



MEASURING THE EFFECTIVENESS OF A WHATSAPP COURSE AGAINST DISINFORMATION FOR THE ELDERLY IN SPAIN



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According to the 1st Study on Disinformation in Spain 2022, 95,8% of the population identifies disinformation as a social problem; 91% believe that it could endanger a fair democracy and even the stability of a country.

There have been many initiatives designed to tackle the effects of disinformation on individuals and on society, with a special focus on younger generations, due to their significant vulnerability.

Elderly people, generally more mature and with a built critical thinking, frequently lack knowledge or abilities to select and weigh all the information the Internet provides. This is especially relevant when that information arrives through second-generation networks like WhatsApp.

The "How to detect false information online?" course, launched in Spain in the spring of 2022, aimed to fight disinformation and was specially targeted to people of over 50 years of age. The project was developed by Poynter/MediaWise, Newtral and Universidad de Navarra, with the support of Meta.

This research, developed by Universidad de Navarra for Poynter/MediaWise, with Meta's support, assesses the effectiveness of such course when it comes to improving the digital skills of elderly users, taking diverse social, demographic and technology-knowledge elements into account.

QUOTE THIS ARTICLE: Sádaba, Charo; Salaverría, Ramón and Zabala, María (2022). Measuring the effectiveness of a WhatsApp course against disinformation for the elderly in Spain.

One of the phenomena related to the consumption of information online that is significantly increasing over time is the presence of hoaxes, biased rumors, and fake news. Also known as 'disinformation', it refers to 'false or misleading content that is spread with an intention to deceive or secure economic or political gain, and which may cause public harm' (European Commission, 2019). Although mistakes -both produced and reproduced- would be normal and even to be expected in a context of abundant information, and thus create the standard definition of "misinformation" (Burnam, 1975)-, *disinformation* is based on deliberately false news that, in the current global situation of polarization and technology-derived capillarity and speed (Sádaba and Salaverria, 2023), are rapidly spread, with potential risk for those reading, listening or watching (Brennen et al., 2020; Salaverria et al., 2020).

Disinformation is not a new issue, nor is its origin directly assignable to technology. But the growing global access to the Internet and particularly to social media has been followed by a similar increase in false or misleading contents, with diverse intentions, and this has become even more serious due to the complicated social and political situation of Western society.

Disinformation in Spain

According to the I Estudio sobre la Desinformación en España 2022 (1st Study on Disinformation in Spain 2022), 95,8% of the population identifies disinformation as a social problem; 91% believe that it could endanger a fair democracy and even the stability of a country, and 83,3% state that both the Covid-19 pandemic and the Ukrainian war have contributed to its increasing prevalence. This same study suggests interesting age-based differences: elderly people tend to keep trusting traditional media and consume information mostly from this type of sources. And it also evidences the third-person bias or third-person effect hypothesis and biased optimism (Corbu et al. 2021): people tend to think that deceiving messages have a greater effect on others than on themselves, thus making others -and not them- potential victims to false information.

There have been many initiatives proposed by different stakeholders to tackle the effects of disinformation on individuals and on society, mostly when it comes to its negative impact on trust and credibility. The problem is never-the-less global and therefore demands a multi-dimensional multi-level strategy (Sádaba and Salaverria, 2023), one that adapts to each group of age and addresses the particularities of the most vulnerable ones.

In this sense, many of the global efforts designed to promote digital and media literacy have targeted the younger population who, mostly because of their age, have not fully developed their critical thinking skills and are significantly more exposed to digital contents than older generations (Herrero-Diz et al. 2021).

But children, teenagers and young people are not the only vulnerable group. Elderly people, generally more mature and with a built critical thinking, frequently lack knowledge or abilities

to select and weigh all the information the Internet provides. This is especially relevant when that information arrives through second-generation networks like WhatsApp or Telegram. In contrast to the process of trust on traditional media, elderly people trust these channels not because of the media itself, but because of the person who originally shares the information (Valera-Ordaz et al, 2022). In this sense, the Digital News Report 2021 stated that WhatsApp is the media through which most false information is spread in Spain (Vara-Miguel et al., 2022).

Elderly people's digital skills, or the lack of them, should therefore be a vital focus for any initiative aiming to fight the harmful effects of disinformation. This population group is relevant not just for demographic reasons, but also for strategic ones: they consume a lot of information and are concerned about news and current affairs.

One of the challenges in the promotion of digital literacy for elderly people is the absence of channels or formal education systems that do exist in the case of younger generations. It is difficult to develop creative initiatives to facilitate the acquisition of digital skills for older citizens.

Methods

The "**How to detect false information online?**" course was launched in Spain on April 19th, 2022. The project, aimed to fight disinformation and specially targeted to people of over 50 years of age, was developed by Poynter MediaWise, Newtral and Universidad de Navarra, with the support of Meta. This free, 5-minutes per day and 10 days-long course was available via WhatsApp and included lessons with simple and practical techniques designed to improve competence in the use of online informational resources and general digital skills.

Universidad de Navarra designed a research based on two waves to test the efficacy of this course on the improvement of digital skills, added to a middle intervention inviting some of the participants to follow the course developed by MediaWise and Newtral as training to fight disinformation. Two surveys assessed the starting point and the potential improvement in the capacity to identify false news, the skills to compare or verify information and the general knowledge of Internet-related terminology. Respondents were recruited and distributed into either an experimental group that was invited to follow the course after the first questionnaire, or a control group that did not follow the course. Both groups answered the two surveys. The objective of separately assessing the experimental and control groups was comparing the efficacy of the course on a potential improvement of the digital skills of those following the course.

Participants were recruited among older adults of over 50 living in Spain. Approximately 7 million Spanish people of this age own a *smartphone* and 51% of Spanish citizens older than 55 have a mobile device with access to the Internet. Although this percentage is far from that

of global 96% of Internet users in Spain with a smartphone (IAB, 2019), it is in any case a significant figure. WhatsApp (90%) and Facebook (66%) are the two apps most frequently used by elderly people in Spain (IAB Spain, 2019). The decision to base the reference of the research in smartphone-owners is linked to the course being designed to be followed via WhatsApp. Description and detail of participants in the research can be found in the following index:

| | Control | Experimental | Total |
|--------|---------|--------------|-------|
| Wave 1 | 531 | 498 | 1029 |
| Wave 2 | 448 | 200 | 648 |

The design of the survey was adapted from a similar study previously performed by a team at Stanford University (Moore y Hancock, 2022), with permission from the authors and the research group.

The Spanish survey was structured in six different parts. In the first one, individuals were asked to rate the veracity of six distinct headlines by selecting from a Likert scale of 6 items (from 'definitely false' to 'definitely true'). Each survey contained six headlines, three of them with false or inaccurate information and three of them true. Per survey, one false (or inaccurate) headline was consistent with Right-wing ideological bias, one false (or inaccurate) headline was consistent with Left-wing ideological bias, and one false (or inaccurate) headline was non-partisan or neutral (see Table 1). All twelve headlines in the two waves of the survey were taken from articles or posts found in online media or news websites. Only one-month old headlines were selected, in order to potentially trigger a stronger memory of the information among the sample subjects. In this Part 1, respondents were also asked if they did any research online to inform their judgment on the veracity of each headline. Table 1 shows the headlines used in the two waves.

Table 1. News headlines used in the deception detection task (true vs. false news).

| | True news | False (or inaccurate) news |
|---|---|--|
| Congruent with Left-wing ideological bias | A high rank at Ayuso's Government shared on WhatsApp that the President's brother had earned 283.000 euros from Privet Sportive | Moreno Bonilla destines more resources to private healthcare while firing 8.000 staff from the public system |
| | Vox's imposition on Ayuso: no investigation of alleged therapies to cure homosexuality | The IMF is against reducing taxes as proposed by the PP |

| | | |
|--|--|---|
| Congruent with Right-wing ideological bias | Iglesias and Monedero attack the EU for banning Putin's propaganda organs | Socialists and communists defend Putin |
| | Ministry of Education eliminates the subject of Philosophy and introduces Civic and Ethical Values instead | The Socialist Government of Soria funds a workshop that draws vulvas in fabric bags |
| Neutral, non-partisan | 73 years old woman arrested in Toledo for farming marijuana | Thousands of deer test Covid positive and generate a new coronavirus |
| | Covid vaccine helps discover the true identity of a man | BBC reveals that the Kramatorsk massacre was ordered by Ucrania and not Russia |

Part 2 of the surveys asked participants about Internet-related skills. Part 3 asked about levels of trust when it comes to consuming information through all types of sources. Part 4 searched for respondents' habits in both information and technology, as well as their political preferences. Part 5 assessed demographics and, finally, Part 6 explained all inaccuracies or directly false news included in Part 1's headlines.

The research was conducted by YouGov, began in late April 2022 and ended in late June 2022. The whole Project counted with the approval of the Universidad de Navarra's Ethics Committee.

Preliminary results

Sample description

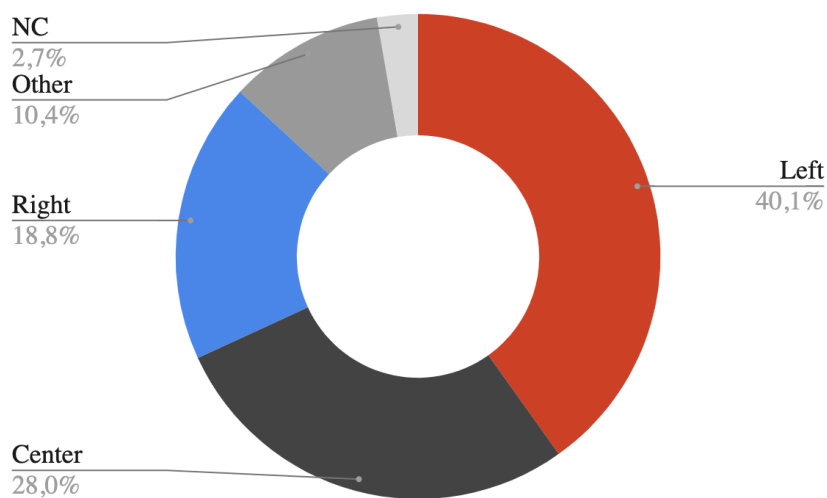
1.029 older adults were recruited to take part in the research. 47,9% of respondents were men and 52,1% were women; one person selected 'other' in the gender description category. The age of the study population ran as detailed below:

Table 2. Participants' age, total sample (n=1.029)

| Age | Participants | % |
|-----------------|--------------|------|
| 50-59 years old | 335 | 32,6 |
| 60-69 years old | 448 | 43,5 |
| >70 years old | 246 | 23,9 |

When it comes to ideological position and bias, the total sample distribution is described in the following figure:

Figure 1. Ideological positioning of the total study sample, in percentage (n=1.029)



Experimental group

Out of the 498 respondents of the experimental group, 190 of them performed at least one of the 10 sessions of the course. A sub-sample of that group of 190 was considered in order to make a data assessment: 87 people who followed at least 5 of the daily course information pills. The decision to not consider those 103 participants who did not follow at least 5 formative sessions aimed to select and observe relevant results that could clearly be linked to the efficacy of following the course.

During the second wave, participants in the experimental group were reminded at least twice about the need to follow the course and answer the second set of questions. Having a smartphone and having the WhatsApp app on it were necessary requirements to participate in the research, but smartphone penetration in this age group in Spain is significantly lower than in the rest of the population -as evidenced by statistics-, and this might also mean a lower familiarity with how apps in general, WhatsApp in particular, function.

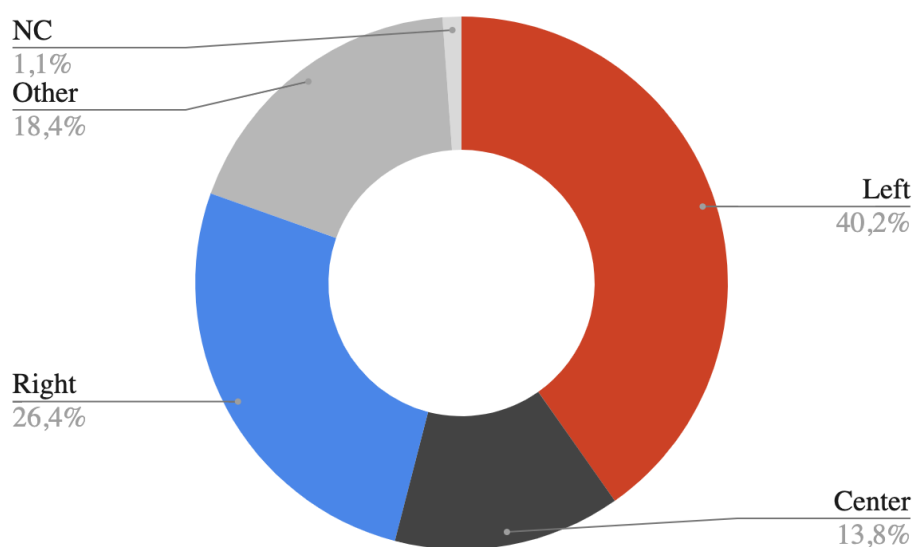
There are more men (51,7%) than women (48,3%) among the 87 respondents of the experimental group who followed at least 5 of the course sessions. The gender variation in this group is a little bit more pronounced than in the total sample. There is also a larger percentage of respondents between 60 and 69 years old in the experimental group sub-sample than in the total sample of the research.

Table 3. Age of participants in experimental sub-sample (n=87)

| Age | Participants | % |
|-----------------|--------------|------|
| 50-59 years old | 33 | 37,9 |
| 60-69 years old | 41 | 47,1 |
| >70 years old | 13 | 14,9 |

There are also slight differences between the total sample and the experimental sub-sample when it comes to ideological positioning. The percentage of respondents declaring to be 'center' is higher in the total sample, while this same 'center' positioning exhibits a lower representation in the experimental sub-sample. Larger percentages of the experimental group declare right-wing ideology or others. The percentage of people stating to be closer to left-wing ideology is stable.

Figure 2. Ideological positioning in the experimental sub-sample, percentage (n=87)



Levels of media trust

The research reveals different levels of trust among elderly people towards mass media and digital platforms. In general, respondents trust more in traditional media, expressing an open mistrust to information found on social media.

Among the total sample of 1.029 participants of over 50 years of age included in the surveys, **radio** is clearly perceived as the more trust-worthy media source: 42,4% of respondents state to 'never' or 'very rarely' find false news or false political information when listening to the radio. In contrast to this positive perception, 31,3% of respondents view the radio as the origin of 'always' false news or 'very frequent', merely 1 out of every 3 participants.

Other types of media outlets receive a much worse assessment and social media are not better perceived. In the case of **television**, 31,3% of respondents consider that TV does 'never' or 'very rarely' broadcast false news or false political information, but many more (53,0%) believe that TV actually 'always' or 'very frequently' broadcasts false information. **News websites** receive a similar perception: 25,3% of respondents consider that these digital journalistic sites

'never' or 'rarely' publish false information, while 48,6% think that they are 'always' or 'very frequently' a source of false news.

In any case, the major mistrust goes to **social media and social networks** like Facebook, Twitter and YouTube. It is merely a 9,2% of respondents who 'never' or 'rarely' judge these platforms as origin of false news, while 77,1% -3 of every 4 respondents- think that social networks are 'always' or 'very frequently' the place for false information.

The survey also assesses the level of trust perceived by respondents in conversations or **face-to-face discussions with other people**. In this case, participants adopt a neutral position: 2 out of 3 (65,2%) declare 'not to know' if this form of communication can be a channel for false news or false political information. All in all, there is a positive perception of safety in this kind of personal interaction, see as not harmful when it comes to false news: 22,4% of respondents think that personal communication 'never' or 'very rarely' is a vector for fake information, and only 12,6% do believe that it's this personal communication the one to 'always' or 'very frequently' be behind the spread of false information.

Efficacy of the course

Ability to identify if news' headlines are true or false

Table 4 shows the rates of correct answers given by respondents when identifying true and false headlines in waves 1 and 2, and in both the experimental group (n=87) and the control group.

Table 4. Accuracy level in the detection of false and true news

| | Wave | News headline | Political bias | (a) % Sub-sample experimental group (n=87) | (b) Control group (n=448) | (b)-(a) |
|---------|------|---------------|----------------|--|---------------------------|---------|
| News 1 | 1 | FALSE | Left | 41,4 | 34,4 | 7,0 |
| News 2 | 1 | FALSE | Right | 52,9 | 48,0 | 4,9 |
| News 3 | 1 | FALSE | Neutral | 87,4 | 83,9 | 3,5 |
| News 4 | 1 | TRUE | Left | 49,4 | 45,3 | 4,1 |
| News 5 | 1 | TRUE | Right | 37,9 | 42,0 | -4,1 |
| News 6 | 1 | TRUE | Neutral | 57,5 | 50,0 | 7,5 |
| News 7 | 2 | FALSE | Left | 41,4 | 37,1 | 4,3 |
| News 8 | 2 | FALSE | Right | 58,6 | 60,7 | -2,1 |
| News 9 | 2 | FALSE | Neutral | 66,7 | 60,3 | 6,4 |
| News 10 | 2 | TRUE | Left | 40,2 | 26,1 | 14,1 |
| News 11 | 2 | TRUE | Right | 73,6 | 57,4 | 16,2 |
| News 12 | 2 | TRUE | Neutral | 49,4 | 42,2 | 7,2 |

n=87 experimental sub-sample, n=448 control group

Results show how following at least 5 of the course sessions has a positive impact in the capacity of participants to detect false headlines or identify true headlines. The point of origin at the beginning of the research is already positive for the experimental group, probably due to a genuine interest in accessing reliable information, leading to the will to take part in the research, follow the course and answer the surveys. Even considering that circumstance, participants of the experimental sub-sample showed an improvement in their rates of right answers at detecting true and false news after completing the surveys and following at least 5 sessions of the course.

The research confirms that training can help confirm if a particular information is true, probably because it is easier to verify news by checking on diverse reliable sources. There are nevertheless variations in the ability to identify true and false news. The research confirms that, once the course is completed in at least 5 sessions, the rate of right answers of the experimental sub-sample is higher at identifying true headlines that are indeed true. But there is almost no improvement in the ability to identify false information as actually false. This difference might be related to the fact that it is easier to confirm the veracity of true information by checking several reliable sources, a habit that is promoted throughout the course. Necessary skills to detect false information require a bigger effort and expertise, something that members of the sub-sample have not fully developed. In this sense, turning to fact-checkers or relying on previous digital skills is not common in this age group, who tend to be informed through traditional sources; therefore, it is harder to verify false information.

Table 5 shows levels of perceived certainty among participants when judging how sure they are about their opinion on news being true or false. Those who have followed the course express a firmer certainty at assessing if a headline is false or not than the rest of the study population and feel secure about their judgment even if, in reality, their answer is incorrect. This overconfidence effect could be derived from the fact that, when news-checking is not possible, they feel secure in their training to detect false information better. But, when answers are correct and deception detection is accurate, which is mostly the case for true information, participants express doubts about their judgment and certainty. This could be a risk: feeling certain about one's capacities could make information consumers too relaxed.

Table 5. Certainty level in the detection of false and true news

| | Wave | News headline | Political bias | (a) % Sub-sample experimental group (n=87) | (b) Control group (n=448) | (b)-(a) |
|--------|------|---------------|----------------|--|---------------------------|---------|
| News 1 | 1 | FALSE | Left | 29,5 | 25,1 | 4,4 |
| News 2 | 1 | FALSE | Right | 25,3 | 29,9 | -4,6 |
| News 3 | 1 | FALSE | Neutral | 29,5 | 31,4 | -1,9 |
| News 4 | 1 | TRUE | Left | 30,0 | 24,0 | 6,0 |
| News 5 | 1 | TRUE | Right | 25,0 | 24,7 | 0,3 |
| News 6 | 1 | TRUE | Neutral | 23,4 | 23,2 | 0,2 |

| | | | | | | |
|---------|---|-------|---------|------|------|------|
| News 7 | 2 | FALSE | Left | 28,7 | 21,0 | 7,7 |
| News 8 | 2 | FALSE | Right | 25,3 | 15,1 | 10,2 |
| News 9 | 2 | FALSE | Neutral | 25,8 | 12,7 | 13,1 |
| News 10 | 2 | TRUE | Left | 8,2 | 9,9 | -1,8 |
| News 11 | 2 | TRUE | Right | 3,7 | 7,3 | -3,6 |
| News 12 | 2 | TRUE | Neutral | 6,8 | 12,2 | -5,3 |

n=87 experimental sub-sample, n=448 control group

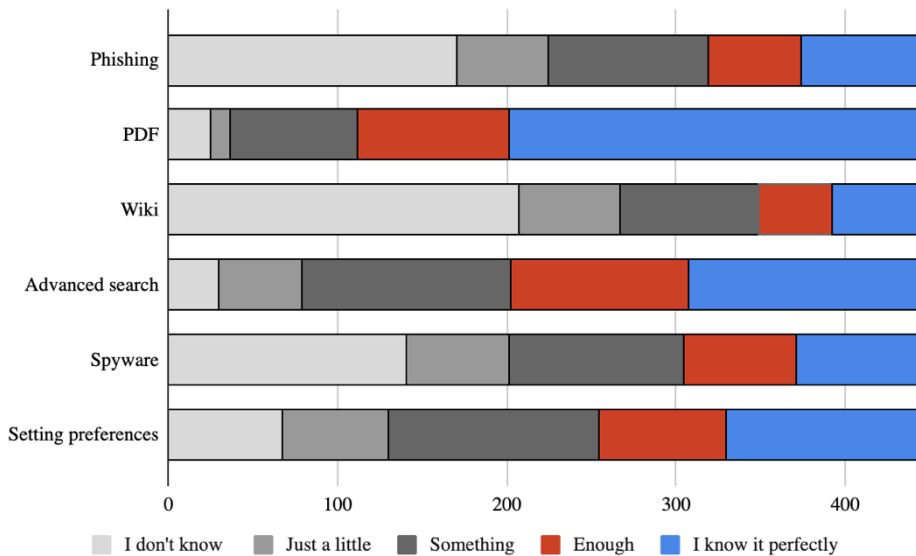
Acquisition of digital skills

How does this age group perform when it comes to specific elements underlying digital skills? Has the course contributed to increasing some of these elements? The Moore & Hancok adaptation (2022) of Hagitay scales has been used to answer these questions.

Control group

The control group exhibits an unequal knowledge of some components that can help strengthen digital skills. Terms like 'wiki' or 'phishing' are unknown to most respondents, while '.pdf file' is familiar to most of them. Other terminology options such as 'spyware', 'advanced search' or 'preference settings' experience a variable set of familiarity answers.

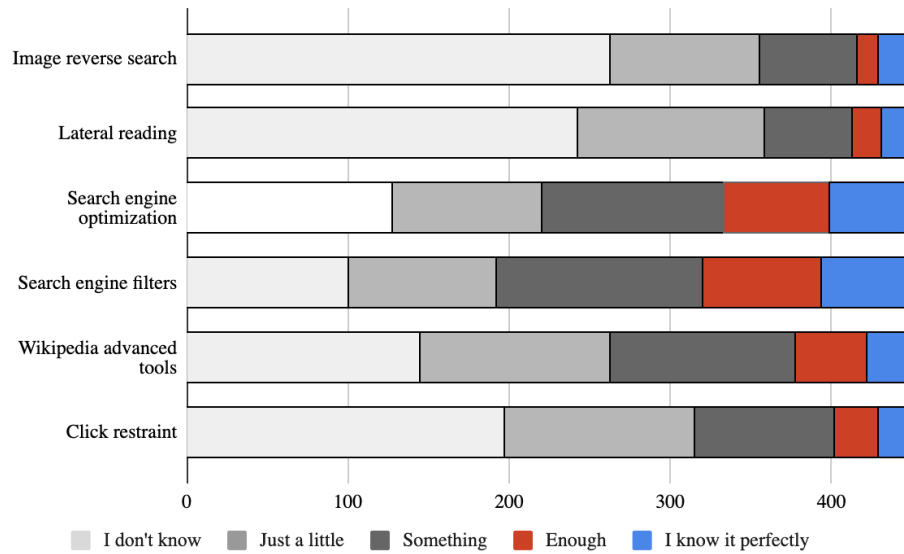
Figure 3. Knowledge of Internet-related terms (control group, n=448)



When it comes to a second set of elements, more advanced terms related to the use of tools that can help in fighting disinformation, results are also unequal (see Figure 4). Tools like 'image reverse search', 'lateral reading' or 'click restraint' are mostly unknown to respondents. On the other hand, 'search engine optimization', 'search engine filters' and 'Wikipedia

advanced tools' get variable results, although 'I don't know' is the preferred option in most cases.

Figure 4. Knowledge of advanced Internet-related terms (control group, n=448)



Experimental group

The experimental sub-sample answered these same questions during wave 1, with the results shown in Figures 5 and 6. Answers were similar to those of the control group: significant lack of knowledge, a bit less generalized, in the case of familiarity with terms such as 'phishing' or 'wiki', and vast majority of respondents knowing what a '.pdf file' is. But there is significant knowledge of other tools such as 'advanced search' or preference settings'.

Figure 5. Knowledge of Internet-related terms before doing the course (experimental sub-sample, n=87)

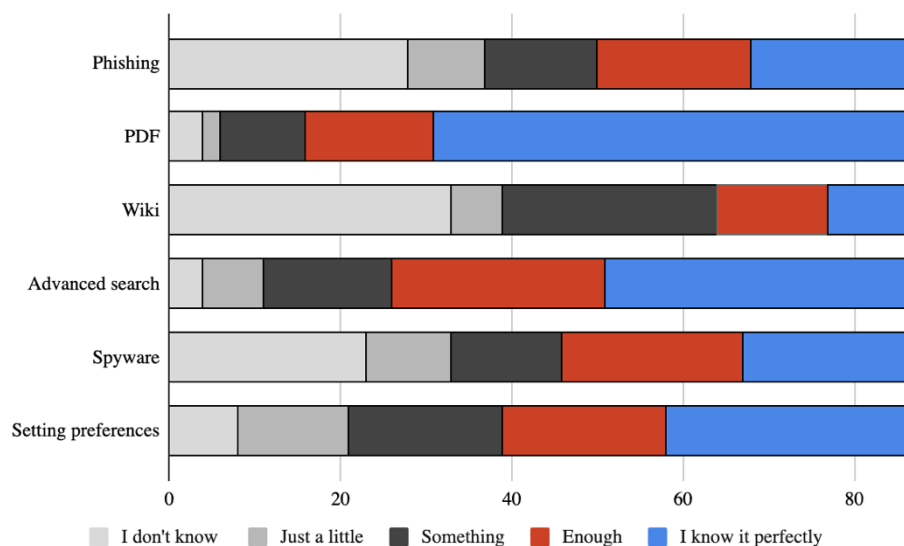
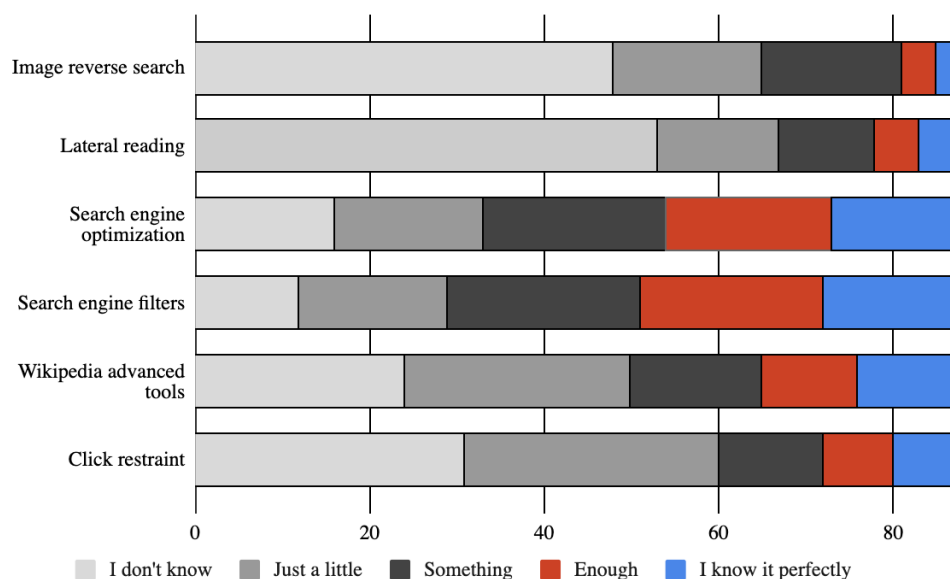


Figure 6. Knowledge of advanced Internet-related terms before doing the course (experimental sub-sample, n=87)



When it comes to familiarity with more advanced tools, the pattern is again replicated: a general lack of knowledge is detected in topics like 'inverse image search' or 'lateral reading', while other options receive unequal answers

It is interesting to observe that, after the completion of the course, the experimental group has significantly improved in its knowledge or understanding of some of these techniques and tools, particularly those related to information checking such as 'lateral reading' or 'inverse images search'. The number of answers 'not knowing anything at all' about those terms is reduced in all groups, while the rest of options are increased, as observed in Figures 7 and 8.

Figure 7. Knowledge of Internet-related terms after doing the course (experimental sub-sample, n=87)

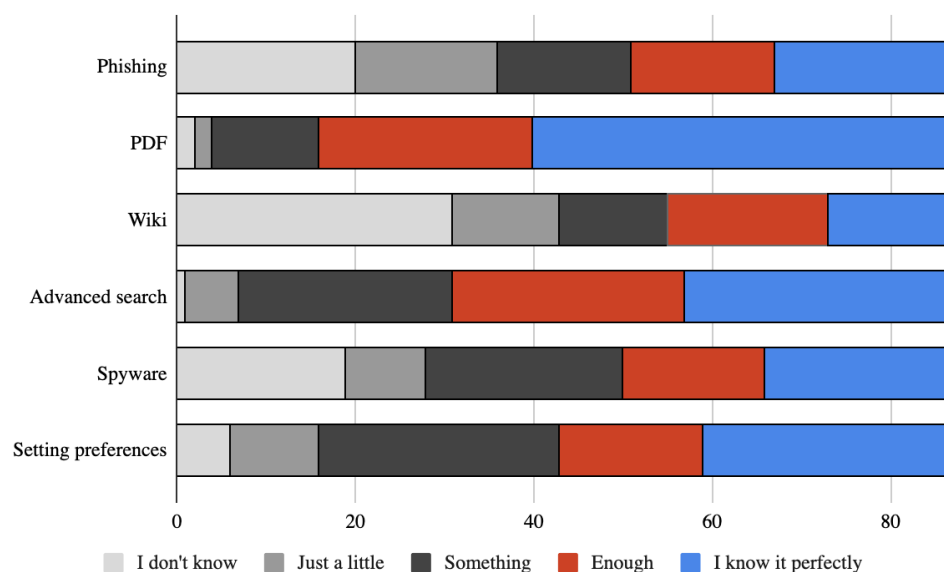
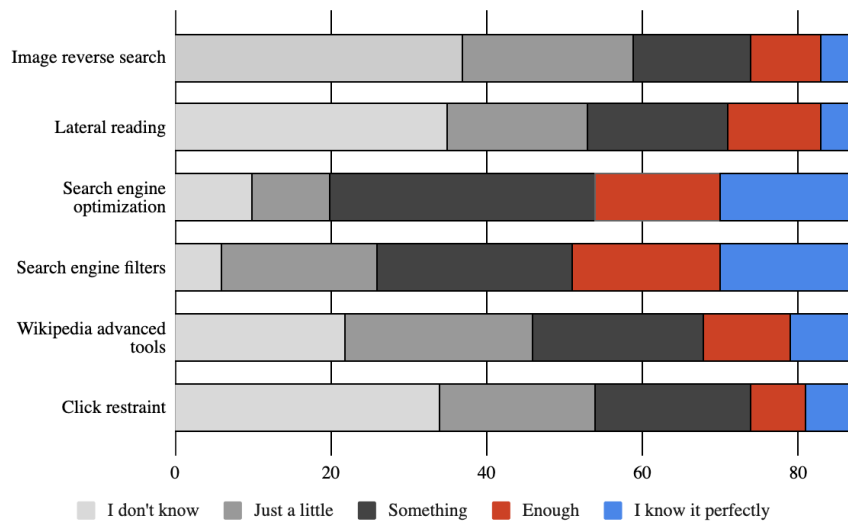


Figure 8. Knowledge of advanced Internet-related terms after doing the course (experimental sub-sample, n=87)



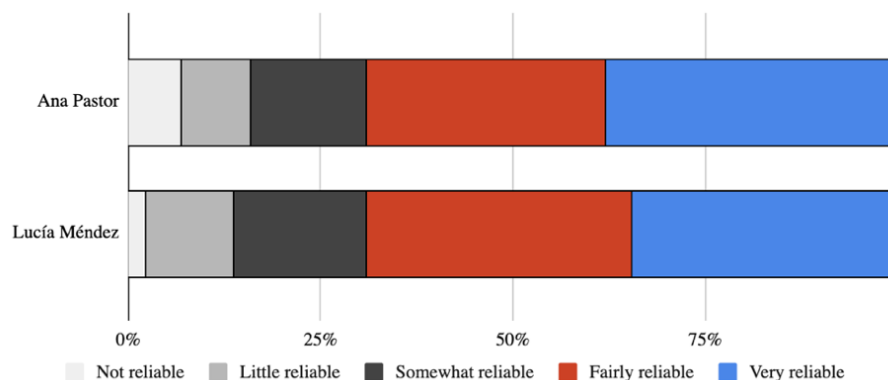
Participants' perception of the course's teachers

The course was taught and driven by two Spanish journalists with a relevant public recognition: Ana Pastor, TV anchor and founder of the digital-born news site Newtral, and Lucía Méndez, press journalist and talk-show commentator.

As per comparative media systems described by Hallin and Mancini (2004), the Spanish journalistic system is a "polarized pluralist model". This model is characterized by a strong social perception of ideological bias of the different media. That perception usually affects journalists themselves, who are perceived by citizens as politically aligned professionals or specific ideology advocates. The model and the social perception generate affinity or hatred towards journalists, especially in the case of those who are renown or popular.

In this context and in order to assess how trustworthy the two journalists leading the course are to respondents, two final questions were asked in the two surveys. Answers confirm that both professionals are mostly perceived as reliable and worthy of trust, as seen in Figure 9.

Figure 9. Credibility of journalists in charge of the course (experimental sub-sample, n=87)



Conclusions

The course has proven to be an efficient tool in helping participants both improve their ability to correctly assess the veracity of headlines and acquire new knowledge that is probably useful in the process of fighting disinformation.

It is in any case necessary to highlight the potential rebound effect that this increased knowledge and subjective perception of being trained can have in older people's sense of safety when consuming online information, especially in the case of false news, when familiarity with advanced fact-checking tools can be necessary.

Another aspect to be considered is the format of the course: while the content has been able to show positive results, it has been difficult to acquire a large sample of respondents who fully completed the formation. A different format could be considered, easier and more user-friendly for this age group, in order to get more people to access such valuable content.

Next steps

Data collected and assessed in this research enable a better understanding of specific aspects regarding how sociological characteristics of participants impact on their ability to distinguish between true and false information. Factors such as political ideology, education level or frequency in the access to the Internet could be relevant to users' capacity to identify false contents. Yet another option could be assessing if demographic traits like gender or age have any type of impact on users' capacity to detect false contents or on useful habits to avoid information deception. Comparing results between respondents under 65 years of age and those older could be a way to find conclusions of interest in this sense.

All these factors ease the way for a better understanding of how elderly people face the challenge of disinformation, while also offering useful tips for the design of effective media literacy strategies targeted to this specific population group.

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