# Retraining fact-checkers: The emergence of *ChatGPT* in information verification

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## Abstract

The open launch of new artificial intelligence tools such as *ChatGPT*-3.5 (Generated Pre-trained Transformer) in November 2022 by the company *OpenAI* -and then its update to version *GPT-4* in March 2023- poses new opportunities and challenges for journalism, and especially for professionals specifically focused on information verification. This research aims to understand and analyze the perceptions generated by the irruption of *ChatGPT* among fact-checking professionals in Spain with the aim of identifying disadvantages and advantages in its use, professional implications and desired functionalities. The study uses qualitative methodology with in-depth interviews with professionals from all Spanish fact-checking platforms belonging to the *International Factchecking Network* (*IFCN*) and the *European Digital Media Observatory* (*EDMO*). The results conclude that the use of *ChatGPT* presents notable ambivalences. On the one hand, there are perceived drawbacks in issues such as the transparency and reliability of sources, the scope of the data, and the format of the responses generated. However, fact-checkers also point to a possible auxiliary use of the chatbot in the tasks of gathering information, detecting falsehoods, and producing denials. The irruption of *ChatGPT* has a direct impact on the work routines of the fact-checkers, which can be made more difficult, reinforced or extended. Fact-checking professionals perceive themselves as "context agents" in a new ecosystem that also obliges them to further diversify their fields of action in the fight against disinformation and to accelerate the implementation of media education actions that empower citizens in the responsible use of artificial intelligence.

## Keywords

Fact-checking; Fact-checking platforms; Digital verification; Journalism; Computational fact-checking; Fact-checkers; Disinformation; Misinformation; Artificial Intelligence; AI; Generative artificial intelligence; *ChatGPT*; Chatbots.

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## 1. Introduction

Fact-checking platforms and professionals have proven to be useful agents in combating online disinformation over the past decade (**Hameleers**; **Van-der-Meer**, 2020). Fact-checking processes carried out by journalists and other specialized profiles have been an effective resource in discrediting hoaxes and disinformation content circulating in the digital sphere that represent a threat to democratic welfare (**Moreno-Gil**; **Ramon-Vegas**; **Rodríguez-Martínez**, 2021). The use of fact-checking has also guaranteed a degree of reliability in information, making fact-checking professionals and platforms attempt to compensate for the lack of trust in journalistic practice, which according to the *Digital News Report Spain 2022* has worsened, especially in recent years, surpassing for the first time the percentage of users who say they believe in the truth of news content (**Vara-Miguel** *et al.*, 2022).

Fact-checking organizations, both those developed according to a newsroom model within a media outlet and those created as independent organizations under the NGO model (**Graves**; **Cherubini**, 2016), have been conceptualized as tools for democratic construction (**Moreno-Gil**; **Ramon-Vegas**; **Rodríguez-Martínez**, 2021), especially in a society such as the current one that is characterized by the fragmentation of the concept of truth (**Malik**, 2018). Moreover, their task has become even more relevant since the coronavirus disease 2019 (Covid-19) crisis, in which a constant proliferation of disinformation led the *World Health Organization* to release statements regarding an infodemia (*WHO*, 2020), a context that has also contributed to extolling the work and visibility of fact-checkers as crucial actors in the fight against disinformation (**Salaverría** *et al.*, 2020; **Pérez-Dasilva**; **Meso-Ayerdi**; **Mendiguren-Galdospín**, 2020; **Ramon-Vegas**; **Mauri-Ríos**; **Rodríguez-Martínez**, 2020).

In the fact-checking field, many platforms have incorporated artificial intelligence (AI) into their routines in recent years, for example, the use of bots in debunking processes (**Arias-Jiménez** *et al.*, 2023; **Pasquetto** *et al.*, 2022; **Flores-Vivar**, 2020) or the implementation of detection systems based on machine learning to identify false claims, videos, and photographs. It is thus understood that the use of AI to combat the proliferation of false information can be vital when acting against the disruptive effects that disinformation generates (**Gupta** *et al.*, 2022; **Flores-Vivar**, 2020).

The open release of new artificial intelligence tools such as *ChatGPT-3.5* (Generated Pre-trained Transformer) in November 2022 by the company *OpenAI* –and its subsequent upgrade to version *GPT-4* in March 2023– poses new opportunities and challenges for journalism, especially for professionals specifically focused on fact-checking. Therefore, this research focuses on identifying and analyzing the perceptions generated by the emergence of *ChatGPT* among fact-checking professionals to determine its perceived drawbacks and advantages, the implications in their professional role, and the possible uses of this chatbot in the field of fact-checking.

## 2. Theoretical framework

### 2.1. Fact-checking: professional features and routines

Fact-checking can be defined as an activity that

> "applies data journalism techniques to unmask errors, ambiguities, lies, lack of rigor or inaccuracies in some content published in the media" (**Ufarte-Ruiz**; **Peralta-García**; **Murcia-Verdú**, 2018, p. 734).

Likewise, fact-checking can also manage content without identifiable authorship distributed through social networks and other multimedia formats (**Pérez-Seoane**; **Corbacho-Valencia**; **Dafonte-Gómez**, 2023). Fact-checking in essence is a traditional practice that has been associated with good journalism and with the specialty of journalistic documentation (**Redondo**, 2018). However, the growing concern regarding disinformation has seen it become an issue of growing importance (**Guallar** *et al.*, 2020), even positioning it as a professional activity in and of itself that leads to the strengthening and reformulation of the standards of traditional journalism (**Cavaliere**, 2021). The emergence and consolidation of initiatives and platforms specifically dedicated to the field of fact-checking in the last decade demonstrate the impact of fact-checking at a global level (**Stencel**; **Ryan**; **Luther**, 2022).

Numerous studies on fact-checking platforms' methodologies and professional routines have pointed out the essential phases of their workflow: monitoring and selection of content to be verified (predetection and detection); contact with the original source and contex-

> "Fact-checking platforms have incorporated AI using chatbots and implementing detection systems based on machine learning to identify data to verify"

tualization and evaluation of the veracity of the content examined by consulting expert documentary as well as personal sources (reporting); and the realization, dissemination, and explanation of the fact-checking process performed (debunking) (**Graves**, 2017; *Unesco*; 2018; **Moreno-Gil**; **Ramon-Vegas**; **Rodríguez-Martínez**, 2021; **Yousuf**, 2023). Aspects such as rigor, impartiality, accountability, objectivity, independence, transparency, and completeness have been considered key elements in the performance of fact-checkers' professional routines as well (**Singer**, 2021). The work of such professionals is also characterized by the application of information selection criteria, such as the relevance and potential influence of the message when selecting the content to be verified, which in turn must contain factual aspects to be contrastable (**Graves**, 2017). In this fact-checking task, technological tools apart from human judgment that can facilitate the verification of data in different media such as text, image, audio and video also play an important role (**Vizoso**; **Vázquez-Herrero**, 2019).

> "In the journalistic field, AI has been introduced especially linked to the transformation of data into news and the automatic production of texts"

Another of the principles embraced by fact-checkers is the rigorous supervision of verified content before its publication, as well as the use of transparent sources to verify it, often with hyperlinks that allow users to expand the information and replicate the same fact-checking process (**López-Pan**; **Rodríguez-Rodríguez**, 2020). These practices also allow for the pursuit of citizen empowerment (**Graves**, 2016). In fact, another common feature of fact-checking platforms is the participation of readers, who can send doubts and requests for information to be verified through different communication channels such as email and social networks (**Rodríguez-Pérez**, 2020).

Textual explanation, and even the use of so-called explanatory journalism (**Bielik**; **Višňovský**, 2021) and solutions journalism, consisting of responding to social problems with rigorous methods that facilitate citizen understanding (**McIntyre**; **Lough**, 2021), is also presented as a common resource in the work methodologies of fact-checking platforms, in addition to the synthesis of fact-checking in measurement scales that not only include dichotomous categories such as true or false, but also refer to deceptions and decontextualizations that require further explanation (**García-Vivero**; **López-García**, 2021). In seeking to present complex information in a clear and simple way, the use of data visualization through graphics and infographics is also common, as is the development of formats that go beyond textuality, such as videos and podcasts (**Moreno-Gil**; **Ramon-Vegas**; **Mauri-Ríos**, 2022), being disseminated not only via the web pages of fact-checking platforms but also on their respective social media channels.

While it is true that, in this sense, the work routines of journalists and fact-checkers share common goals as professionals engaged in explaining, documenting, and fact-checking (**Singer**, 2021), the activity of fact-checkers has also been presented in a distinctive way. Authors such as **Graves** (2016) and **Cazalens** *et al*. (2018) have pointed out that, while journalists implement fact-checking as a process of an internal nature consisting of ensuring the veracity of data before being publicly revealed in a journalistic piece, fact-checking professionals focus more on an external type of fact-checking in which the accuracy of statements and content already issued is checked with the aim of preparing a new piece of information that contextualizes and accredits its veracity. Within this context, the work of fact-checkers is presented as complementary and corrective to that of the media (**Singer**, 2021).

Even so, fact-checking cannot be understood as an activity outside the journalistic sector, since it arises within the media system and there are even platforms created according to the newsroom model format. In addition, a significant percentage of fact-checking professionals come from the field of journalism and data journalism (**Graves**; **Cherubini**, 2016), and their journalistic training, the handling of big data, and other aspects such as the mastery of information sources and common sense are perceived by fact-checking professionals themselves as key elements in the performance of their work (**Herrero**; **Herrera-Damas**, 2021).

### 2.2. The use of AI in journalism and fact-checking

The term "artificial intelligence" (AI) was first used publicly in 1956 by mathematician John McCarthy at the *Dartmouth Conference* in the United States. However, the origin of AI can be traced back to Alan Turing's advances in message decoding during World War II (**Russell**; **Norvig**, 2022) and in even earlier stages to Lady Ada Lovelace's analytical machine experiments in the 1840s, which were an early prediction of the implications that AI would later have (**Boden**, 2022). Even so, it was not until the 1980s, with the resolution of algebra equations and the analysis of texts in different languages, that AI research began to increase (**Ufarte-Ruiz**; **Manfredi-Sánchez**, 2019). Since the mid-2000s, this technology has also experienced rapid expansion in both academia and industry (**Crawford**, 2021).

Although the definition of artificial intelligence has evolved in parallel to its application, the most widespread definition in academia and the journalism sector is the one proposed by *BBC* journalist Dickens Olewe in 2018, which understands it to be a

> "collection of ideas, technologies, and techniques that relate to a computer system's capacity to perform tasks normally requiring human intelligence" (**Brennen**; **Howard**; **Nielsen**, 2018, pp. 1-2).

In the field of journalism, AI has been especially linked to natural language processing (NLP) (**Canavilhas**, 2022) applied to the transformation of data into news, as well as in the automatic production of texts (**Diakopoulos**, 2019) through

the use of bots (**Flores-Vivar**, 2019; **Flores-Vivar**, 2020). This technological emergence has given rise to so-called computational journalism, algorithmic journalism, automated journalism, and robot journalism (**Clerwall**, 2014; **Carlson**, 2015; **Dörr**, 2016). The first experiments in automated news production date back to 2010 with *The Big Ten Network*, a partnership between *Fox Networks Group* and *Big Ten Conference*, which initiated an automated sports news production service (**Canavilhas**, 2022). Although this was not the first experiment in the automatic generation of journalistic texts, it was one of the first to use artificial intelligence, according to **Canavilhas** (2022). However, the first initiative to consolidate on a regular basis came four years later at the *Los Angeles Times* with the appearance of *Quakebot*, a bot that automatically reported on earthquakes and that represented the first frequent use of AI in the field of journalism (**Sánchez-García** *et al*., 2023).

Subsequently, *Associated Press* was one of the pioneering news agencies that extended the use of AI (**Lichterman**, 2017), and the French newspaper *Le Monde* used the *Data2Content* system to create micro-news on election results (**Sánchez-Gonzales**; **Sánchez-González**, 2017). Along these lines, specific NLP and natural language generation (NLG) companies specialized in the creation of journalistic texts have emerged in recent years, such as *Narrative Science* and *Automated Insights* (**Sánchez-García** *et al.*, 2023). More recently, initiatives have also been created that transform data into real-time journalistic information such as *AppliedXL*, a company founded by computational journalist Francesco Marconi, and *The Newsroom*, a mobile application that offers daily summaries made by AI on the main news of the day (**Adami**, 2023).

In recent years, pioneering projects have also appeared, such as *Medusa*, from *Vocento MediaLab*, which since 2017 has been experimenting with automated journalism to generate information on the state of some 800 Spanish beaches and ski slopes in Spain, Andorra, and the French Pyrenees (**Ufarte-Ruiz**; **Manfredi-Sánchez**, 2019). Other projects to consider are the *AnaFut* bot of *El Confidencial*, which writes sports chronicles (**Rojas-Torrijos**; **Toural-Bran**, 2019), and the *Gabriele* software from the start-up *Narrativa*, which writes journalistic texts in an automated way and in collaboration with Spanish media (**Ufarte-Ruiz**; **Manfredi-Sánchez**, 2019; **Sánchez-García** *et al.*, 2023).

The use of artificial intelligence technologies as applied to fact-checking has led some authors to speak of "computational fact-checking" and "automated fact-checking" (**Thorne**; **Vlachos**, 2018) as well, understood as a practice based on fact-checking that automates part of its process with the help of AI. In fact, in the field of fact-checking, automation has been presented as a solution, in part from a computational point of view to streamline certain processes of fact-checkers' professional routines, such as monitoring and anticipating information (predetection), identifying claims to verify (detection), obtaining data to verify content (reporting), and checking falsehoods (debunking), to name but a few (**Hassan** *et al.*, 2015; **Guo**; **Schlichtkrull**; **Vlachos**, 2022).

While it is true that the use of AI has also been presented as a way to make disinformation more clever and increase its spread, for example, in the creation of content such as deep fakes (**Fallis**, 2021), and even with serious ethical implications regarding issues such as pornography (**Öhman**, 2020), numerous authors have also alluded to the opposite potential of artificial intelligence, with examples such as dealing with the spread of falsehoods and malicious content (**Cybenko**; **Cybenko**, 2018; **Beckett**, 2019; **Manfredi-Sánchez**; **Ufarte-Ruiz**, 2020) and enabling a technology capable of adapting not only to the speed with which falsehoods circulate in the digital environment, but also to their degree of elaboration. It also reduces the effort and detection time spent by fact-checking professionals and, in short, increases their capacity to respond to disinformation.

Although before the Covid-19 pandemic there were already some fact-checking organizations employing AI-based technologies in their work procedures, the development of this technology has experienced a boom especially since the pandemic, both to speed up the detection of hoaxes and to identify falsehoods within AI itself, such as deep fakes (**Gómez-de-Ágreda**; **Feijóo**; **Salazar-García**, 2021). With the emergence of the pandemic, fact-checking organizations in Spain such as *Newtral*, *Maldita.es*, and *EFE Verifica* have launched initiatives based on AI use. *Newtral* has developed and perfected an automatic monitoring system focused on the political sphere that identifies claims to be checked, which is accurately called *ClaimHunter* (**Morrish**, 2023). *Maldita.es* and *EFE Verifica* have also perfected the use of a chatbot through *WhatsApp* to receive fact-checking requests from their users. This same system automatically filters and responds to incoming requests on the basis of whether it identifies a relationship to topics already checked by the platform professionals in question (Pablo Hernández, in-depth interview, February 20, 2023; Sergio Hernández, in-depth interview, February 18, 2023).

The use of generative artificial intelligence through the implementation of chatbots, in this case on social networks such as *WhatsApp*, has been a resource that has proven useful in combating disinformation (**Palomo**; **Sedano-Amundarain**, 2018), and numerous fact-checking organizations around the world have already implemented it in their work routines (**Flores-Vivar**, 2020). In recent years, collaborative initiatives have emerged, such as *FactChat*, launched by the *International Fact-Checking Network* (*IFCN*) during the 2020 presidential elections in the United States, in addition to the Covid-19 chatbot that this same organization launched during the pandemic, together with more than 80 fact-checking organizations around the world (**Grau**, 2020).

> "The reliability of the sources and the limited scope of its data are two of the aspects that are perceived as major drawbacks in the use of *ChatGPT*"

> A perceived positive aspect of using *ChatGPT* is the possibility of collecting contextual information quickly and synthetically

The emergence of generative artificial intelligence, as used by tools such as chatbots, is the product of the third wave of innovation that artificial intelligence has undergone in the last decade, after having gone through two previous phases: automation and augmentation (**Marconi**, 2020). In this sense, NLG systems and those called large language models (LLM) due to the use of so-called neural networks –as is the case of *ChatGPT-3.5*– have made significant advances in NLP after being trained from massive databases with which they are able to generate texts, answer questions, and complete other tasks in a way that resembles human communication (**Floridi**; **Chiriatti**, 2020).

These capabilities, within the reach of citizens following the open release of *ChatGPT-3.5* by *OpenAI* in November 2022, have already had significant implications in sectors such as education (**Kasneci** *et al.*, 2023), cultural creation, and academic research (**Dwivedi** *et al*., 2023), as well as in areas such as the labor market, where it is estimated that in 80% of professions in countries such as the United States, *ChatGPT* could be used for at least 10% of current tasks (**Eloundou**, 2023).

In the field of communication, the involvement of *ChatGPT* in the production of disinformation has begun to be studied, especially as it relates to issues such as biases and "hallucinations", which is when an AI system provides data not based on facts, but as a product of its own "invention" (**Liu** *et al.*, 2022). In this sense, organizations such as NewsGuard have experimented with the chatbot by using previously verified false narratives, finding that, in 80% of cases, it did not recognize the falsehoods introduced nor was it transparent in the use and reliability of sources. Thus, *ChatGPT-3.5* has been dubbed as a "great misinformation superspreader" (**Brewster**; **Arvanitis**; **Sadeghi**, 2023). Even in its updated version, *ChatGPT-4* –released in mid-March 2023– which, unlike *ChatGPT-3.5*, does cite the origin of the sources from which it extracts information, *NewsGuard* has also concluded that the dissemination of erroneous information is "more frequent and more persuasive" than in its predecessor model (**Arvanitis**; **Sadeghi**; **Brewster**, 2023).

Academic literature has addressed how journalists from different countries and professional cultures perceive the introduction of technological innovations into newsrooms (**García-Avilés**; **Carvajal-Prieto**; **Arias-Robles**, 2018; **Ferrucci**; **Perreault**, 2021; **Holman**; **Perreault**, 2022; **Oelrichs**, 2023). Recently, other contributions have focused on examining the attitudes and perceptions of journalists, audiences, and experts in the face of the emergence of artificial intelligence (**Noain-Sánchez**, 2022; **Soto-Sanfiel** *et al.*, 2022; **Sun**; **Hu**; **Wu**, 2022; **Peña-Fernández** *et al.*, 2023). These contributions have highlighted the opportunities, tensions, and concerns that AI generates among these different parties, including the ambiguities that the adoption of artificial intelligence tools produces specifically among information professionals. The positive perception of AI's use in the journalism sector is as an auxiliary tool that can free journalists from performing repetitive tasks, leaving to one side a post-Fordist model in which reporters are mere transcribers of facts to bring back the creative essence of journalism (**Noain-Sánchez**, 2022). However, ignorance of AI's implications also produces a certain reticence, especially because it is perceived as a threat to the symbolic capital of journalists as mediators between reality and citizens (**Peña-Fernández** *et al*., 2023). Ethical dilemmas and the possible spread of disinformation with the use of artificial intelligence tools also appear as relevant concerns among information professionals (**Noain-Sánchez**, 2022) and even among experts and readers (**Sun**; **Hu**; **Wu**, 2022).

According to authors such as **Boczkowsi** (2004), the journalistic profession, faced with technological innovations such as digital transformation, has been characterized by reactive and defensive as well as pragmatic attitudes. It is also important to note that, in the case of AI, such reluctance is not homogeneous in nature, and that it also varies according to the culture and journalistic tradition of each country. For example, while in countries such as Pakistan a negative view of AI implementation in the journalism sector predominates (**Jamil**, 2020), in areas such as Latin America a more optimistic perception abounds (**Soto-Sanfiel** *et al.*, 2022). As **Van-Dalen** (2012) points out, the consolidation of an innovation is determined not only by its technological development but also by social factors such as adaptation and the way in which its consumption is reduced to practice.

Thus far, no academic study has focused on analyzing the perceptions that the use of *ChatGPT* –in both its 3.5 and 4 versions– generates among fact-checking professionals themselves, nor on identifying the drawbacks and advantages that its use may present in the work routines of these professionals when combating disinformation, or even on the implications that it may generate regarding their role as fact-checkers. This is therefore an academic gap that this research aims to fill.

## 3. Methodology

This study aims to understand the perceptions generated by the emergence of *ChatGPT* among fact-checking professionals in Spain. The analysis sample is made up of active Spanish fact-checking organizations included in the *Duke Reporters' Lab* database as well as in the *European Digital Media Observatory* (*EDMO*) database: *Maldita.es*, *Newtral*, *EFE Verifica*, *AFP Factual España*, and *Verificat*. These five organizations are also signatories of the *International Fact-Checking Network* (*IFCN*) code of principles, built around five basic concepts: (1) non-partisanship and honesty, (2) standards and transparency of sources, (3) transparency in organization and financing, (4) standards and transparency of methodology,

and (5) open and honest correction policy. To obtain a wider range of perspectives, the Spanish platform *VerificaRTVE* is also included in the analysis corpus. Although it is not a signatory to the *IFCN* code of principles, it is a member of *EDMO* and the *European Broadcasting Union* (*EBU*).

Three research questions guide this study:

Q1. What disadvantages and advantages do fact-checkers perceive in the use of *ChatGPT* in their professional routines?

Q2. What features should *ChatGPT* have to be perceived as a useful resource in the field of fact-checking?

Q3. What implications does the viralization of *ChatGPT* have for the professional role of fact-checkers?

Table 1. Characteristics of the fact-checking platforms participating in the study.

| Platform | Website | Creation | Fact-checker template | Signatory to *IFCN* |
|---|---|---|---|---|
| *Maldita.es* | *https://maldita.es* | 2018 | 30 | Yes |
| *Newtral* | *https://www.newtral.es* | 2018 | 14 | Yes |
| *EFE Verifica* | *https://verifica.efe.com* | 2019 | 7 | Yes |
| *AFP Factual España* | *https://factual.afp.com/afp-espana* | 2019 | 3 | Yes |
| *Verificat* | *https://www.verificat.cat* | 2019 | 9 | Yes |
| *VerificaRTVE* | *https://www.rtve.es/noticias/verificartve* | 2020 | 5 | No |

Source: interviews with fact-checking platforms.

To answer the research questions, six semistructured in-depth interviews were conducted with fact-checking professionals working in these organizations who hold positions of responsibility, for example, as editors and section managers: Pablo Hernández (coordinator of academic research at *Maldita.es*), Irene Larraz (director of *Newtral Educación* and coordinator of the political fact-checking and data section), Sergio Hernández (director of *EFE Verifica*), Borja Díaz-Merry (director of *VerificaRTVE*), Adrià Laborda (fact-checker at *AFP Factual España* and head of the Catalan division *AFP Comprovem*), and Javier Castillo (head of the political fact-checking section of *Verificat*). The interviews, between 60 and 120 minutes long, were conducted between February and early March 2023 through the *Google Meet* platform owing to the geographic diversity of the sample, as the professionals are located in different parts of Spain. All conversations were recorded and subsequently transcribed for analysis. A second round of interviews was then conducted in late March 2023 following the release of *ChatGPT-4* to see whether their perceptions of chatbot use had changed.

Qualitative interviews represent a valuable research technique because they allow for participants to get to the "heart of the matter" and provide a good opportunity to understand, reflect, and go deeper into topics and issues that cannot be easily observed or accessed (**Tracy**, 2020, p. 79). In-depth interviews also facilitate evidence regarding the context and origin in which a phenomenon to be studied arises, and is enriched by the insider view of people who have direct experience with it (**Miller**; **Glassner**, 2016). Moreover, they have been a widely used method in recent fact-checking studies in the Spanish and international contexts; see for example, research by **Martínez-García** and **Ferrer** (2023); **Sánchez-González**, **Sánchez-Gonzales**, and **Martínez-Gonzalo** (2022); **Moreno-Gil**, **Ramon-Vegas**, and **Mauri-Ríos** (2022); **Singer** (2021); **Graves** and **Anderson** (2020); **López-Pan** and **Rodríguez-Rodríguez** (2020); and **Palomo** and **Sedano-Amundarain** (2018).

The interviews were semistructured to ensure a certain degree of freedom for the respondents, and the questions asked were organized into different thematic blocks, as follows: use of *ChatGPT*, perceived disadvantages and advantages, desired benefits and uses, and professional implications identified. After the transcription of each interview, the constant comparative method was applied (**Wimmer**; **Dominick**, 2013). The data obtained were assigned to categories and, after an initial analysis, the established categories, as well as the relationships and themes identified, were refined to determine the most recurrent issues.

## 4. Results

According to the perceptions of the fact-checking professionals interviewed, *ChatGPT-3.5* presents remarkable ambiguities in its use as applied to information fact-checking. On the one hand, fact-checking professionals perceive significant drawbacks in aspects such as the use and reliability of sources; the training, processing, and scope of the data used by the chatbot; and the production and format of the answers generated. On the other hand, there are also professionals who see it as a useful auxiliary resource for information gathering (reporting), the detection of falsehoods (detection), and the fabrication of contradictions (debunking).

The viralization of *ChatGPT* also generates significant implications for fact-checkers in relation to their work routines, which –according to their perceptions– may be hindered, reinforced, or expanded. The results presented herein are structured according to the research questions. The type of use of *ChatGPT* by the interviewed professionals was also specified previously, as well as whether they have used its updated version, *ChatGPT-4*, which was released while the present research was being carried out.

### 4.1. Using *ChatGPT*

All the fact-checking platforms consulted have made use of *ChatGPT-3.5*, in particular internally, to test the chatbot's performance. On the contrary, the use of *ChatGPT-4* has not been tested among the professionals consulted owing to its being subscription based. Only at *Maldita.es* has the engineering team started testing the updated version, albeit without conclusive results.

Two of the platforms, *Maldita.es* and *VerificaRTVE*, have shared part of the internal tests done with *ChatGPT-3.5* through public journalistic pieces on their websites in which readers could view the type of questions asked. In the case of *Maldita.es* (2022), the piece was published on December 27, 2022 and was made from a live broadcast on the *Twitch* platform, within the *Maldita Twitchería* section, in which they invited different experts in the field of computing to discuss the use of the chatbot. The prompts –information inputs entered into the chatbot– were geared toward entertainment questions and mathematical queries such as "Write a song in the style of singer Rosalía," "Talk about the book *The Time Machine*," and "Identify whether the number 9 is a prime number." All consultations were in Spanish. Pablo Hernández (in-depth interviews conducted on February, 20 2023 and March, 28 2023) explains that, as fact-checkers at *Maldita.es*, they have also done some testing on a personal basis, albeit with "basic searches," and that the platform's engineering team has also tested the *ChatGPT-4* version, although still without significant results.

In the case of *VerificaRTVE* (2023), the platform published a piece on its website on January 27, 2023 with tests made with *ChatGPT-3.5*. In this case, the queries were related to disproven disinformation about Covid-19 vaccination, such as "Do Covid-19 vaccines contain graphene?" The prompts were entered in Spanish and English to detect possible language bias, but did not detect "failures." According to Borja Díaz-Merry (in-depth interview, March 2, 2023), "this gave us some confidence, although with caution, since we have to experiment more because we believe that we could detect errors." Even so, in the piece that was published, they explained that they had found that *ChatGPT* "reacts to disprove false content with data from reliable sources."

At *Newtral*, internal testing has also focused on checking whether the chatbot was able to detect falsehoods on topics that they had previously verified on the platform, as well as "analyzing how *ChatGPT* can manufacture the raw material to create a hoax" (Irene Larraz, in-depth interview, February 16, 2023). According to Larraz, the test showed the tool's capacity for "sophistication" to fabricate disinformation.

Meanwhile, *AFP Factual Spain* questioned the chatbot regarding the veracity of some images of "an alleged rescue dog in the Syrian and Turkish earthquakes of February 6, 2023," although they did not obtain a "satisfactory" answer (Adrià Laborda, in-depth interview, February 16, 2023). Finally, at *Verificat* and *EFE Verifica*, the queries have been oriented toward questions related to the search for bibliographic references to verify fact-checking as well as to questions of general culture, such as "Is it true that man has landed on the Moon?", a fact that the chatbot confirmed.

### 4.2. Disadvantages and advantages identified

The lack of knowledge regarding the origin of the sources used by *ChatGPT*, as well as their typology, is perceived as the main disadvantage regarding its application in the field of information fact-checking. Likewise, the impossibility of discerning between facts based on empirical knowledge and those based on artificial intelligence inventions –so-called hallucinations– also generates distrust: "It does not specify which part of the text is based on real facts and which part has been invented by the machine" (Sergio Hernández, *EFE Verifica*). The demand for specific scientific sources also presents problems. As Javier Castillo (*Verificat*) states, "You ask it for references for a fact-check on nuclear energy and it invents them, it writes them in APA format, but maybe there are articles or authors that do not exist."

In this sense, the authenticity with which the chatbot generates its responses is perceived as another drawback, especially as an incentive to produce disinformation and complicate its detection. The fact-checkers point out that the coherence and textual correctness that *ChatGPT* exhibits in its responses can generate more effective disinformation narratives, both through the creation of argumentatively more consistent and convincing discourses and through the writing of disinformation texts that go unnoticed because they are linguistically correct. Thus, *ChatGPT* can be used to "create the raw material of a hoax and replicate it in different text formats and languages," and also to "generate fraudulent phishing messages" (Irene Larraz, *Newtral*).

The amplification of disinformation on *ChatGPT* may also occur owing to its high degree of accessibility. According to professional opinion, the possibility of multiple actors using the chatbot without any oversight can also facilitate the production of falsehoods: "Once you open the chatbot to the population, you find yourself in a scenario where, if the tool falls into the hands of people who want to generate chaos, the creation of disinformation and confusion may be unstoppable" (Pablo Hernández, *Maldita.es*). Even so, for other professionals, such as Borja Díaz-Merry (*VerificaRTVE*), the accessibility it presents can also be seen as a positive aspect, since "citizen training can also improve the tool." Following this reflection, Pablo Hernández (*Maldita.es*) specifies that the viralization of *ChatGPT* can also act as a catalyst for further innovation: "The emergence of a technology always leads to new developments and the creation of more specific features."

The scope of the database on which *ChatGPT* has been trained also generates mistrust among the fact-checker community. Some professionals such as Borja Díaz-Merry (*VerificaRTVE*) perceive drawbacks in the time limitation, set in 2021 for the *ChatGPT-3.5* version, and consider that this "bounded data processing" also "compromises the rigor and depth of the answers," which can "fly over superficiality." There are also fact-checkers such as Irene Larraz (*Newtral*), who, apart from this temporal limitation, identify a geographical limitation: "I've found that in some of the more local political fact-checking pieces, where I imagine the system doesn't find as much existing information, there's more of a tendency to get it wrong and misinform."

The predominance of the textual format is seen as another limitation for fact-checking professionals. Adrià Laborda (*AFP Factual Spain*) points out that *ChatGPT-3.5* "cannot verify images or videos" and Borja Díaz-Merry (*VerificaRTVE*) also sees the fact that it cannot process audios as a drawback: "One of the most common disinformation practices we have encountered are fake audio messages, and *ChatGPT* can not help us with this issue either." Laborda (*AFP Factual Spain*) also adds the fact that the chatbot has difficulty detecting humor and irony in a text as a disadvantage, since "they are key elements in some disinformation."

There are professionals such as Pablo Hernández (*Maldita.es*) and Sergio Hernández (*EFE Verifica*) who do view possible uses of *ChatGPT* as an auxiliary tool in the disinformation detection phase. In this regard, they believe that *ChatGPT* can be useful in detecting patterns and disinformation narratives circulating on the Internet, having "processed large amounts of data on the network that may not be true." Moreover, Hernández (*Maldita.es*) points out that the identification of existing disinformation discourses through *ChatGPT* can also help fact-checkers produce disinformation better adapted to these predominant narratives: "Once we recognize these discourses, we can generate content that is more specific and focused on disproving these disinformations." Therefore, beyond the stage of disinformation detection, *ChatGPT* is also perceived as an auxiliary resource in the debunking phase.

In this sense, Adrià Laborda (*AFP Factual Spain*) also sees possible uses in earlier phases of the work process, for example, in the collection of information (reporting). For Laborda, *ChatGPT* can thus be used to search for "synthetic context information about a fact quickly" that helps to save time and to complete the fragment of a piece by way of contextualization, although "always reviewed by a professional." In the opinion of Irene Larraz (*Newtral*), it can also be useful in obtaining instructional information, since "it can offer clues, instructions and initial guidelines on how to start checking content." However, she also indicates that the expertise of the fact-checking professionals must always come first.

The following is a summary of the main findings found regarding the disadvantages and advantages of the use of *ChatGPT* in information fact-checking (Table 2).

Table 2. Perceived inconveniences and advantages of using *ChatGPT* for information fact-checking.

| Inconveniences | Advantages |
|---|---|
| **Lack of transparency in sources**<br>• Lack of knowledge as to the origin and use of sources.<br>• Difficulty in identifying between real events and so-called hallucinations. | **Ease of data collection**<br>• Synthetic and quick information that can provide contextual data.<br>• Basic data of an instructive nature that can serve as a guideline to initiating fact-checking. |
| **Sophistication and amplification of disinformation**<br>• Plausible texts, but not true.<br>• "Citizen training".<br>• Indiscriminate data processing.<br>• Replicability of the same content in different textual structures and languages. | **Updating and "self-learning"**<br>• Citizen accessibility can train and improve chatbot performance.<br>• The development of *ChatGPT* is driving the emergence of more specific tools. |
| **Restricted sample size**<br>• Temporally bounded data processing.<br>• Geographical limitations.<br>• Superficiality in answers. | **Identification of online disinformation**<br>• Possibility of detecting patterns and disinformation narratives present on the Internet. |
| **Predominance of text format**<br>• Difficulty in verifying non-textual content.<br>• Difficulty in identifying textual tone. | **Fact-checking better adapted discursively**<br>• Identification and knowledge of disinformation narratives circulating on the Internet can facilitate the development of more effective counter-narratives. |

Source: interviews with fact-checking platforms.

## 4.3. Performance and intended uses

There is a general consensus among fact-checking professionals that *ChatGPT* could be used in the fact-checking process if, above all, it were transparent and reliable in its use of information sources. Likewise, fact-checkers would also opt for its professional use if it offered "more rigor and argumentation in its answers," as well as features more adapted to their work tasks, for example, the possibility of identifying and processing audiovisual content.

Beyond preferring greater specialization of the tool in terms of content production, fact-checkers would also view *ChatGPT* as a useful resource in their work if it had greater depth and scope in the data processed, that is, if it could expand the data sample with which it has been trained, if it had the capacity to anticipate, and also if it had more monitoring and

disinformation content detection features, especially focused on saving time and response capacity in the debunking process. The following are some of the perceptions identified in this area by the professionals consulted:

> "I wish *ChatGPT* could help us when there is still no article published on the Internet regarding certain content" (Adrià Laborda, *AFP Factual Spain*).
>
> "It would be ideal if it had a system to analyze more content and to monitor information that appears on different web pages or even on social networks" (Pablo Hernández, *Maldita.es*).
>
> "It would be interesting if you could enter a text and it would identify which claims could be verifiable and which not, so we would save much more time" (Javier Castillo, *Verificat*).
>
> "*ChatGPT* and *OpenAI* have not come to ask us information fact-checkers anything, and we just need information production and monitoring tools more adapted to our work that allow us to gain time and scope" (Irene Larraz, *Newtral*).
>
> "The answers it offers are coherent and well argued, but as a fact-checker I require much more depth to be able to trust this tool, and also more transparency in the use of sources" (Borja Díaz-Merry, *VerificaRTVE*).

### 4.4. Implications for professionals

The viralization of *ChatGPT* as a tool for the production of citizen outreach information has a significant impact not only on the work of fact-checkers but also on their role as professionals. This is the perception of most of the fact-checkers consulted, who identify three obvious implications for their work.

They judge that the emergence of *ChatGPT* implies a reinforcement of their task as fact-checking professionals because the viralization of this artificial intelligence "reinforces human judgment and intelligence" (Adrià Laborda, *AFP Factual Spain*), which is maintained and consolidated as "essential" in any information fact-checking process. Thus, they believe that the open launch of the chatbot defends the concept of fact-checkers as "agents of context" (Pablo Hernández, *Maldita.es*). In this sense, *ChatGPT* is situated as "an auxiliary tool" (Irene Larraz, *Newtral*), always subject to the human judgment of the fact-checker in the processes of detection and disproval.

The chatbot's viralization also implies the complication of fact-checkers' professional task as a tool for citizen use that can facilitate the production and sophistication of disinformation through the creation of plausible and linguistically correct texts. Furthermore, by not identifying the origin and use of the sources, the fact-checking process is made more difficult.

Some professionals also deem that the emergence of *ChatGPT* broadens the competencies and skills that fact-checkers must master because "it forces greater teamwork not only on the same platform, but also between organizations" (Sergio Hernández, *EFE Verifica*) in the sharing of knowledge and tools that can be useful for their use. It also requires "flexibility, adaptation and more dedication from professionals" (Borja Díaz-Merry, *VerificaRTVE*). In addition, for others it entails a change in the conception of the role of the fact-checker, which goes beyond the simple verification of data. According to Pablo Hernández (*Maldita.es*), "It's not just about verifying data, but about fighting disinformation in a broad sense. It is not only to take a piece of content, increasingly more convincing and better written, and disprove it, but to provide context and explain it better so that there are no doubts."

In this sense, Hernández (*Maldita.es*) also defends the actions toward media education carried out by numerous fact-checking platforms and suggests extending them to the use of *ChatGPT* with didactic and formative materials of a citizen nature.

## 5. Discussion and conclusions

Fact-checking skills and competencies in journalism evolve with technological changes (**Himma-Kadakas**; **Ojamets**, 2022). Thus, *ChatGPT* and its updates present numerous challenges and obstacles to be faced by fact-checkers, who perceive significant changes for their professional routines with the chatbot's emergence, such as the increased complexity of falsehoods in all aspects, which accentuate the information disorder syndrome (**Wardle**; **Derakhshan**, 2017) as well as the dissemination of manipulated content and propaganda (**Tandoc Jr**; **Lim**; **Ling**, 2018).

This demands more dedication, adaptability, and professional collaboration from fact-checkers in a new disinformation ecosystem that may be refined and accelerated with the use of artificial intelligence (**Franganillo**, 2022), especially because of the "citizen training" to which some of its services have also been subjected. However, this openness and accessibility can also be seen in an ambiguous way: as a possibility of technological refinement leading to better functionality and the emergence of new tools to overcome the current disadvantages.

In answer to the first research question (Q1), the open launch of *ChatGPT* is a new field for fact-checkers to explore. According to the results obtained, and although more disadvantages than advantages are found, possible positive aspects are perceived in the use of the chatbot when identifying patterns and disinformation narratives, as well as in the identification of textual and linguistic

> "Experimentation with the chatbot could help identify different textual versions of the same disinformation content"

mutations all in the same falsehood. Thus, the use of *ChatGPT* as an auxiliary tool in this area could contribute to certain professional routines of fact-checking, such as in the phase of locating false claims (**Graves**, 2017).

While it is true that, in the most widely available version of *ChatGPT*, it is not yet possible to get to the origin of the falsehood owing to the lack of transparency in the use of sources, experimentation with the chatbot could help to trace different textual versions of the same disinformation content. This knowledge would, in turn, allow for a deeper understanding of the operational patterns of disinformation, and as the results of our study show, the ability to carry out fact-checking more in line with the nature of the content to be disproved. The emergence of *ChatGPT* would also reinforce the understanding of the role of fact-checkers from an epistemological point of view, since the possibility of identifying the different textual formats that a falsehood can acquire could consolidate the professional imperative that consists of detecting lies in all their facets (**Graves**, 2016).

According to the results, another positive aspect perceived regarding the use of *ChatGPT* is the possibility of collecting contextual information quickly and concisely. The chatbot could be useful in another phase of the journalistic production process, such as reporting or the search for information, and could contribute to the streamlining of some professional routines in this area.

The possible uses of *ChatGPT* identified by the fact-checkers would be mainly of an auxiliary nature and under the close supervision of professional figures. For *ChatGPT* to be a tool regularly incorporated into fact-checking routines, a greater transparency and reliability in the use of its sources, performance in the fact-checking of audiovisual content, and more rigor and profusion in the responses generated would also be required. From the perspective of the fact-checkers, such functionalities would be key to maximizing the usefulness of *ChatGPT* in fact-checking practice (Q2).

For most fact-checking professionals, the emergence of *ChatGPT* reinforces their role as fact-checkers and accentuates a paradigm shift in their professional roles (Q3). The results are consistent with previous research on perceptions of information professionals regarding the introduction of AI into their professional routines, in which participants tend to defend their work and human judgment in addition to presenting themselves as supervisors of these new tools (**Noain-Sánchez**, 2022).

Beyond fact-checking, fact-checkers are perceived in this new ecosystem as "agents of context," capable of shedding light on the increasingly complex darkness of disinformation. The emergence of *ChatGPT* also forces them to further diversify their fields of action in the fight against disinformation and to accelerate the implementation of actions in media education that empower citizens in the responsible use of artificial intelligence.

Although this research included all accredited Spanish fact-checking platforms, with interviews being carried out with professionals in positions of responsibility from said platforms, it should be noted that the study has been limited to the Spanish context. It is also important to note that the interviews conducted are limited to a specific time range, subject to constant technological changes. However, this study delves into new avenues of research in the field of information fact-checking and the emergence of new tools that have a direct impact on its activity. It is therefore a subject that should always continue to be worked on, with the development of research that also allows for other approaches, such as comparative and transnational perspectives.

> "The emergence of *ChatGPT* reinforces the role of fact-checkers as context agents"

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