0000-0002-6065-5186>

Scopus ID: <https://www.scopus.com/authid/detail.uri?authorId=57219053218>

Google Scholar: <https://scholar.google.es/citations?user=ldeepkMAAAAAJ&hl=es>

ResearchGate: <https://www.researchgate.net/profile/Adrien-Faure-Carvallo>

ANNEXES

Annexo I. Chart 6. Sociodemographic profile of the sample.

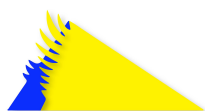
Item		n	%
Age	18- 24 years	400	55,9%
	25- 28 years	191	26,7%
	35- 44 years	45	6,3%
	45- 54 years	16	2,2%
	55- 64 years	0	0,0%
	65 or more	0	0,0%
	29- 31 years	38	5,3%
	32- 34 years	26	3,6%
	Total	716	100,0%
How do yo describe yourself?	Female	395	55,6%
	Male	297	41,8%
	Non-binary	8	1,1%
	I prefer not to answer	10	1,4%
	Total	710	100,0%
What is your current employment situation?	Unemployed	10	1,4%
	Studying	480	67,1%
	Employed	15	2,1%
	Self-employed	13	1,8%
	Retired	0	0,0%
	Studying and working	195	27,3%
	I prefer not to answer	2	0,3%
	Total	715	100,0%
Where were you born?	Spain	687	95,9%
	Abroad	29	4,1%
	Total	716	100,0%
In what Autonomous Community were you born?	Andalucía	195	28,4%
	Aragón	2	0,3%
	Asturias	3	0,4%
	Illes Balears	7	1,0%
	Canarias	30	4,4%
	Cantabria	2	0,3%
	Castile and Leon	23	3,3%
	Castile- La Mancha	11	1,6%
	Catalonia	122	17,8%
	Valencian Community	70	10,2%
	Extremadura	4	0,6%
	Galicia	118	17,2%
	Madrid	8	1,2%

	Murcia	65	9,5%
	Navarre	3	0,4%
	Basque Country	24	3,5%
	La Rioja	0	0,0%
	Autonomous Community of Ceuta	0	0,0%
	Autonomous Community of Melilla	0	0,0%
	Total	687	100,0%
What level of education did your parent or legal guardian 1 attain?	None	15	2,1%
	Primary	180	25,1%
	Secondary	250	34,9%
	University	246	34,4%
	Other	25	3,5%
	Total	716	100,0%
What level of education did your parent or legal guardian 2 attain?	None	26	3,6%
	Primary	189	26,5%
	Secondary	269	37,7%
	University	189	26,5%
	Other	41	5,7%
	Total	714	100,0%
Did you study secondary education in Spain?	Yes	699	97,6%
	No	17	2,4%
	Total	716	100,0%
In what Autonomous Community did you study secondary education?	Andalucía	198	28,3%
	Aragón	2	0,3%
	Asturias	2	0,3%
	Illes Balears	7	1,0%
	Canary Islands	33	4,7%
	Cantabria	2	0,3%
	Castile and Leon	24	3,4%
	Castile- La Mancha	10	1,4%
	Catalonia	125	17,9%
	Valencian Community	70	10,0%
	Extremadura	5	0,7%
	Galicia	124	17,7%
	Madrid	7	1,0%
	Murcia	64	9,2%
	Navarre	4	0,6%
	Basque Country	22	3,1%
	La Rioja	0	0,0%
	Autonomous Community of Ceuta	0	0,0%
	Autonomous Community of Melilla	0	0,0%
	Total	699	100,0%

In what year did you start ESO¹ (or 7th EGB²)?	Before 2006	167	23,9%
	As of 2006 (included)	532	76,1%
	Total	699	100,0%
In what type of school did you study secondary education?	Public	520	74,5%
	Religious concerted	127	18,2%
	Secular concerted	43	6,2%
	Religious private	4	0,6%
	Secular private	4	0,6%
	Total	698	100,0%
What qualification gave you access to a university degree?	Humanistic and Social Sciences Bachelor's Degree	449	62,8%
	Science and Technology Bachelor's Degree	167	23,4%
	Bachelor of Arts	43	6,0%
	Senior Degree	14	2,0%
	Access over 25 years of age	15	2,1%
	University Guidance Course (COU)	17	2,4%
	Validation of foreign studies	10	1,4%
	Total	715	100,0%
What is the specialty of your master's degree in teacher training for secondary and bachelor's education?	Biology and Geology	26	3,7%
	Classical Culture- Latin and Greek	5	0,7%
	Drawing	46	6,5%
	Physical Education	1	0,1%
	Philosophy	17	2,4%
	Physics and Chemistry	50	7,1%
	Health Professional Training	5	0,7%
	Service Professional Training	35	4,9%
	Geography and History	291	41,0%
	English	55	7,8%
	Co-official/Spanish Language and Literature	120	16,9%
	Foreign Languages	31	4,4%
	Music	27	3,8%
	Total	709	100,0%

¹ Compulsory Secondary Education

² Basic General Education



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