Using testimonial narratives to persuade people about artificial intelligence: the role of attitudinal similarity with the protagonist of the message

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Recommended citation:

Igartua, Juan-José; **González-Vázquez, Alejandro**; **Arcila-Calderón, Carlos** (2022). "Using testimonial narratives to persuade people about artificial intelligence: the role of attitudinal similarity with the protagonist of the message". *Profesional de la información*, v. 31, n. 4, e310409.

https://doi.org/10.3145/epi.2022.jul.09

Article received on June 21st 2022
Approved on July 24th 2022

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Abstract

This study addresses the factors that increase the persuasive impact of testimonial narrative messages on artificial intelligence (AI). In particular, the effect on two variables that, to date, have not been explored in this field is analyzed: the attitudes toward AI (positive versus ambivalent) expressed by the protagonist of the narrative message (a testimonial in audiovisual format) and the role of participants' prior beliefs about AI. An online experiment (N = 652) was carried out to contrast the effect of attitudinal similarity on identification with the protagonist of the narrative message and the indirect effect on attitudes and intention to use AI. The results showed that the message whose protagonist expressed positive attitudes toward AI induced greater identification only in those participants with previous positive beliefs. In contrast, the message whose protagonist expressed ambivalent attitudes toward AI induced greater identification only among participants with previous negative beliefs. In addition, identification and cognitive elaboration were found to mediate the effect of attitudinal similarity on the attitude toward and intention to use AI. These findings are discussed in the context of narrative persuasion research and the development of campaigns for improving social perceptions of data science.

Keywords

Narrative persuasion; Audience–character attitudinal similarity; Identification with characters; Cognitive elaboration; Artificial intelligence; Attitudes toward artificial intelligence; Media Psychology.

Funding

This work has been made possible thanks to the financial support granted by the *Spanish Ministry of Science and Innovation* to the project entitled "*Using data journalism and narrative persuasion to improve public awareness and perception of big data and artificial intelligence*" (reference: FCT-19-15021).

1. Introduction

Artificial intelligence (AI) can be defined as computer systems that can make predictions, recommendations, or decisions and select information autonomously using algorithms and has been considered as one of the promising technological breakthroughs of the twenty-first century (**Samoili** *et al.*, 2020). Its implementation in both the private and public sectors has captured the interest of media and citizens: from disaster or emergency management, through its use as a diagnostic and predictive tool in medicine, economics, or even the entertainment industry, to military applications. Its presence across society means that most citizens are having contact with such systems to some extent in their daily life, which in turn triggers a legitimate social criticism and a focused debate about the benefits and risks of these technologies. It is here that attitudes toward and beliefs about AI come into play, ranging from optimistic expectations to perceptions of threat and risk associated with security, autonomy, interpersonal relationships, and loss of status (**Olhede**; **Wolfe**, 2018). These beliefs or expectations regarding the benefits or risks of AI directly influence the degree of use and social relevance of these technologies (**Lichtenthaler**, 2020; **Schepman**; **Rodway**, 2020; **Sindermann** *et al.*, 2021; **Venkatesh** *et al.*, 2003). However, as in the case of other scientific advances (e.g., nuclear power, biotechnology, and some medical and environmental technologies) some of the negative expectations of AI might be based on misinformation, lack of accurate knowledge or even unrealistic ideas from science fiction, but are also based on legitimate concerns regarding the governance of these technologies (**Cave**; **Dihal**, 2019). This makes relevant the study of strategies that can change the negative attitudes produced by non-scientific facts (**Dahlstrom**; **Ho**, 2012).

In fact, few studies have addressed the social perception of and attitudes toward AI, mostly focusing on specific fields of application such as the financial and government sectors (e.g., **Granulo**; **Fuchs**; **Puntoni**, 2019; **Makridakis**, 2017; **Sáez**; **Costa-Soria**, 2019) or health (e.g., **Dos-Santos** *et al.*, 2019; **Vayena**; **Blasimme**; **Cohen**, 2018). The works of **Cave** & **Dihal** (2019) and **Cave**, **Coughlan** & **Dihal** (2019) identified the most common and recurrent narratives in UK public opinion regarding AI. Thus, the most optimistic perspective values the ability of AI to improve people's well-being and health by facilitating the performance of routine tasks, or their capacity as artificial assistants. In contrast, the most pessimistic expectations indicate the risk of the gradual alienation of society due to the displacement of humans in both work environments and interpersonal relationships, to the point of reaching an excessive or even dangerous degree of dependence on this technology. These works reveal a presumably growing problem regarding the controversial social perception of data science and AI, especially in relation to all the unfounded negative beliefs and attitudes that can lead to rejection of these technologies. This fact justifies the need to develop tools to detect and delineate the nature of such attitudes (e.g., **Schepman**; **Rodway**, 2020; **Sindermann** *et al.*, 2021). More importantly, it also becomes necessary to develop effective communication strategies aimed at generating an attitudinal change toward AI that will facilitate its correct assessment and use.

> Due to the existence of unfounded negative beliefs and attitudes that can lead to rejection of AI, it becomes necessary to develop effective communication strategies aimed at generating an attitudinal change toward these technologies

The current work starts from the idea that the use of brief testimonial narrative messages could be an important tool to attitude formation and change toward AI, since they can be easily distributed and go viral on social networks. In fact, a recent meta-analysis confirmed that exposure to narrative messages has a significant impact on attitudes (r = .19) and behavioral intention (r = .17), two of the main dependent variables in the current research (**Braddock**; **Dillard**, 2016). In this context, this is one of the first studies on the use of narrative messages in the field of AI. The current experiment was carried out to analyze the effect of the attitude toward AI of the protagonist of an audiovisual testimonial message and the role of the participants' prior beliefs on the topic. This enables an exploration of the effect of attitudinal similarity and an analysis of the role of two psychological mechanisms relevant to research on narrative persuasion: identification with the protagonist (**Cohen**, 2001) and cognitive elaboration (**Hoeken**; **Fikkers**, 2014; **Igartua**; **Vega**, 2016)..

2. Narrative persuasion

Empirical research during the last two decades has demonstrated that narrative messages, as opposed to purely informational messages (that is, with a format limited to the presentation of objective data with an overtly persuasive intent), exert an important effect on the attitudes, beliefs, and behaviors of their recipients (**Braddock**; **Dillard**, 2016), thus providing a useful tool for the development of interventional campaigns in a multitude of areas (e.g., **Barriga**; **Shapiro**; **Fernandez**, 2010; **Bilandzic**; **Kinnebrock**; **Klinger**, 2020; **Cohen**; **Tal-Or**; **Mazor-Tregerman**, 2015; **Morris** *et al.*, 2019; **Wojcieszak** *et al.*, 2017). However, one of the great challenges in research in this field is to identify the characteristics of the messages that can improve their persuasive potential (**Braddock**; **Dillard**, 2016). Previous work that analyzed various

factors conditioning the persuasive impact of narrative messages (e.g., **Tal-Or**; **Cohen**, 2015; **Tukachinsky**, 2014) emphasized the role of the characteristics of the messages (such as the narrative voice or the point of view from which the story is told; **Chen**; **Bell**, 2021; **Igartua**; **Rodríguez-Contreras**, 2020; the placement of relevant information within the narrative; **Dahlstrom**, 2010), or the attributes or characteristics of their protagonists (such as objective similarity; **Cohen**; **Weimann-Saks**; **Mazor-Tregerman**, 2018; **Ooms**; **Hoeks**; **Jansen**, 2019). The current work focuses on the role of the similarity between the audience and the protagonist of the message, because of its ability to stimulate greater identification.

> The current work starts from the idea that the use of brief testimonial narrative messages could be an important tool to attitude formation and change toward AI

3. Attitudinal similarity and identification with the protagonist

Similarity occurs when a person exposed to a narrative message shares certain characteristics with its protagonist. For example, a high level of similarity occurs when a message whose protagonist is a 20-year-old is received by a person aged 18–22 years, where the similarity is low if it is received by a person aged 40–50 years. There is an open debate regarding the role of similarity in increasing identification and, indirectly, fostering persuasive impact. According to the *similarity–identification hypothesis* (**Cohen**; **Weimann-Saks**; **Mazor-Tregerman**, 2018), people form more intense affective and cognitive bonds with protagonists of narrative messages who are similar in demographic, social, or psychological terms. However, studies carried out to date have found inconclusive results on this hypothesis (**Cohen**; **Weimann-Saks**; **Mazor-Tregerman**, 2018; **Hoeken**; **Kolthoff**; **Sanders**, 2016; **Ooms**; **Hoeks**; **Jansen**, 2019; **Tukachinsky**, 2014).

Most work in which similarity with the protagonist of a message has been manipulated has focused on objective demographic attributes such as sex or age (e.g., **Cohen**; **Weimann-Saks**; **Mazor-Tregerman**, 2018; **De-Graaf**, 2014; **Hoeken**; **Kolthoff**; **Sanders**, 2016), whereas little work has been carried out on the effect of similarity in terms of psychological or subjective characteristics (such as personality, attitudes, values, or biographical experiences) (**Cohen**; **Hershman-Shitrit**, 2017). In this context, the aim of the current work is to make a theoretical adjustment to the concept of similarity by expanding its conceptual domain to include an aspect not analyzed to date in research on narrative persuasion: attitudinal similarity.

Attitudes are relevant in research on narrative persuasion, not only because they are one of the main outcome variables (dependent variables) of studies in this field, but also because narrative messages always explicitly or implicitly present an attitude or series of beliefs on a specific topic, in either a central or peripheral way. Narratives have been defined as a type of message including at least one character who experiences or faces an event (or broader set of situations) in a specific space–time frame. In addition, narratives must communicate something relevant to the audience, who can extract a lesson from them (**Braddock**; **Dillard**, 2016; **Hoeken**; **Kolthoff**; **Sanders**, 2016). This means that each narrative message introduces an attitudinal proposal, and it is indeed its protagonists who express a point of view, manifest a series of beliefs, or propose a perspective on the central theme of the message. This is particularly important for first-person testimonial messages (**Chen**; **Bell**, 2021), in which the protagonist addresses the reader or viewer directly to tell their story, recount their personal experiences, or (explicitly or implicitly) communicate a positive, negative, or ambivalent attitude toward a certain social object.

In this context, the current study focuses on the effect of attitudinal similarity, i.e., the match between the protagonist's attitude toward a social object (in this case, AI) and the participants' prior beliefs about it. Here, *high attitudinal similarity* can be considered to apply when a person who expresses positive beliefs about AI views a testimonial video whose protagonist clearly or consistently expresses positive beliefs about or attitudes toward AI in a particular domain (in this case, the management of medical appointments through an intelligent system instead of by phone). Moreover, high attitudinal similarity also occurs when the person receiving the message manifests negative or ambivalent beliefs about AI and views a testimonial message whose protagonist shows an ambivalent attitude toward the use of AI in the health management context. On the other hand, a situation of *low attitudinal similarity* occurs when a person with positive beliefs about AI views a message whose protagonist is ambivalent about the topic, or when a person with negative beliefs views a testimonial message whose protagonist shows a very positive attitude toward AI.

Social identity theory and self-categorization theory (**Tajfel**, 1982; **Turner**, 1985) suggest that people tend to categorize those they perceive to be similar as members of the ingroup, and those they perceive to be different as members of the outgroup. This leads to different reactions toward ingroup and outgroup members (**Gaertner** *et al.*, 1993), even when processing narrative messages (**Igartua**; **Wojcieszak**; **Kim**, 2019; **Kaufman**; **Libby**, 2012). In this context, we assume that, if certain *cues* are activated in the narrative message about the attitude of its protagonist toward AI (for example, reporting positive experiences on its use), identification may be more easily promoted as long as there is an *attitudinal match*, which in this case would suppose that the person receiving the message also manifests positive prior beliefs about AI.

> The objective of the present investigation is to provide empirical evidence regarding the efficacy of narrative persuasion models as a tool for changing attitudes toward Data Science and AI

4. Underlying processes: Identification and cognitive elaboration

The main theoretical models on narrative persuasion consider that identification with the protagonist of a narrative fosters persuasive impact through a process that inhibits *resistance* to the persuasive proposal of the message, thereby facilitating its attitudinal impact (**Moyer-Gusé**, 2008; **Slater**; **Rouner**, 2002). That being said, the empirical evidence on the role of counterarguing (the production of critical cognitive responses that refute the content of a message; **Niederdeppe** *et al.*, 2012) and reactance (reacting negatively to a message by perceiving that freedom of choice or opinion is threatened; **Rains**, 2013) is not conclusive, leading to the proposal of alternative models that give greater weight to cognitive elaboration (**De-Graaf**; **Van-Leeuwen**, 2017; **Igartua**; **Vega**, 2016; **Walter**; **Cohen**, 2019). In any case, the role of cognitive elaboration in narrative persuasion processes has been less investigated to date than the role of message resistance processes (**De-Graaf**; **Van-Leeuwen**, 2017). The current work therefore makes a significant contribution to understanding the role of identification and cognitive elaboration in narrative persuasion processes.

Identification is an imaginative process that has been defined as a multidimensional construct linked to emotional empathy, cognitive empathy, and a feeling of merging with the character and adopting their goals (**Cohen**, 2001; **Igartua**; **Barrios**, 2012). This constitutes a psychological phenomenon by which audience members mentally adopt the position of the protagonist of the narrative message and thereby *borrow* their attitudes and beliefs (**Cohen**; **Tal-Or**, 2017). Meanwhile, cognitive elaboration is defined as a process of reflection on the content of a message and provides a measure of the intensity with which the topic is reflected on during the reception process (**Igartua**; **Vega**, 2016; **Petty**; **Cacioppo**, 1996). **Cohen** (2001) states that identification is a process of *temporary involvement* with the message, and therefore it is possible that it increases cognitive elaboration during its reception. In this context, we consider that the experience narrated in a message by a positive role model (in our case, about their experience with AI in health management) can serve as inspiration and stimulate deep cognitive processing in people, so that they question their prior opinions and *adjust* their attitudes toward AI.

Previous evidence on this topic is scarce but corroborates this approach. Indeed, it has been observed that identification increased cognitive elaboration, which in turn enhanced the attitudinal impact (**Igartua**; **Vega**, 2016). However, those results were obtained in the context of education-entertainment research, using complex messages that incorporated attitudinal proposals with clear health benefits for individuals. However, the current research uses testimonial narrative messages that incorporate an attitudinal proposal with no apparent benefit for individuals (that is, improving attitudes toward AI). In this context, our work aims to provide evidence on the role of cognitive elaboration as a *secondary mediator mechanism* dependent in turn on the identification process.

> "The current work focuses on the role of the similarity between the audience and the protagonist of the message, because of its ability to stimulate greater identification facilitating its attitudinal impact"

5. Objectives and hypotheses

The objective of the present investigation is twofold. The first, and more general, aim is to provide empirical evidence regarding the efficacy of narrative persuasion models as a tool for changing attitudes toward Data Science and AI, in order to serve as a starting point for the development of strategies to bring this kind of technology closer to the general population and counteract the discourses of rejection and mistrust. The second aim is to study in greater depth the various mechanisms responsible for narrative persuasion processes, paying special attention to the role of attitudinal similarity as a psychological *trigger* of identification with the protagonist. In this context, it is suggested that attitudinal similarity could be a key element for increasing identification with the protagonist of a testimonial message. In the current experiment, the attitude toward AI (positive versus ambivalent) of the protagonist of a testimonial audiovisual message was manipulated. In addition, the participants completed a pre-test measure (before viewing the testimonial videos) to evaluate their previous beliefs about AI. The following research hypotheses are hence proposed:

H1a. The testimonial message whose protagonist shows a positive attitude toward AI will induce greater identification than that in which the protagonist maintains an ambivalent attitude, but this effect will occur only among people with positive prior beliefs about AI.

H1b. The narrative message whose protagonist shows an ambivalent attitude will generate greater identification than that in which the protagonist expresses positive attitudes toward AI, but only among people with negative prior beliefs about AI.

We also establish the following hypotheses to analyze the role of identification with the protagonist as a mediating mechanism of the effect of attitudinal similarity with the protagonist on attitudes toward and intention to use AI:

H2. The testimonial message whose protagonist shows a positive attitude toward AI will induce greater identification than that in which the protagonist maintains an ambivalent attitude, and this, in turn, will be associated with a more positive attitude toward (H2a) and a greater intention to use AI (H2b), although this indirect effect will only appear in people with positive prior beliefs about AI.

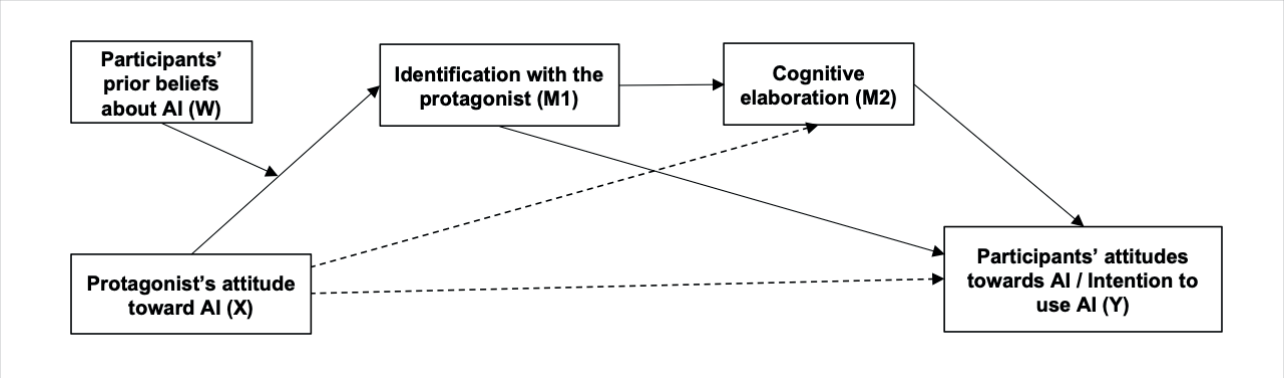


Figure 1. Hypothesized moderated serial multiple mediation model (H2 & H3)

Finally, the role of identification with the protagonist and cognitive elaboration as mediators acting in sequence is analyzed, and the indirect effect of attitudinal similarity with the protagonist on attitudes toward and intention to use AI is analyzed by establishing a moderated serial multiple mediation model (see Figure 1).

> H3. The testimonial message whose protagonist shows a positive attitude toward AI will induce greater identification than that in which the protagonist maintains an ambivalent attitude, and this will be associated with greater cognitive elaboration, which, in turn, will be associated with a more positive attitude toward (H3a) and a greater intention to use AI (H3b), although this indirect effect will only appear in people with positive prior beliefs about AI.

6. Method

6.1. Procedure and participants

An online experiment was carried out using *Qualtrics* to access a panel of 652 people of Spanish origin, setting gender and age quotas to achieve a representative sample of the Spanish population (50.6% men; M_{age} = 39.81 years, *SD* = 11.47 years, range 18–65 years).

The online questionnaire consisted of three blocks: pre-test measures, experimental manipulation, and post-test measures. The first block collected information on sociodemographic variables (gender, age, educational level, and employment status) as well as previous beliefs about AI (moderating variable) and the degree of use of said technology. Then, in the second block, the participants were randomly assigned to one of four possible experimental conditions, according to a 2 (attitude of the protagonist toward AI) × 2 (demographic similarity with the protagonist) between-subjects factorial design. The participants viewed an audiovisual piece consisting of a testimonial message whose protagonist narrated their past and present experiences with AI in various fields. After viewing the testimonial audiovisual message, the post-test measures were presented using questions to evaluate the effectiveness of the experimental manipulation of demographic similarity, as well as self-report measures on the mediating variables (identification with the protagonist and cognitive elaboration) and dependent variables (attitudes toward and intention to use AI).

The relevant independent variable of this study was the attitude manifested by the protagonist of the narrative message toward AI, while demographic similarity was introduced into the design to increase the external validity of the study (assuming the role of a covariate), because people are usually exposed to narrative messages that lack demographic matching. The present design therefore addresses one of the main criticisms of experimental research in media psychology, i.e., the use of a single message per experimental condition (**Reeves**; **Yeykelis**; **Cummings**, 2016; **Slater**; **Peter**; **Valkenburg**, 2015). In this study, instead of only two narrative audiovisual messages (depending on the protagonist's attitude toward AI), eight messages were created such that participants viewed messages with or without demographic matching between the gender and age of the protagonist of the message and the participants themselves. An additional condition in which the protagonist of the message expresses an unambiguously negative attitude toward AI could also exist. However, since the aim of this work is to explore the potential of narrative messages to raise awareness about the benefits of AI, this possibility was not considered in the present work.

The calculation of the sample size depends on several factors such as the type of design, the effect size observed in previous studies (or in meta-analysis reviews), the type I error (α), and the statistical power (1 – β). **Braddock** and **Dillard**'s (2016) meta-analysis was considered to obtain a measure of the effect size. Thus, assuming an effect size of *r* = .17, an α value of .05, a power of .80, and a four-group design, the G*Power program (**Faul** *et al.*, 2007) indicated that a sample size of 384 participants was necessary. The study was thus designed to access a sample of this size or slightly larger.

> "We consider that the experience narrated in a message by a positive role model can serve as inspiration and stimulate deep cognitive processing in people, so that they question their prior opinions and *adjust* their attitudes toward AI"

Since *Qualtrics* enables the application of a series of quality controls, the questionnaire was designed such that it could only be completed in a single session. In addition, we only counted as valid cases those participants who took between 65 and 120 seconds (*M* = 87.12 seconds, *SD* = 9.67 seconds) to view the testimonial narration (with duration 66–79 seconds) and who correctly answered a control question included in the questionnaire.

6.2. Independent variables and experimental stimulus materials

Based on the aforementioned studies as a reference as well as collaboration and advice from experts in AI and data science, a series of audiovisual pieces were produced in testimonial format. In the first part of the testimonial video, the protagonist stated that they had always had an attitude of trust and acceptance (versus mistrust and rejection) toward the use of AI. In the second part of the video, the protagonist described that they had recently needed to resort to AI and had obtained good results. Specifically, the protagonist commented that, after several unsuccessful attempts through traditional channels (by phone), they had managed to make an urgent medical appointment with the help of AI (virtual web assistant). In this way, the narrative message connected two attitudes toward AI (consistently positive, or ambivalent with a positive end result) in a temporal causal chain. In this way, the constructed narrative message referred to two different *states*, the first related to previous experiences (negative or positive) with AI, and the second related to a recent positive experience with said technology (defining AI as a useful, simple, and effective tool), with the two events connected in a *causal temporal sequence*. In addition, in the narrative, the protagonist mentioned the reasons that led them to use AI recently, alluding to their perceptions about said technology and communicating their expectations for the future (*intentions and goals of the character*).

In addition to considering the protagonist's attitudes toward AI, different versions of each experimental condition were constructed depending on the protagonist's demographic characteristics. Four protagonist profiles were established: a 30-year-old man, a 30-year-old woman, a 50-year-old man, and a 50-year-old woman, being assigned fictitious names that are common in Spain (Antonio and Maricarmen). In this way, each participant was randomly presented with an audiovisual piece whose protagonist had high demographic similarity (for example, a male participant aged 18–39 years viewed the piece with a 30-year-old man as protagonist) or low demographic similarity (in the same example, the participant viewed a piece with a 50-year-old woman as protagonist). The actors and actresses were selected in a previous pilot study, in which they were evaluated in terms of phenotypic representativeness of the Spanish population and having desirable characteristics such as attractiveness or generating trust and sympathy.

Overall, a total of eight versions of the same audiovisual piece were finally produced, varying only in the type of narrative message and the demographic characteristics of the protagonist. The other elements of the narrative remained identical in all the versions, as well as the stage, props, sound, and lighting used in each audiovisual piece.

6.3. Measures

Beliefs about AI

To evaluate the general previous beliefs (positive and negative) about AI, we took as reference the scale developed by **Cave**, **Coughlan** & **Dihal** (2019) composed of eight items evaluated on Likert-type scales (e.g., "Artificial Intelligence could revolutionize medicine to the point of greatly increasing our life expectancy"; 1 = totally disagree, 7 = totally agree; α = .79; *M* = 4.12, *SD* = 0.64).

Use of AI

In this case, we used a scale constructed based on the work of **Sáez** & **Costa-Soria** (2019) and **Sindermann** *et al.* (2021), composed of six items evaluated with 5-point rating scales on the habitual use of the different forms of said technology (e.g., "To what extent do you make habitual use of virtual assistants such as Siri, Alexa, Aura, or Cortana?"; 1 = not at all, 5 = a lot; α = .77; *M* = 3.28, *SD* = 0.84).

Perceived similarity

To test the effectiveness of the manipulation of demographic similarity, immediately after viewing the narrative message, the participants completed a scale based on the work of **Ooms, Hoeks** & **Jansen** (2019), made up of four items evaluated on Likert-type scales (e.g., "Antonio [Maricarmen] has demographic characteristics such as sex or age that are very similar to mine"; 1 = totally disagree, 7 = totally agree agreement; α = .86; *M* = 4.36, *SD* = 1.45).

Identification with the protagonist

Identification with the protagonist was measured using a scale developed by **Igartua** & **Barrios** (2012), consisting of 11 items evaluated with 5-point rating scales (e.g., "While viewing the video I felt as if I were Maricarmen [Antonio]"; 1 = not at all, 5 = a lot; α = .94; *M* = 3.24, *SD* = 0.93).

Cognitive elaboration

To measure the degree of cognitive elaboration, the scale developed by **Igartua** & **Vega** (2016) and **Igartua** & **Rodríguez-Contreras** (2020) was adapted to the AI field, being composed of three items evaluated on Likert-type scales (e.g., "While I viewed the video, I reflected intensely on the subject of artificial intelligence"; 1 = totally disagree, 7 = totally agree; α = .92; *M* = 4.93, *SD* = 1.41).

Attitude toward AI

This was evaluated using a scale developed by **Schepman** & **Rodway** (2020), comprising 16 items related to different benefits and perceptions of AI (e.g., "Artificial Intelligence can have a positive impact on people's well-being," "Artificial intelligent systems can perform better than humans," "For routine transactions, I would rather interact with an artificial intelligent system than with a person"; 1 = totally disagree, 7 = totally agree; α = .93; *M* = 4.99, *SD* = 1.05).

Intention to use AI

To capture the behavioral component of the attitude toward AI, an ad hoc scale made up of six items evaluated on Likert-type scales was used (e.g., "I would not mind interacting with artificial intelligence the next time I need to carry out an administrative task"; 1 = totally disagree, 7 = totally agree; α = .90; *M* = 5.05, *SD* = 1.28).

All the materials related to the experiment (dataset and syntax files, measures, and audiovisual narratives) are available via the *Open Science Framework* (*OSF*):
https://osf.io/n7yku/?view_only=0c09003e7904480ab41f47abbf3766ea

7. Results

7.1. Preliminary analysis

Randomization was successful: the experimental conditions did not differ significantly on gender ($\chi^2(3, N = 652) = 0.19$, $p = .979$), age ($F(3, 648) = 0.67$, $p = .566$), educational level ($\chi^2(12, N = 652) = 12.86$, $p = .379$), employment status ($\chi^2(12, N = 652) = 8.85$, $p = .715$), prior beliefs about the future of AI ($F(3, 648) = 0.98$, $p = .400$), or perceptions regarding the usefulness of AI ($F(3, 648) = 0.63$, $p = .596$).

> In our experiment, a total of eight versions of the same audiovisual piece were finally produced, varying only in the type of narrative message and the demographic characteristics of the protagonist

We also checked whether the experimental manipulation of demographic similarity (based on gender and age) was effective, taking into account the two variables of perceived similarity and identification with the protagonist. It was found that people assigned to the high-similarity condition (*M* = 4.82, *SD* = 1.30) showed greater perceived similarity with the protagonist of the message than those assigned to the low-similarity condition (*M* = 3.88, *SD* = 1.45) ($t(650) = –8.63$, $p < .001$). However, demographic similarity did not significantly influence identification with the protagonist ($t(650) = –1.64$, $p = .101$), although the mean was higher in the high-similarity (*M* = 3.30, *SD* = 0.95) than low-similarity condition (*M* = 3.17, *SD* = 0.92). These results are convergent with those obtained in previous studies (e.g., **Cohen**; **Weimann-Saks**; **Mazor-Tregerman**, 2018) and are also consistent with the meta-analysis review by **Tukachinsky** (2014), who concluded that demographic similarity does not influence identification but does affect perceived similarity.

7.2. Hypothesis 1: effect of attitudinal similarity on identification with the protagonist

To test the first hypothesis, the PROCESS macro by **Hayes** (2022) was used, applying model 1 (simple moderation). In this model, the attitude of the protagonist of the message toward AI was included as a predictor variable (–0.5 = ambivalent attitude, 0.5 = positive attitude), prior beliefs about AI were included as a quantitative moderating variable, and demographic similarity with the protagonist (–0.5 = low similarity, 0.5 = high similarity) was included as a covariate.

The interaction between the attitude toward AI manifested by the protagonist of the testimonial message and the participants' prior beliefs about AI was found to have a statistically significant effect on identification (*B* = .32, *SE* = .11, *p* = .004). The analysis of the conditional effects showed that the message whose protagonist showed positive attitudes toward AI (compared with the message whose protagonist showed ambivalent attitudes) induced greater identification only among people with prior positive beliefs about AI ($\vartheta_{\text{Protagonist's attitude} \rightarrow \text{Identification} | (\text{Positive beliefs about AI})} = .27$, $SE = .11$, $p = .003$), but not in those who showed a negative ($\vartheta_{\text{Protagonist's attitude} \rightarrow \text{Identification} | (\text{Negative beliefs about AI})} = .05$, $SE = .07$, $p = .421$) or ambivalent attitude ($\vartheta_{\text{Protagonist's attitude} \rightarrow \text{Identification} | (\text{Ambivalent beliefs about AI})} = –.08$, $SE = .09$, $p = .387$).

In addition, the Johnson–Neyman technique was used to determine the region(s) of significance of the effect of the attitude of the protagonist of the message toward AI on identification for the different values of the participants' prior beliefs about AI. Two regions of significance were observed. First, the attitude of the protagonist of the message toward AI had a positive effect on identification among people with more positive beliefs about AI (with scores greater than or equal to 4.26, representing 32.82% of the participants). This implies that people with positive beliefs about AI identified more with the narrative message whose protagonist showed clearly positive attitudes than with the protagonist who showed an ambivalent attitude, which is in accordance with H1a. Secondly, the attitude of the protagonist of the message toward AI had a negative effect on identification among people with more negative beliefs about AI (with scores less than or equal to 2.83, representing 1.53% of the participants). This implies that people with negative beliefs about AI identified more with the protagonist who showed an ambivalent attitude than with the protagonist who showed a positive attitude, which is in accordance with H1b (see Figure 2). These results allow us to conclude that attitudinal similarity was a relevant factor to increase identification with the protagonist.

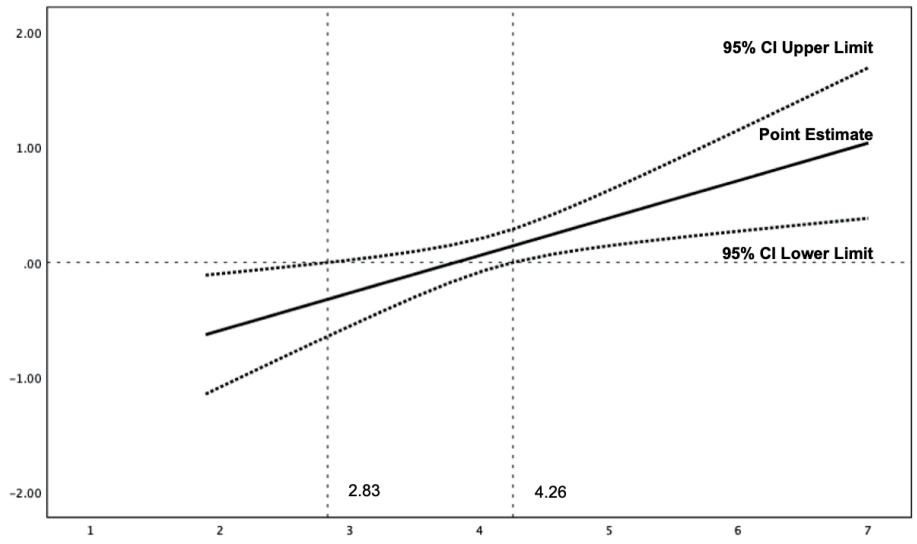


Figure 2. Johnson–Neyman regions of significance for the conditional effect of protagonist's attitude toward AI on identification at levels of participant's prior beliefs about AI. PROCESS (model 1)

7.3. Hypothesis 2: identification as a mediating mechanism

To test this the second hypothesis, the PROCESS macro for *SPSS* was used (model 7, using 10,000 bootstrapping samples to generate 95% confidence intervals by the percentile method). This procedure allows an estimation of the (conditional) indirect effects of the attitude of the protagonist of the message toward AI on the two dependent variables considered through identification as a mediating variable, at the different levels of the moderating variable (prior beliefs of the participants about AI).

The results of this analysis revealed that the index of moderated mediation (IMM) was statistically different from 0 (IMM = .20, *SE* = .07, 95% *CI* [.05, .35]), suggesting a positive linear relationship between prior beliefs about AI and the indirect effect of the narrative message on the attitude toward AI through identification. Moreover, it was observed that identification with the protagonist was associated with a more positive attitude toward AI (*B* = .61, *SE* = .03, $p < .001$). Finally, it was observed that the (conditional) indirect effect was only different from 0 (statistically significant) among people with positive prior beliefs about LA (*effect* = .17, *SE* = .06, 95% *CI* [.05, .29]) (see Table 1). This provides empirical support for H2a.

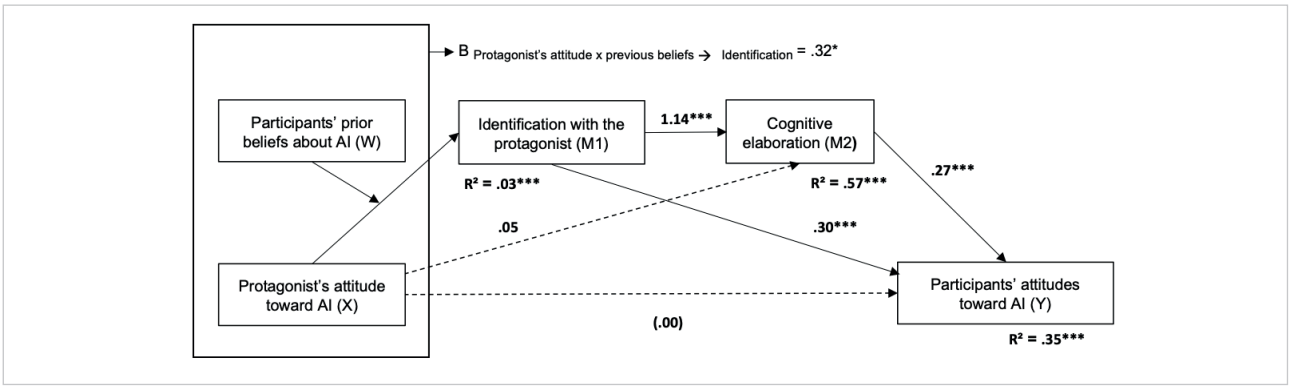
Similar results were obtained regarding the intention to use IA. The index of moderated mediation was statistically different from 0 (IMM = .25, *SE* = .09, 95% *CI* [.06, .45]), suggesting a positive linear relationship between prior beliefs about AI and the indirect effect of the narrative message on the intention to use AI through identification. Identification with the protagonist was associated with greater intention to use AI (*B* = .78, *SE* = .04, $p < .001$). Furthermore, the (conditional) indirect effect was only different from 0 (statistically significant) among people with positive prior beliefs about IA (*effect* = .21, *SE* = .07, 95% *CI* [.06, .37]) (see Table 1). This provides empirical support for H2b, too.

Table 1. Conditional indirect effects of protagonist's attitude toward AI on participants' attitude toward (H2a) and intention to use AI (H2b) through identification. Moderated mediation models with PROCESS (model 7)

Conditional indirect effects	***Effect***	***Boot SE***	***Boot 95% CI***
Protagonist's attitude toward AI → Identification → Attitude toward AI			
– Negative beliefs about AI (3.55)	-.0527	.0632	[-.1778, .0732]
– Ambivalent beliefs about AI (4.00)	.0366	.0460	[-.0540, .1260]
– Positive beliefs about AI (4.66)	**.1704**	**.0610**	**[.0515, .2944]**
IMM = .2008 (95% CI: .0515, .3552)			
Protagonist's attitude toward AI → Identification → Intention to use AI			
– Negative beliefs about AI (3.55)	-.0675	.0809	[-.2267, .0940]
– Ambivalent beliefs about AI (4.00)	.0469	.0588	[-.0701, .1610]
– Positive beliefs about AI (4.66)	**.2185**	**.0780**	**[.0670, .3756]**
IMM = .2575 (95% CI: .0659, .4582)			

Note. The table shows the conditional indirect effects. We used 95% percentile bootstrap confidence intervals based on 10,000 bootstrap samples for statistical inference of the conditional indirect effects. An indirect effect is considered to be statistically significant if the established confidence interval (95% CI) does not include the value 0. If the value 0 is included in the confidence interval, the indirect effect is equal to 0, that is, there is no association between the variables involved (**Hayes**, 2022). Significant indirect effects in bold. Protagonist's attitude toward AI: –0.5 = negative, 0.5 = positive. Quantitative moderating variable (W): participant's prior beliefs about AI (1 = very negative, 7 = very positive). W values are the 16th, 50th, and 84th percentiles. IMM = index of moderated mediation.

(a) Dependent variable: *attitude toward AI* (H3a)



(b) Dependent variable: *intention to use AI* (H3b)

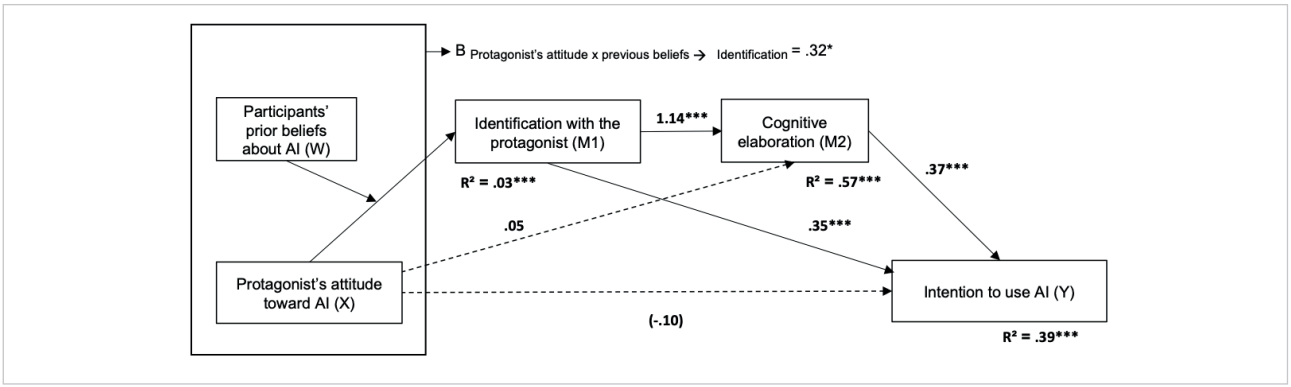


Figure 3. Results of the moderated serial multiple mediation analysis (H3). PROCESS (model 83)
Note. The figures show the unstandardized regression coefficients, B. The coefficients of the direct effects appear in parentheses. Dashed lines represent nonsignificant coefficients. *** $p < .001$.

7.4. Hypothesis 3: identification and cognitive elaboration as mediators

To test the third hypothesis, the PROCESS macro for *SPSS* was used (model 83, using 10,000 bootstrapping samples to generate 95% confidence intervals by the percentile method). This procedure enables an estimation of the (conditional) indirect effects of the attitude of the protagonist of the narrative message on the dependent variables through identification (as a primary mediator) and cognitive elaboration (as a secondary mediator), at the different levels of the moderating variable (prior beliefs about AI).

Identification was found to be associated with greater cognitive elaboration ($B = 1.14$, $SE = .03$, $p < .001$). In addition, cognitive elaboration was significantly associated with a more favorable attitude toward AI ($B = .27$, $SE = .03$, $p < .001$; see Figure 3a) and greater intention to use AI ($B = .37$, $SE = .04$, $p < .001$; see Figure 3b).

Two statistically significant conditional indirect effects of the attitude of the protagonist of the message toward AI were observed on both dependent variables, although only among people with previous positive beliefs about AI (see Table 2): through identification (attitudes toward AI: *effect* = .08, *SE* = .03, 95% *CI* [.02, .16]; intention to use AI: *effect* = .09, *SE* = .04, 95% *CI* [.02, .19]) and through the serial mediation of identification and cognitive elaboration (attitude toward AI: *effect* = .08, *SE* = .03, 95% *CI* [.02, .16]; intention to use AI: *effect* = .11, *SE* = .04, 95% *CI* [.03, .22]). However, cognitive elaboration did not act, by itself (see the nonconditional indirect effect in Table 2), as a significant mediator. On the other hand, the predictive model of the attitude toward AI including cognitive elaboration (controlling for the effect of identification) explained 35.77% of the variance ($p < .001$), while the model that did not include elaboration but only identification explained 30.11% of the variance ($p < .001$). Likewise, the predictive model of the intention to use AI with the inclusion of cognitive elaboration (controlling for the effect of identification) explained 39.95% of the variance ($p < .001$), while the model that only included identification explained 32.78% of the variance ($p < .001$). Empirical support is therefore found for H3, and it can be concluded that identification and cognitive elaboration are relevant mediating mechanisms that act in tandem.

> By activating certain *cues* in the narrative message about the attitude manifested by its protagonist, greater identification can be induced as long as there is attitudinal matching

Table 2. Conditional and unconditional indirect effects of protagonist's attitude toward AI on participants' attitude toward (H3a) and intention to use AI (H3b) through identification and cognitive elaboration. Moderated serial multiple mediation model with PROCESS (model 83)

(a) Dependent variable: *attitude toward AI* (H3a)

Conditional and unconditional indirect effects	***Effect***	***Boot SE***	***Boot 95% CI***
Protagonist's attitude toward AI → Identification → Attitudes toward AI			
– Negative beliefs about AI (3.55)	-.0261	.0319	[-.0912 .0374]
– Ambivalent beliefs about AI (4.00)	.0181	.0237	[-.0259, .0682]
– Positive beliefs about AI (4.66)	**.0845**	**.0369**	**[.0213, .1649]**
IMM = .0996 (95% CI: .0223, .1946)			
Protagonist's attitude toward AI → Cognitive elaboration → Attitudes toward AI	.0136	.0201	[-.0267, .0537]
Protagonist's attitude toward AI → Identification → Cognitive elaboration → Attitudes toward AI			
– Negative beliefs about AI (3.55)	-.0266	.0340	[-.0995, .0361]
– Ambivalent beliefs about AI (4.00)	.0184	.0240	[-.0291, .0675]
– Positive beliefs about AI (4.66)	**.0859**	**.0362**	**[.0245, .1667]**
IMM = .1012 (95% CI: .0235, .2061)			

(b) Dependent variable: *intention to use AI* (H3b)

Conditional and unconditional indirect effects	***Effect***	***Boot SE***	***Boot 95% CI***
Protagonist's attitude toward AI → Identification → Intention to use AI			
– Negative beliefs about AI (3.55)	-.0308	.0374	[-.1069, .0430]
– Ambivalent beliefs about AI (4.00)	.0214	.0279	[-.0305, .0806]
– Positive beliefs about AI (4.66)	**.0997**	**.0431**	**[.0262, .1926]**
IMM = .1175 (95% CI: .0266, .2311)			
Protagonist's attitude toward AI → Cognitive elaboration → Intention to use AI	.0188	.0274	[-.0367, .0722]
Protagonist's attitude toward AI → Identification → Cognitive elaboration → Intention to use AI			
– Negative beliefs about AI (3.55)	-.0367	.0461	[-.1342, .0496]
– Ambivalent beliefs about AI (4.00)	.0255	.0327	[-.0400, .0906]
– Positive beliefs about AI (4.66)	**.1188**	**.0470**	**[.0349, .2216]**
IMM = .1400 (95% CI: .0345, .2704)			

Note. The table shows the conditional and unconditional indirect effects. We used 95% percentile bootstrap confidence intervals based on 10,000 bootstrap samples for statistical inference of the conditional indirect effects. An indirect effect is considered to be statistically significant if the established confidence interval (95% CI) does not include the value 0. If the value 0 is included in the confidence interval, the indirect effect is equal to 0, that is, there is no association between the variables involved (**Hayes**, 2022). Significant indirect effects in bold. Protagonist's attitude toward AI: –0.5 = negative, 0.5 = positive. Quantitative moderating variable (W): participants' prior beliefs about AI (1 = very negative, 7 = very positive). W values are the 16th, 50th, and 84th percentiles. IMM = index of moderated mediation.

8. Discussion and conclusions

In research on narrative persuasion using personal or testimonial messages, works focused on health promotion are particularly prominent (e.g., **Chen**; **Bell**; **Taylor**, 2017; **De-Graaf**; **Sanders**; **Hoeken**, 2016; **Igartua**; **Rodríguez-Contreras**, 2020). However, little work has been carried out on narrative persuasion strategies to improve the social perception of data science and AI. The current study makes a significant contribution to the study of narrative persuasion processes applied to this topic. It is based on previous research on identification as a key element of narrative persuasion processes (**Tal-Or**; **Cohen**, 2015), which fundamentally address two major, complementary aspects. In the first place, our work is founded on previous research on the analysis of the intrinsic characteristics of narrative messages that can trigger identification with the protagonist (**Tukachinsky**, 2014). Secondly, we rely on previous work on the psychological processes responsible for the persuasive impact of narrative messages (**Bilandzic**; **Busselle**, 2013).

This study makes a significant contribution regarding the first aspect in finding that attitudinal similarity has a significant impact on identification. The current results show that a message whose protagonist expresses a positive attitude toward AI induced greater identification only in those participants with positive prior beliefs about AI. Besides, it was also observed that the message delivered by a protagonist who expressed an ambivalent attitude toward AI induced greater identification only among participants with negative prior beliefs about AI. In this context, the concept of similarity between the audience and protagonist of a message as applied in this research goes beyond the classical dimensions used in previous studies that define similarity based on sociodemographic criteria (e.g., gender, age, or group ethnicity), which have found null effects of objective similarity on identification (**Cohen**; **Weimann-Saks**; **Mazor-Tregerman**, 2018; **Hoeken**; **Kolthoff**; **Sanders**, 2016; **Ooms** *et al.*, 2019; **Tukachinsky**, 2014).

It is suggested that similarity based on psychological aspects (in this case, beliefs and attitudes manifested by the protagonist of a first-person testimonial message) can facilitate the establishment of affective and cognitive bonds. By activating certain cues in the narrative message about the attitude manifested by its protagonist toward the attitudinal object (in our case, reporting positive experiences about the use of AI), greater identification can be induced as long as there is attitudinal matching (in this case, that the person receiving the message also manifests positive prior beliefs about AI). This approach derives from the theories of social identity and self-categorization (**Tajfel**, 1982; **Turner**, 1985), which suggest that people tend to categorize those they perceive to be similar as members of the ingroup (where the protagonist shows an attitude similar to that of the audience) but those they perceive to be different as members of the outgroup (where the protagonist shows an attitude discordant with that of the audience). This leads to different reactions toward the members of the ingroup versus outgroup, in our case manifested as greater identification with the protagonist from the ingroup compared with the outgroup, since they expressed attitudes and beliefs similar to those of the audience. The current results confirm that this argument is correct, since the experimental manipulation of attitudinal similarity had a significant impact on identification that was moreover independent of the demographic similarity (in terms of gender and age) between the participants and the protagonist of the message.

> "Identification and cognitive elaboration could act as mediating mechanisms acting in tandem, since identification constitutes a process of *temporary involvement* with the message and can therefore in turn activate deep or systematic cognitive processing in people"

Second, this research also makes a significant contribution by identifying and explaining the psychological mechanisms responsible for the persuasive impact of narrative messages. The present work establishes that identification and cognitive elaboration could act as mediating mechanisms acting in tandem, since identification constitutes a process of *temporary involvement* with the message and can therefore in turn activate deep or systematic cognitive processing in people, such that they question their prior opinions and *adjust* their attitudes about the attitudinal object on which the narrative message centers (in this case, AI). Thus, our work thereby contributes to the consolidation of a line of theoretical reflection on the relationship between identification and cognitive elaboration that is in accordance with results obtained in previous studies on other attitudinal objects such as health promotion (e.g., **De-Graaf**; **Van-Leeuwen**, 2017; **Igartua**; **Vega**, 2016).

The most important limitation of this study is that the proposed mediators were measured rather than being manipulated experimentally, which prevents firm conclusions regarding the proposed causal sequence (identification → cognitive elaboration). This problem is present in other studies that test mediational models in this field (e.g., **Dale**; **Moyer-Gusé**, 2020). Although temporal precedence is an important element to establish causal inference, it is also necessary to propose a theoretical argument regarding the relationship between the mediating mechanisms, which is achieved herein by relying on predictions derived from previous research on narrative persuasion. Indeed, future research should use other methodological approaches to deal with such problems of causal inference (**Pirlott**; **MacKinnon**, 2016).

A second limitation of the present research is that the narrative messages used in the experiment were only related to the use of AI in the bureaucratic/health field, with the added component of the recent COVID-19 pandemic. So, it is clear that testimonial narratives alluding to other topics, such as the application of AI in leisure or work environments, or the economy, are required to confirm that the results obtained can be replicated in other areas related to AI.

In conclusion, this work makes a significant contribution to the study of narrative persuasion processes using testimonial messages. Our work provides significant findings on the effect of attitudinal similarity on identification with the protagonist and also advances knowledge regarding the relationship between this process, cognitive elaboration, and attitudinal impact in a field of study (improving social perceptions of AI) that has not yet been explored in research on narrative persuasion. Overall, this could help to improve science communication in general as well as the design of interventions and media campaigns in a narrative format.

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