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ARTIGO

Effectiveness of a digital media literacy program for Brazilian older adults

A efetividade de um programa de alfabetização em mídia digital para idosos brasileiros

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Resumo: *Este artigo apresenta os resultados de uma pesquisa quantitativa realizada com 347 pessoas com mais de 60 anos, via estratificação proporcional ao tamanho da população brasileira de idosos, cujo principal objetivo foi o de verificar se elas alcançaram melhores condições para lidar com a desinformação compartilhada nas redes sociais, após realizarem um curso por WhatsApp em 10 dias. Os respondentes foram observados em dois estágios. Em cada estágio um instrumento diferente foi aplicado e os respondentes precisavam avaliar se as notícias eram verdadeiras ou falsas. Como resultado, podemos citar que o curso de letramento digital aumentou a proficiência do idoso em detectar a natureza da informação após dois meses da conclusão do curso.*

Palavras-chave: *Desinformação; educação midiática; leitura lateral; pós-verdade; WhatsApp.*

Abstract: *This paper presents the results of a survey carried out with 347 people, over 60 years old, via proportionate stratified random sampling of the Brazilian population of older adults, whose main objective was to verify if they*

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reach the best conditions to deal with disinformation shared on social networks, after taking a 10-day WhatsApp course. Respondents were observed in two stages. In each stage a different questionnaire was applied, and the respondents needed to evaluate if headlines were true or false. As a result, we can mention that the digital literacy course increased the older adults' proficiency in detecting the nature of information after two months of the course's completion.

Keywords: *Desinformation; Media literacy; Lateral Reading; Post-truth; WhatsApp.*

Introduction

In 2022, the Comprova Project started in Brazil a free media education course, via WhatsApp, for people over 60 years old. The course aims to help people in this age group identify suspicious content and verify their verity since they are very exposed to this type of content (BRASHIER; SCHACTER, 2020; HARGITTAI et al. 2019). The course is a Portuguese version of *MediaWise for Seniors*, an adult media education program developed by Poynter Institute, a nonprofit organization in the United States, made to "enable all nations to begin working towards a media and information literate society while developing stronger educational, economic, health and technological infrastructures." (GRIZZLE *et al.*, 2016, p. 62).

The course has journalists Lillian Witte Fibe and Boris Casoy as mediators and lasts 10 days. In this period, participants receive daily lessons over WhatsApp with guidance on detecting deceptive content that circulate on the web, social media, and messaging apps. Several authors have been studying how the chances of individuals detecting false information increase as their literacy does (GRIZZLE, et al., 2016; JONES-JANG et al., 2021; MOORE; HANCOCK, 2022). Moore and Hancock (2022) were pioneers investigating the benefits of this course in a North American context. In the study, the authors used real and fake news based on the United States' political polarization; that is, they used news with a democratic or a republican bias and, finally, a non-partisan

one. They concluded the *MediaWise for Seniors* course could develop participants' skills in detecting the nature of the information.

In Brazil, the course did not use the bias of political polarization in either false or truthful content production, seen as the goal was to verify if the media illiterate elder would be capable of detecting the nature of the information regardless of political bias.

To this end, 347 elders participated in the experiment, carried out between May 5th and August 18th, which aimed to evaluate whether these people achieved better conditions to identify the false or truthful nature of information after completing the course. For this purpose, AB Evne, a research solutions company based in São Paulo, collected data in the first stage of the study (with the selected group of elders), monitored the course, and collected data after its end in the second stage.

Another characteristic that differentiates the current study from Moore and Hancock's work (2022) is that it uses, through stratification, a sample proportional to the population size and specific characteristics of Brazilian society to guarantee it would be representative of people aged over 60 (60+) in the country. In this sense, the main limitation of the data collection method was the company's lack of offices in some of the Brazilian state capitals. Hence, the stratification process used public data from 18 state capitals and the Federal District.

Disinformation in the post-truth age

The spread of disinformation is a phenomenon that triggers serious problems in societies around the world. Especially through social media and digital platforms, millions receive untruthful content, information altered or created to deceive people (BENNETT; LIVINGSTON, 2018, JONES-JANG et al., 2021). Most of this content is elaborated with a high degree of sophistication due to manipulative technological resources, particularly when using images and voices. However, even before any media communication existed, fake news circulated in other ways. In an interview with journalist Fabio Victor, published in the *Folha de S. Paulo* newspaper (2017), American historian Robert Darnton,

Professor Emeritus at Harvard University, stated that fake news dates back to ancient times, more precisely, at least to the 6th century. Darnton cites the case of Procopius, a famous Byzantine historian of the Justinian empire, who wrote a text called "Anekdota," spreading fake news and completely ruining the reputation of emperor Justinian in a way quite like what happened in Donald Trump's recent American electoral campaign. In this perspective, Otávio Frias Filho (2018, p.42) states fake news in itself is not a novelty but the emergence of an instrument capable of reproducing and disseminating them with unprecedented range and speed.

Some measures have come up trying to curb the spread of false content. In Brazil, the lower house of Congress has a fake news bill, which proposes measures to reduce the dissemination of false information, including raising the chances of punishing those responsible. There are also projects by organizations, fact-checking agencies, and media education courses that seek to help counter disinformation under circulation, especially regarding political matters.

In 2022, the AFP news agency (Agence France-Presse) [4] launched the first digital verification course for journalists and journalism students with the goal of offering them tools and techniques to fight disinformation and false allegations that spread on the internet (AFP, 2022). The Comprova project materialized in 2018 as a collaborative and nonprofit initiative coordinated by the Brazilian Association of Investigative Journalism (Abraji), which gathers diverse communication vehicles. According to data on its website, the project aims to "identify and weaken sophisticated techniques of manipulation and dissemination of deceitful content that appear in hyper-partisan websites, messaging apps, and social media." (COMPROVA, s/d)[5]. Also in 2018, the G1

4 Available at: https://www.afp.com/pt/agencia/comunicados-imprensa-boletim/afp-lanca-curso-de-verificacao-digital-livre-para-jornalistas-e-estudantes-de-jornalismo#:~:text=Iniciativa%20foi%20elaborada%20pela%20premiada,apoio%20da%20Google%20News%20Initiative.&text=A%20AFP%2C%20ag%C3%AAncia%20de%20not%C3%ADcias,jornalistas%20e%20estudantes%20de%20jornalismo. Accessed on October 12, 2022.

5 Available at: https://projetocomprova.com.br/about/ . Accessed on October 12, 2022.

website of the Grupo Globo media conglomerate launched a Fact or Fake section, a service for monitoring and checking dubious content, clarifying what is fake or real in messages spread through cellphones and on the internet (G1, July 30, 2018)[6]. Among the specialized fact-checking agencies, Brazil has Lupa, created by Cristina Tardáguila in 2015, and Aos Fatos, created by Tai Nalon, Rômulo Collopy, and Carol Cavaleiro in the same year (LUPA, 15 abr. 2015).

Although several efforts to combat false information are in place, there is still much to do to increase the number of people who can identify what is fact and what is a lie. However, in this context, truth is in crisis, as Eugênio Bucci points out (2019).

It is a crisis installed in the so-called era of post-truth, a term used for the first time in a 1992 article by Steve Tesich, published in the American magazine The Nation, about the first Gulf War. In 2004, Ralph Keyes applied the term in the title of his book The Post-Truth Era. Bucci (2019, p. 11) states blogger David Roberts may have coined the expression 'post-truth politics' on April 1, 2010.

On September 10, 2016, The Economist weekly published a cover piece, "Art of the Lie," that called the world's attention about the deception that the British experienced when voting for Brexit, like did the Americans during Donald Trump's campaign for president (THE ECONOMIST, September 10, 2016)[7].

The *Oxford Dictionary* declared the term post-truth as the word of the year in 2016 and qualified it with an adjective referring to the circumstances in which objective facts are less influential than personal emotions and beliefs in public opinion (FABIO, 2016).

Though the term post-truth is not new, social media is boosting the crisis brought on by the proliferation of disinformation as opposed to the trueness of facts. If, on the one hand, these social media have collaborated to give voice to the citizens and the public debate, on the

6 Available at: https://g1.globo.com/fato-ou-fake/noticia/2018/07/30/g1-lanca-fato-ou-fake-novo-servico-de-checagem-de-conteudos-suspeitos.ghtml. Accessed on October 12, 2022.

7 Available at: https://www.economist.com/leaders/2016/09/10/art-of-the-lie. Accessed on October 12, 2022.

other hand, they have also been used by those who are not committed to the common good but to their own good and that of power groups with other less noble goals that do not correspond to the democratic environment. Years before this crisis, Ignacio Ramonet (2012, p. 64) stated, "due to its explosion, multiplication, and overabundance, information finds itself contaminated, poisoned by lies, polluted by rumors, alterations, distortions, and manipulations."

Unquestionably, social media have become an instrument that enables information and disinformation sharing in the post-truth era. However, it is interesting to mention that smartphones, on their turn, have become the basis for anyone to share from any part of the planet.

Given this scenario, it is also relevant to draw attention to the words of Michiko Kakutani (2017), who recalls that there is not only fake news but fake science, such as those of anti-vaccines, false history, like those of the Holocaust revisionists, fake Facebook profiles, like those created by Russian trolls, and fake followers and likes, such as those generated by bots on social media. Regarding the COVID-19 pandemic, which broke in 2020, it is worth stressing the phenomenon acknowledged by the World Health Organization (WHO) as an "infodemic" caused by excessive information, some precise and others not, which made it hard to find reputable sources and reliable guidelines.

Kakutani (2017, p. 11) points to the term "truth decay," used by the Rand Corporation think tank to describe "the diminishing role of facts and analysis in American public life." However, many other expressions currently designate what is more popularly known as fake news.

Claire Wardle (2020), director and co-founder of First Draft, a nonprofit organization created in 2015 with Harvard University, specializing in finding strategies to combat disinformation, is one of the most renowned scholars on the subject. The researcher distinguishes between disinformation, misinformation, and malinformation to understand information disorder.

> Disinformation is content that is intentionally false and designed to cause harm. It is motivated by three factors: to make money; to have political influence, either foreign or domestic; or to cause trouble for the sake of it.
>
> When disinformation is shared it often turns into misinformation. Misinformation also describes false content, but the person sharing doesn't realize that it is false or misleading. Often a piece of disinformation is picked up by someone who doesn't realize it's false and that person shares it with their networks, believing that they are helping.
>
> The third category we use is malinformation. The term describes genuine information that is shared with an intent to cause harm. An example of this is when Russian agents hacked into emails from the Democratic National Committee and the Hillary Clinton campaign and leaked certain details to the public to damage reputations. (WARDLE, 2020, p. 10)

Media education

Media education is one of the most relevant barriers against disinformation that circulates among people in any age group. Media education gives citizens better conditions to verify information and develop a critical reading of media content, collaborating to citizenship development. Furthermore, it "increases the understanding of different points of view and the sharing of responsibility" for shared content or even "reduces intolerance and increases understanding across political borders and between ethnicities and religions." (GRIZZLE, *et al.*, 2016, p. 150).

Hence, as Renee Hobbs (2010) observes, children, adolescents, adults, and over-60 people benefit from the opportunity to develop digital and media education skills. The researcher discusses these benefits for different age stages. Hobbs mentions that seniors are heavy television consumers and can be vulnerable to messages that are considered persuasive, such as in the health area: advertisements for prescription drugs, over-the-counter medications, and nutritional supplements. According to her, improving these people's digital and media literacy will help them to evaluate information better while having the benefits

of information sharing and social connection available through social media.

Grizzle et al. (2021) present a curriculum developed by Unesco, which educators can apply in developing literacy skills. In this sense, Soares (2014) indicates it was within the scope of the debate around the development of Latin America that Unesco began articulating action attempting to bring communication and education closer together in the sphere of public policies.

> The organization promoted a meeting in Mexico in December 1979, bringing together the Ministers of Education and Planning from the countries of the continent to examine the fundamental problems of education in the context of the general development of the region, creating, for this purpose, a common plan, called the Major Project of Education in Latin America and the Caribbean. (Soares, 2014, p. 20)

For the researcher, there is a growing willingness for a more solid collaboration between agents working with media education in Brazil. Currently, several non-governmental organizations collaborate in the development of media education. In 2017, media education became part of the Brazilian common core curriculum, Base Nacional Comum Curricular (BNCC), for secondary and elementary education.

Thus, the hypothesis formulated in this research is that the literacy course offered by *WhatsApp* will increase the abilities of elders to detect the nature of information, regardless of the social and demographic characteristics of the participant.

Methodology

To conduct a two-stage randomized longitudinal study, researchers from a Journalism and Business Administration course designed a probabilistic sampling scheme and partnered with a data collection company in Brazil. The research provider company collected the data in the two phases of the experiment and monitored the participants

throughout the course. Data collection began on May 5th and ended on August 18th, under the supervision of researchers and analysts.

Data collection took place in 18 capitals[8] and the Federal District. IBGE projections for the year 2020 provided the number of inhabitants per location. The numbers published by the Center for Social Policy of the Fundação Getulio Vargas, which has an online platform[9] capable of displaying percentages in places where the research company has an office, provided the rates of the population over 60 in each location.

Based on this, we calculated the number of people aged over 60 per location so that, with a confidence level of 95%, the margin of error for calculating the percentage estimates was no more than 5.32% on either side. These calculations led to a sample projection of 340 elders in the first collection round of the experiment.

Thus, the data collection company used its reference system with contacts of elders selected according to a representative entry protocol constructed to represent Brazilian society. The elders received a link to the questionnaires prepared using the Gandia Integra tool[10]. If a participant had difficulties answering the survey or during the course, the company contacted them and helped them to clarify their questions.

Still, the entire questionnaire was self-completed by participants, and the company only provided support over the telephone. Finally, the company sent the collected data to the researchers who had no contact with the participants and did not receive any information that could identify them.

Data collection was structured to take place in two stages. In the first stage, the team applied an instrument to characterize the sample and describe the interviewee's contact with the digital environment and their exposure to technology.

8 The demographic census will be updated this year. So, the most recent projected data refer to 2020.

9 Panorama dos Idosos Brasileiros - Quem são? Onde estão? O que fazem? Como chegar até eles? - Available at: https://www.cps.fgv.br/social/4/evolucaoBRATOTHIBcodpanorama/visualizacao/tudo.

10 For more information, see: https://www.tesibr.com/.

In the first stage, respondents received six news items based on the structure of a survey conducted by Stanford University (MOORE; HANCOCK, 2022). Some headlines were a false construction on purpose, and others were genuine news clippings. The news appeared in random order. Each respondent had to assess the tendency of each news piece from definitely false to definitely true.

For ten days, subscribers received a short class with an excerpt of content and a short video via WhatsApp. The course content was interactive and focused on digital literacy tools and tips on social media, such as lateral reading, click restraint, algorithms, and reverse image search.

Even if interactive, participants could review the ten-day course as much as necessary. So, this form of literacy favored the autonomy of elderly students during learning. Other highlights of the methodology are that the video lessons remained stored on students' WhatsApp, and this audience sees the chosen presenters as charismatic, which shows mastery in conducting teaching.

Two months after the course finished, the same interviewees who carried out the first six assessments and completed the classes were shown another six randomly ordered news pieces. Figures were inserted in all the news to check if any interviewee would resort to the reverse image search technique.

Results and discussion

The final sample had 347 people due to the existence of a sampling plan and a weighting on sex, race, religion, and economic class. Regarding the sex and race of respondents:

- Sex: 54% female.
- Race or ethnic group: Black (8%); Brown (38%); White (52%); Asian (1%); indigenous groups (1%).

Moreover, it was necessary to control the percentages for religion and income for the sample to represent different strata of the Brazilian population according to these demographic criteria.

For religion, our study used the percentages informed on the G1 portal (G1, 13 Jan. 2020) based on a survey carried out by the DATAFOLHA Institute from the *Folha de S. Paulo* newspaper. Frequency distributions for predominant religion were:

- None (10%); Catholicism (51%); Protestantism (29%); Spiritism (5%); Buddhism (1%); Afro-Brazilian religions (1%); others (2%); and atheism (1%).

To control the different economic classes, Neri (2019) discusses the subjectivity in traditional Brazilian economic stratification instruments and draws from the literature on the concept of social well-being. As known, income criteria in Brazil only consider the situation of the economically active population and sometimes exclude the over-60 population, which includes pensioners.

In this scenario, our study adopted the following income ranges to stratify the over 60 population, adapted from the methodology used by the Center for Social Policy at FGV Social:

- E Class: up to one minimum wage; that is, R$ up to 1,212.00.
- D Class: one to two minimum wages; that is, from 1,212.01 to R$ 2,424.00.
- C Class: two minimum wages to the current INSS pension limit; that is, R$ 2,424.00 to R$ 7,087.22.
- AB Class: above the current INSS pension limit; that is, more than R$ 7,087.22.
- Hence, we obtained the following percentages for the different monthly family income ranges: E Class (3%); D Class (12%); C Class (63%); and AB Class (22%).

Since access to information requires some education level, the analysis corpus of the research did not include illiterate elders. Hence, education worked as a filter in this research. Finally, we obtained the following percentages for the different education levels:

- Elementary school, from the 1st to 5th years (3%); elementary school, from the 6th to 9th year (14%); high school (44%); higher

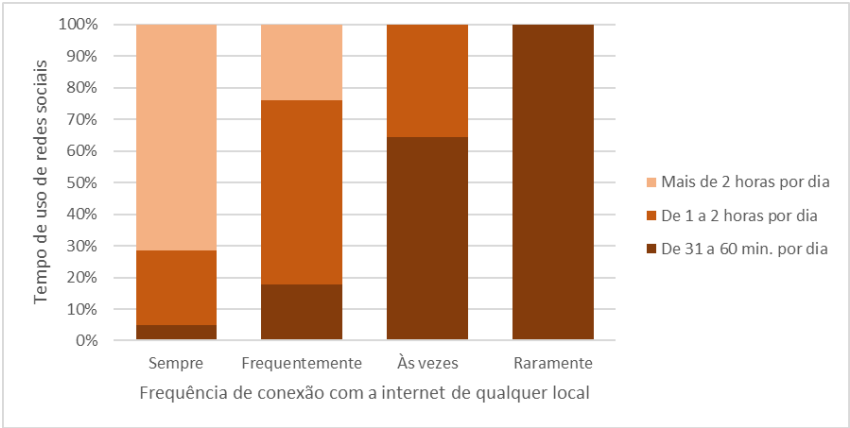
education, incomplete (9%); higher education, complete (24%); and graduate education (5%).

We adapted the questionnaire applied before the course to the Brazilian reality, drawing from Moore and Hancock's (2022) study. To measure the exposure of Brazilian elders to technology and the digital environment, interviewees indicated how frequently they surfed the internet from anywhere (at home, work, commuting, or any other place). The result was that 236 of the 347 interviewees (68%) said they "always" used the internet. 175 of the 347 respondents (50%) said they remained actively browsing social media such as Facebook, Twitter, or Instagram for more than two hours on average.

Figure 1 reveals the possible association the interviewee established between the frequency of connection and the time spent on social media, given the time spent on social media increases as the frequency of connection to the internet from anywhere increases.

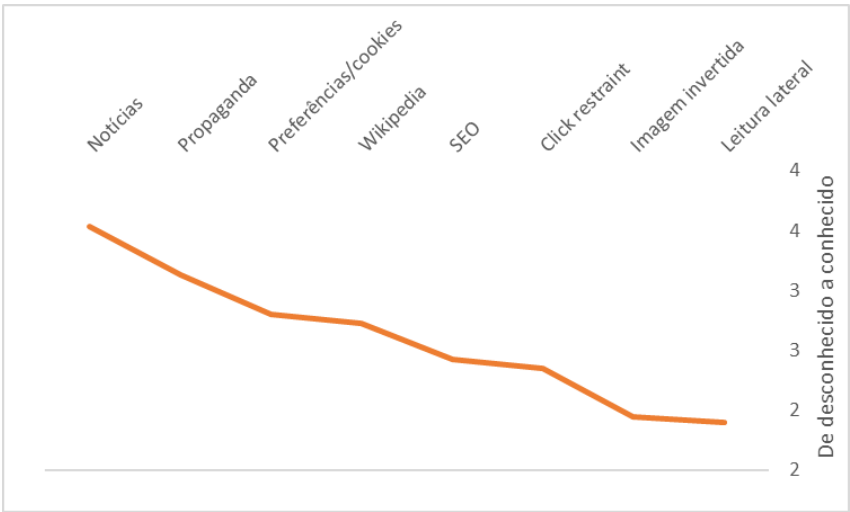
We used the chi-squared test to check the significance of this association. First, we eliminated "rarely" from the internet connection frequency categories since we had no observations of social media usage time for the others. This way, the study applied the chi-squared test to examine a possible association between the frequency of connection and time spent on social media, obtaining a value-p (<0.001) favorable to the association between these two measures. This result indicates elders who access the internet are more frequent social media users and vice-versa.

Figure 1 – Connection frequency and time spent on social media



The over-60 population also needed to assess their knowledge of some digital techniques. SEO, click restraint, reverse image search, and lateral reading techniques were part of the digital media literacy course content offered to interviewees in the study's second stage.

Figure 2 – How familiar are you with these themes?



The techniques present in the course were the least known to the Brazilian 60+ public, as shown in Figure 2. This result alone justifies the knowledge gap and the need for a digital literacy program for the over-60 population in Brazil.

These results corroborate the studies by Machado et al. (2019), who mapped and analyzed the digital competence of 24 elders aged 60 or over who participated in a digital inclusion course offered by the Digital Inclusion Unit (UNIDI) at the Federal University of Rio Grande do Sul (UFRGS). The authors considered the elders still have many limitations in knowledge and skills of digital literacy and fluency but take attitudes in search of solutions to these barriers. The authors argued for creating and applying new pedagogical strategies to solve these difficulties, such as using digital educational materials.

Regarding the need for this inclusion, Gil (2019) states that digital literacy should be associated with elders so that they feel digitally included and, thus, socially included. From this perspective, Slodkowski et al. (2021) comment on the importance of elders building digital skills to fit in and act in society.

Araújo da Silva and Behar (2019, p. 26) state that a digitally competent subject should understand enough technological resources to "know how to use information, be critical, and be able to communicate using various tools."

Figure 3 – Assessment of the nature of information before the course

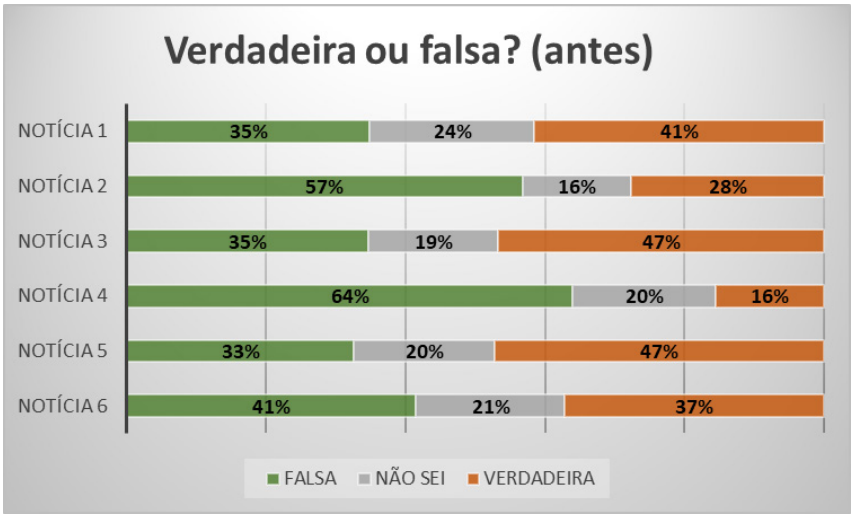
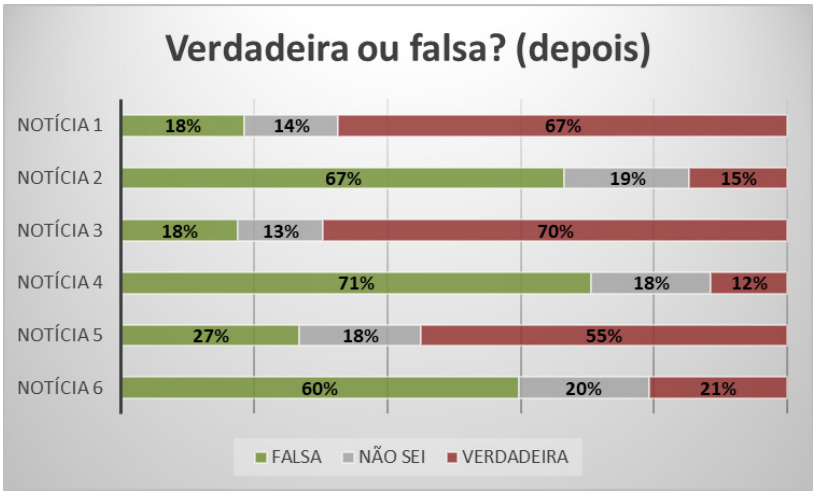
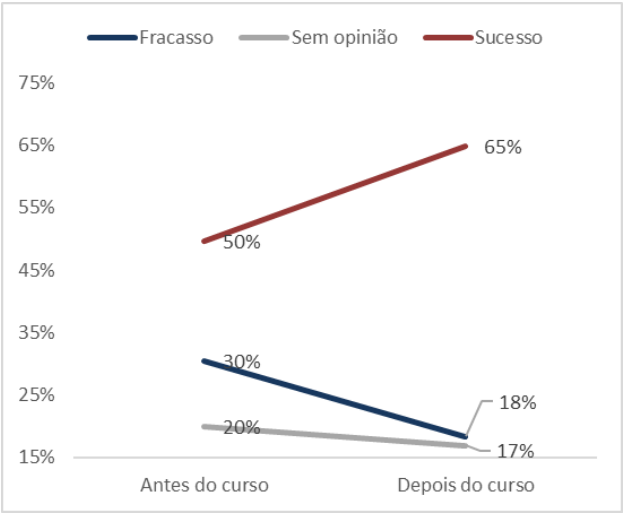


Figure 4 - Assessment of the nature of information after the course



Figures 3 and 4 present the results of the assessments of the six news before and after the course. Based on these percentages, we obtained the averages for correct, wrong, and undecided assessments, as Figure 5 shows.

Figure 5 – Boost in digital literacy skills



From Figure 5, we can infer how much elders learned with the course. On average, before the course, 50% [43.3% to 54.9%] of respondents correctly assessed if the news was real or fake, while 20% [14.7% to 25.3%] could not tell, and 30% [25.1% to 35.7%] made wrong judgments.

It is interesting to highlight that this result obtained before the course shows the complete randomness that could exist in determining the nature of information. As a news piece can only be real or fake, half of the respondents successfully identified the nature of the assessed news.

After the course, this percentage had a 15% increase, indicating a significant improvement in respondents' ability to identify the nature of information, for, on average, 65% [59.5% to 70.2%] of them were successful, 17% could not judge, and 18% [13% to 23.6%] made wrong assessments. Lateral reading was the mechanism they used the most to check the nature of information. That leads to accepting the hypothesis that the course improved elders' skills.

The analysis with a margin of error of 5.32% reveals a significant increase among those who could assess whether the information presented was real or fake after completing the literacy program offered

by *MediaWise*. The lower rate of incorrect assessments of the nature of the information compared to the results obtained before the course reinforces that result.

Moreover, the correct evaluation of information could potentially reach 70.2% (at the margin of error limit) of the population with the digital literacy program elaborated by *MediaWise*. A statistical tie only appears in the percentage of those who could not comment on the verity or not of the information.

Final considerations

The research showed the over-60 group is unfamiliar with digital literacy tools such as click restraint, reverse image search, and lateral reading. Even after taking the course, they made little use of the reverse image search technique. However, respondents' familiarization with lateral reading began to make a difference in determining the verity of most news since they searched for the original or related texts.

The digital literacy course fulfilled its purpose since elders improved their chances of recognizing the true or false nature of the presented news after completing it, which means our hypothesis is valid.

A point worth highlighting is that the historical moment of elections in which we carried out the research ended up contradicting the *truth-default* theory established by Levine (2014), which indicates that people tend to interpret received information as truth. When we delved into the 50% that successfully assessed the news before the course, we found that, on average, 45% were right about the true origin of the information, and 54% were correct to judge the information was false. It is as if they were looking for fake information, given the percentage that identified it was nine points higher than the portion that detected the correct nature of truthful information.

After the course, among the 65% who successfully assessed the nature of the information, 66% were successful in determining fake pieces, and 64% were successful in determining truthful information. Despite the statistical tie, the percentage of those who believe the information is

false is numerically higher than the proportion of those who judge it to be true. Therefore, carrying out this survey in a year of presidential elections in Brazil may have increased Brazilians' skepticism toward information.

On the other hand, this study corroborates Moore and Hancock (2022) since the digital literacy course increased the proficiency of elders in detecting the nature of information.

The advantage of our study compared to the two referenced above is that the process of sampling stratified by proportional allocation of sex, race, religion, and economic class ensured that it is possible to extrapolate the improvement in digital literacy beyond the limits of this sample, given the instrument is valid for all of Brazil with a confidence level of 95% and a margin of error of 5.32% on either side.

Finally, we can stress that Moore and Hancock's (2022) study collected data for the second stage immediately after the conclusion of the course. Differently, our study collected data for the second phase two months after the end of lessons, which allows us to state that the elders had memorized their learning two months after taking the course.

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