



## RESEARCH/INVESTIGACIÓN

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### FAKE NEWS AND GENERATION Z JOURNALISTS. POST-MILLENNIAL SOLUTIONS AGAINST DISINFORMATION

*Las fake news y los periodistas de la generación z. Soluciones post-millennial contra la desinformación*

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#### ABSTRACT

Disinformation has been one of the most analyzed issues in recent years in media studies. However, there is still a lack of research on young media professionals' perceptions about this problem. They are considered to be essential in the adoption of future strategies to tackle fake news. This research intends to discover the hegemonic ideas of new journalists on this problem and how they perceive its possible solutions. A total of 45 in-depth interviews with Generation Z journalists (mean age: 24.14 years) were carried out, complemented with two focus groups and the application of a semantic differential scale, whose results were analyzed using both descriptive and inferential statistics. New journalists affirm the solution to the problem should be approached from a *convergent technocentrism* that combines technological determinism with a traditionalist perspective that resorts to the old values of journalism to combat the information disorders that proliferate today. Data journalism, which merges traditional journalistic practices with new technological tools, is perceived as a more effective solution than fact-checking and artificial intelligence, even though the latter

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two practices are considered as faster strategies to tackle disinformation. Likewise, new journalists highlight the need to develop digital, critical, and media literacy for citizens.

**KEYWORDS:** Disinformation – post-truth – fake news – data journalism – fact-checking – artificial intelligence – social media – media literacy – Generation Z.

## RESUMEN

El fenómeno de la desinformación es uno de los asuntos más analizados en los últimos años en el ámbito de la investigación en comunicación. Sin embargo, aún no existe un gran conocimiento acerca de la percepción que sobre esta problemática tienen los jóvenes comunicadores, esenciales en la adopción de estrategias futuras para combatirla. Mediante la realización de 45 entrevistas en profundidad a periodistas de la Generación Z (media de edad: 24,14 años) complementadas con dos grupos de discusión y la aplicación de un cuestionario bajo la técnica del diferencial semántico (con tratamiento estadístico descriptivo e inferencial), esta investigación pretende conocer cuáles son las ideas hegemónicas de los nuevos periodistas sobre este fenómeno y cómo perciben sus posibles soluciones. Para los jóvenes periodistas, la solución del problema debe abordarse desde un *tecnocentrismo integrador* que combina el determinismo tecnológico con una perspectiva tradicionalista que continúa recurriendo a los viejos valores del periodismo para combatir los desórdenes informativos que proliferan en la actualidad. El periodismo de datos, que fusiona saberes y prácticas del periodismo tradicional con nuevos instrumentos tecnológicos, se percibe como una solución más eficaz que el *fact-checking* y la inteligencia artificial, a pesar de que estas dos últimas prácticas se consideran más rápidas para luchar contra la desinformación. En paralelo, estos profesionales de la comunicación ponen de relieve la necesidad de desarrollar la educación digital, mediática y crítica de la ciudadanía.

**PALABRAS CLAVE:** Desinformación – posverdad – *fake news* – periodismo de datos – *fact-checking* – inteligencia artificial – redes sociales – educación mediática – Generación Z.

## AS FAKE NEWS E OS JORNALISTAS DA GERAÇÃO Z. SOLUÇÕES PÓS MILLENNIAL CONTRA A DESINFORMAÇÃO

### RESUMO

O fenômeno da desinformação é um dos assuntos mais analisados nos últimos anos no âmbito da pesquisa na comunicação. Porém, ainda não existe um grande conhecimento sobre a percepção que esta problemática tem nos jovens comunicadores, essenciais na adoção de estratégias futuras para combatê-la. Mediante a realização de 45 entrevistas aprofundadas a jornalistas da Geração Z (com uma média de idade de 24, 14 años) complementadas com dois grupos de discussão e aplicação de um

questionário usando a técnica de diferencial semântico (com tratamento estatístico descritivo e inferencial) esta pesquisa pretende conhecer quais são as ideias hegemônicas dos novos jornalistas sobre este fenômeno e como percebem suas possíveis soluções. Para os jovens jornalistas, a solução do problema deve ser abordada desde um tecnocentrismo integrador que combina o determinismo tecnológico com uma perspectiva tradicionalista que continua usando os velhos valores do jornalismo para combater a desorganização informativa que proliferam na atualidade. O jornalismo dos dados, que funde os saberes e práticas, se percebe como uma solução mais eficaz que o fast-checking e a inteligência artificial, apesar de que estas duas últimas práticas se consideram mais rápidas para lutar com a desinformação. Em paralelo estes profissionais da comunicação mostram a importância e a necessidade de desenvolver a educação digital, midiática e crítica da cidadania.

**PALAVRAS CHAVE:** Desinformação - pós verdade - *fake news* - jornalismo de dados- *fact-checking* - inteligência artificial - redes sociais - educação mediática - Geração Z.

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## 1. INTRODUCTION

Although it is not a phenomenon exclusive of our time, disinformation is one of the reference issues in the field of communication research since 2016. Academics and analysts such as Graves (2016), Ball (2017), Davies (2016), D'Ancona (2017), Kakutani (2018), Thurston (2018), Fuller (2018), McIntyre (2018), or McNair (2018), among others, have focused their efforts on understanding the causes, motivations, diffusion processes, and the political, economic, cultural, and social implications of fake news, one of the greatest challenges that the media system and society, in general, must face today. Most of these researches have focused on the analysis of the manipulative speech of political actors in Western societies (Donald Trump in the United States, Brexit in Great Britain, and Jair Bolsonaro in Brazil are among the most analyzed cases); the mechanisms for disseminating such content in traditional media and - especially- in social networks; and in the ways to combat this problem with information verification projects and from the educational field.

In recent months, case studies related to Covid-19 have occupied most of the research attention in this field. These studies aim to describe and interpret the phenomenon of fake news linked to the pandemic from the analysis of the typology of disinformation (Brennen et al., 2020; Salaverría et al., 2020; García-Marín, 2020; Sánchez-Duarte and Magallón-Rosa, 2020), the role of information professionals in this infodemic context (Aleixandre-Benavent, Castelló-Cogollos, and Valderrama-Zurián, 2020), the essential actors in the spread of fake news on social networks (Pérez Dasilva, Meso-Ayerdi, and Mendiguren-Galdospín, 2020), the false images associated with the virus (Andreu-Sánchez and Martín-Pascual, 2020), the information sources used by users to find information about the disease and the measures adopted by the

institutions (Elías and Catalán-Matamoros, 2020), and the connection between pandemic and infodemic (Peters, Jandric, and McLaren, 2020; Gallotti et al., 2020).

### **1.1. Post-truth, disinformation, and fake news**

In this context, the concepts of post-truth, misinformation, and fake news are represented as pieces of the same puzzle. Although it had been used previously, the term post-truth was popularized by Keyes (2004) in his book *The Post-Truth Era: Dishonesty and Deception in Contemporary Life*. For this author, American society would have entered a new era in which lies and half-truths dominate daily life and, above all, the political environment. According to this vision, several would be the catalysts for the rise of this problem: “(1) the growing fan phenomenon around certain popular characters where entertainment is valued more than integrity, (2) academic postmodernism that relativizes all notions of truth, and (3) the deception derived from the new technological conditions” (Keyes, 2004, p. 197). Post-truth is considered a new epistemic regime where the emotional response prevails over factual evidence and reasoned analysis (Dahlgren, 2018). It is perceived as a new culture that represents “a political subordination of reality” (McIntyre, 2018, p. XIV).

For these voices, post-truth designates a situation in which a large volume of people lives in a cognitive space that has abandoned all evidence criteria, “an alternative reality that is shared by millions of citizens” (Lewandowsky, Ecker, and Cook, 2017, p. 360). This diagnosis seems to have serious implications because it determines that the simple verification of the facts would not be enough to get out of the post-factual regime that these authors draw (Woollacott, 2016).

Post-truth contributes, therefore, to creating ideas, imaginaries, and social representations from where fake news is possible, false news that refers to these ideologies, affirming or expanding them (Murolo, 2019). In its integration into these post-truth worlds, fake news is perceived as information whose falsehood can be verified, always created to deceive (Allcott and Gentzkow, 2017; Guo and Vargo, 2018). For McIntyre (2018), this term refers to any type of misinformation that is deliberately manufactured to appear to be true news, that is, built under a formally journalistic appearance. Along these lines, McNair (2018, p. 46) defines them as “the invention or falsification of known facts for commercial or political purposes that are presented as real news”.

However, the construction of the conceptual perimeter around the term *fake news* is not without controversy. The most important is the purpose of its production. Unlike the aforementioned authors, for Silverman (2017) the term would only refer to false information created for economic reasons, excluding political manipulation processes in its theoretical construction. Along the same lines, Hunt (2016) defends that, strictly speaking, fake news is false information prepared from scratch to deceive recipients to maximize online traffic and obtain economic benefits.

Analogies and comparisons between the phenomenon of disinformation and the medical field occupy a central role in contemporary stories of fake news. Several academics have suggested that fake news is comparable to a dangerous infectious disease that spreads through society at high speed through interpersonal contact (Heathman, 2018; Kucharski, 2016), as if it were a virus, challenging the world in a way never seen before (Rawlinson, 2017). Disinformation is, therefore, considered to have a viral nature, representing a new form of an epidemic (Amrita, 2017; DiFranzo and Gloria-García, 2017).

As a logical consequence of these metaphors, academics and intellectuals argue that there is an urgent need to analyze the “epidemiology of fake news” (Kucharski, 2016, p. 525) to develop an “appropriate social diagnosis” (Suiter, 2016, p. 26) detecting which are the pathogens of malicious information (Rubin, 2019) and testing “possible cures” (Corner, 2017, p. 1104). The consequence of all this is a constant race to implement “containment policies against disinformation” (Vosoughi, Roy, and Aral, 2018, p. 1150) and discover a vaccine against false content (Heathman, 2018) to prevent citizens from being infected by this disease, alluding to the inoculation metaphor. Other authors expand this vision when they refer to fake news as a plague of modern societies (Amrita, 2017; Stelter, 2016) that would be characterized by its “enormous capacity for resistance” (D’Ancona, 2017, p. 67) in the face of constant attempts to combat it.

The framing of fake news as a natural phenomenon with its own dynamics, developments, and processes serves not only to highlight its spread and dissemination but also to point out specific solutions for this crisis. These possible remedies include, fundamentally, the confrontation of the problem through the control of the content shared in social networks (eradication of the disease, under the viral metaphor) and the immunization of society (vaccination metaphor) through digital, media, and/or informative education programs (Aparici and García-Marín, 2019).

## **1.2. Study justification**

Despite all this analytical and research emphasis around disinformation, there are still certainly few studies about the perceptions and social representations that citizens (and more specifically, key groups such as information professionals) have on this problem. We consider it essential to know how the disinformation phenomenon is understood and interpreted by significant voices and relevant actors in the field of communication and how such perceptions and interpretations could determine the present and future of the fight against this challenge. It is frankly difficult to approach the solutions of a problem when you do not know what the general understanding of the problem is. Therefore, the development of a robust conceptual framework is required before the post-truth challenge can be effectively addressed (Higdon, 2020).

It is, therefore, in the field of perceptions and social representations about disinformation where we want to place ourselves. In this field, the studies by Masip, Suau, and Ruiz-Caballero (2020) about opinions about the media and disinformation,

ideology, and polarization in the Spanish media system stand out. Research by Blanco-Herrero and Arcila-Calderón (2019) analyzes the perceptions of Spanish journalists about the usefulness of professional deontology to fight fake news. And along a similar line, Brandtzaeg, Følstad, and Chaparro-Domínguez (2018) focus their studies on how journalists perceive the usefulness of fact-checking and verification services in the fight against misinformation.

Without diminishing the relevance of these analyzes, a clear research deficit is observed in the study of perception and the meaning frameworks that young communication professionals, those who are currently accessing the labor market, what we could call "Generation Z journalists" (those born between the mid-90s and the late 2010s), have about the disinformation phenomenon. One of the few approaches that we could place along this line is that of Mendiguren, Pérez Dasilva, and Meso-Ayerdi (2020), which analyzes attitudes towards fake news in university students. Although it coincides in some terms with ours, this research presents great differences with our study because, among other aspects, it was carried out not only among students of degrees related to communication but the sample was also made up of students from other areas.

We consider that our analysis is significant because it is focused exclusively on graduates in areas related to Communication (degrees in Journalism, Social Communication, Double Degree in Journalism and Audiovisual Communication, etc.) who are taking their first steps in the professional field. We observe that this group is strategic in the study of social representations of the disinformation phenomenon for several reasons. They are the first generation to be born and raised with the social web, in an eminently digital context, which is why they present different learning patterns and preferences, as well as different social practices and concerns than individuals from previous generations (Seemiller and Grace, 2016). This generation is also characterized by maintaining its own and differentiated media consumption habits (Turner, 2015). Likewise, a large part of their university studies has coincided with the emergence of this phenomenon from the year 2016, so they have a perspective located halfway between the academic world in which they have been integrated in recent years and the professional field to which, not without difficulties, they are joining. They are, in short, the first generation of journalists to access newsrooms in a media ecosystem contaminated by hoaxes and fake news. However, there is still no extensive knowledge about their characteristics, needs, attributes, and work styles (Singh and Dangmei, 2016), although this generation of journalists should lead the fight against the challenge of misinformation in the coming years.

## **2. OBJECTIVES AND METHOD**

Our study aims to find out what are the social representations and perceptions that these young journalists have about the phenomenon of disinformation from the point of view of its possible solutions. We, therefore, pose the following research question: What are the approaches and strategies that, according to Generation Z journalists, should be implemented to combat this problem? In clear connection with this issue,

the objectives of our work focus on determining (1) which are, in the opinion of these young journalists, the areas from which these measures should be developed and (2) which are the dominant concrete proposals in the deposition of this group when it comes to establishing solutions for this problem.

The exploratory research was developed in three phases, linked to each other through chained articulation so that the results of each one of them were used to construct the instruments for the immediately subsequent phases (Callejo and Viedma, 2005).

- Phase 1. 45 interviews were conducted with graduates in communication sector degrees from 21 Spanish universities (Table 1). At the time of fieldwork, these professionals were, in turn, students of two master's degrees in digital communication and transmedia journalism at the UNED, an aspect that facilitated contact with the researchers. The average age of the participating subjects was 24.14 years. The interviews were qualitative, structured under a closed script (available at the following link: <https://cutt.ly/YzEzg8g>), and in-depth. They were carried out from March to July 2020 electronically due to the Covid-19 pandemic situation.

**Table 1.** Universities of origin of the study participants (n=45)

University	Number of interviewees
Complutense	8 (17.77%)
Málaga	6 (13.33%)
Carlos III	4 (8.88%)
Pompeu Fabra	4 (8.88%)
Sevilla	3 (6.66%)
Salamanca	2 (4.44%)
Zaragoza	2 (4.44%)
Rey Juan Carlos	2 (4.44%)
Internacional de Catalunya	2 (4.44%)
Valladolid	1 (2.22%)
Oviedo	1 (2.22%)
Almería	1 (2.22%)
Granada	1 (2.22%)
UOC	1 (2.22%)
UNED	1 (2.22%)
Deusto	1 (2.22%)
Miguel Hernández (Elche)	1 (2.22%)
Alicante	1 (2.22%)
Barcelona	1 (2.22%)
CEU San Pablo	1 (2.22%)
La Laguna	1 (2.22%)

**Source:** Self-made.

- Phase 2. To clarify and deepen the most relevant aspects from the interviews, two focus groups were carried out with two subsamples (8 participants in each of the groups) obtained from the group of interviewees in the previous phase. Both focus groups took place during June 2020, also electronically. In the sample selection process, both the criterion of homogeneity or thematic affinity (all participants were communication professionals belonging to Generation Z) and heterogeneity were taken into account, since the participating subjects came from different universities. The script was based on the results obtained in the structured interviews to clarify ideas and discover nuances in the participants' discourse. It was used to research the position on the causes of misinformation, the role of the media and digital platforms in this problem, the spaces where there is a greater distribution of fake news, and the skills that journalists must acquire to combat them. A flexible guide was available that allowed to effectively guide its development (Tracy, 2020), allowing the production of new arguments from the spontaneous interaction between the participants. The information resulting from the application of both qualitative instruments (interviews and focus groups) was analyzed with the support of the NVivo v.12 software. To provide open access to the data extracted in our fieldwork and to facilitate its consultation, all the coded discursive fragments from both instruments are made available in the following repository:



<https://cutt.ly/ezEjJwR>. In the results section, the data extracted from the interviews are presented by anonymizing the participants under the following formula: INT\_XX where XX is the interview number. For the focus groups, the same procedure is used: FG\_0X where X is 1 or 2, depending on the focus group where the aforementioned statement occurred.

- Phase 3 (quantitative). Both in the interviews and the focus groups, we observed that three journalistic practices and/or tools were repeatedly referred to as useful strategies or approaches in the fight against misinformation. These practices were data journalism, fact-checking, and the use of artificial intelligence. To obtain more precise knowledge of the participants' perceptions of each of these activities, the semantic differential technique was applied. With this technique, it is possible to extract the meanings that certain concepts acquire for the interviewees from their decomposition into bipolar attributes that the participants must evaluate on a scale (Corbetta, 2007) similar to those of the Likert type. In our study, we divided each of the concepts to be studied (data journalism, fact-checking, and artificial intelligence) into a total of ten standardized attributes that function, in turn, as variables to be measured. They are the following: (1) efficiency, (2) simplicity, (3) economic cost, (4) universality (applicability to all types of situations, contexts, and themes), (5) innovative character (topicality), (6) adaptability to the changes of the profession (dynamism), (7) speed, (8) neutrality, (9) durability, and (10) experience required for its execution. As can be seen in Figure 1, the positive charges of the variables are at the lowest values (up to 1), while the negative ones are associated with the highest (up to 5). Before proceeding to its application, a reliability test of the questionnaire (Cronbach's test) was executed, whose value was 0.703. This value, although not excessively high, can be considered sufficient to approve the internal coherence of the instrument (Frías-Navarro, 2019). Table 2 shows Cronbach's alpha values in the event of suppressing each of the variables. Once validated, the questionnaire was completed by the participants. Next, the descriptive statistics were obtained for each of the journalistic practices analyzed (data journalism, fact-checking, and artificial intelligence), and an ANOVA test (Analysis of Variance of a factor) and a post hoc test were applied, using the HSD Tukey test, to determine the existence of significant differences in the assessment of each of the variables. All statistical operations, both descriptive and inferential, were carried out with the specialized software IBM SPSS v.26.



*Figure 1.* Applied semantic differential.

**Source:** self-made.

*Table 2.* Results of the Cronbach test to check the reliability of the questionnaire

Variable	Cronbach's alpha removing the element	Variable	Cronbach's alpha removing the element
Efficiency	0.675	Speed	0.679
Simplicity	0.674	Topicality	0.682
Cost	0.700	Dynamism	0.663
Universality	0.700	Neutrality	0.672
Experience	0.684	Durability	0.698

**Source:** self-made

### 3. RESULTS

#### 3.1. The fight against fake news

According to the report produced by the participants in our study, three key areas are distinguished in the fight against misinformation: (1) the action of the media and information professionals, (2) the measures implemented by the digital platforms, and (3) the media education of the whole society to identify false content. Each of these three areas is analyzed in depth below.

### 3.1.1. Solutions from journalism

Traditional journalism is identified as an essential institution in the democratic public sphere, so the decline in its credibility is related to the rise of fake news (Dahlgren, 2018). As journalism loses its relevance as a professional practice and the main gatekeeper in the establishment of the informative agenda of the audiences -at the same time as it is committed to a professional standard that favors speed over the depth of stories- the attention of the public towards sources of information of doubtful quality is activated (Elías and Catalán-Matamoros, 2020). To this is added an evident transparency problem that torpedoes the confidence of citizens in journalistic practice (Sambrook, 2018).

These same critical discourses towards the profession are assumed by Generation Z professionals, for whom journalism has the mission of protecting democracy by seeking the truth and denouncing lies, especially by those who hold some kind of power. They argue that the exercise of well-executed journalism equips citizens with sufficient tools to control those who exercise power and prevents audiences from seeking information from non-credible sources.

For this reason, they advocate for higher quality, a commitment to informative rigor, and a reinforcement of the ethical principles of the profession. For these new journalists, "the media must commit to quality work that does not fall into disinformation in any way" (INT\_12), to become standard-bearers "of neatness before the scoop" (FG\_02) and to offer correctly "contextualized and verified" information (INT\_31) so as not to contribute "to this festival of false information and sensationalism in which we live" (FG\_02).

One of the journalistic practices that they censor is clickbait, present even in the highest quality newspapers (García-Serrano, Romero-Rodríguez, and Hernando-Gómez, 2019): "They should criticize themselves and flee from content made only to become viral, from clickbait" (INT\_42). Likewise, they request the reformulation of the traditional communication schemes between the media and audiences to regain their trust. In this sense, it would be essential to adopt a more two-way communication model, typical of the communication structures of the Internet, where "the media listen to the audience, dialogue with it, and admit and correct errors" (INT\_05).

The connection between media and users should also be reinforced with the role of journalistic institutions as catalysts for the media education of audiences. The pedagogical work from the media in a context governed by the saturation of information and the growing circulation of malicious content is considered an interesting line to explore to "warn of the circulation of false information explaining the reason for its falsehood" (INT\_24) and "disclose how they have come to discover that content was false information" (INT\_32). The media should use their position of power to train the population on how to consume truthful information, differentiating "the rigorous precepts that a journalistic piece should have" (INT\_33).

To do this, they defend the existence of specific spaces or sections where "how to identify these hoaxes is shown" (INT\_27). There is, however, no unitary position on the need to incorporate their own verification departments in the traditional media. On the one hand, fact-checking integrated into newsrooms is considered a positive practice "to verify information from the media, thus allowing the user to validate anything they consider suspicious" (INT\_19). On the other, the existence of a difference between communication media and verification platforms is defended: "I don't think they should exist within traditional media because we all know what each one is due to" (INT\_37). This position is consistent with the results obtained in the third phase of our research -whose data we will present later- where we observe that fact-checking is perceived as a less neutral practice than other instruments (artificial intelligence) used to combat fake news.

Likewise, Generation Z journalists defend a greater pluralism in the editorial lines of the media to break their ideological biases and take their users out of a "comfort zone to prevent them from becoming mentally lazy" (FG\_01).

The work to be carried out by the media includes the education of journalists themselves. Based on the discourse produced by the participants in our study, some keys are pointed out about what should be the competencies to be promoted from within the university system in the degrees of the area of Communication offered in our country. In general, Generation Z journalists adopt a technocentric approach in this field that leads them to define technological and digital skills as the most important when dealing with disinformation. In their discourse, it is essential "the acquisition of digital skills and specific current tools related to the verification of facts and data" (INT\_01) because to determine whether a content that circulates on the Internet is reliable or not "we must know the dynamics of how fake news is spreading" (INT\_06).

By linking the production and distribution of disinformation with social networks and digital environments in general, our interviewees affirm that it is essential that communicators of the 21<sup>st</sup> century know their language and their ways of acting, as well as being quick "to research the origin of the news, so we must fully understand how search engines work" (INT\_23). In this sense, they demand greater technical training to learn "the necessary tools to know how to identify the patterns of production and circulation of false information" (INT\_09) or to "master data monitoring instruments" (INT\_16).

The digital skills described above must be added to the aptitudes and values that traditional journalism has enshrined since its birth, especially those that focus on proper management of information sources. Verification of sources is perceived as a critical competence in the fight against information disorders, so that "when a journalist receives information, whatever the source, it must be duly dealt with before working with it" (INT\_25). The role of the journalist must be active and exhaustive in verifying the data, for which a certain "training in fact-checking, analytical and

research capacity" would be necessary (INT\_20) so as not to limit themselves to being "mere speakers of power" (INT\_32). They affirm that "the new journalism must leave the old journalism and take the time that is necessary to contrast the information and take care of the sources" (INT\_19). Along these lines, they value the ability to integrate different visions of reality into journalistic works using a variety of voices, to "cover all angles of that information" (INT\_04).

The perceptions about the education that universities are currently offering to future professionals as essential actors against disinformation will be analyzed in a more in-depth way in the section dedicated to the educational field.

### **3.1.2. The technological way. The role of digital platforms**

The technological approach to the phenomenon of disinformation is also substantiated by the central role that Generation Z journalists give to digital platforms in the fight against fake news. For the young journalists interviewed, digital platforms should not be kept apart from what is published, but rather should control the information spread by their users. The detection, labeling, and elimination of hoaxes, the fight against bots that automatically distribute false information on the networks, and greater visibility and ease of access to quality sources -to the detriment of the Internet spaces that disseminate false or biased content- are the main aspects pointed out by the interviewees.

The most common discourse on the role of digital platforms advocates the adoption of measures to eliminate information that has been proven false. The censorship of these contents would be a measure to be applied by large technology companies such as Facebook, Twitter, Google, etc., which should implement "more powerful verification mechanisms that allow these messages to be suppressed from the beginning before they go viral" (INT\_36). Historically, fake news has served as a catalyst for the spread of fear and anxiety, which function as activators of moral panic and violence (Schinkel, 2008). That is why, in the opinion of the interviewed subjects, this prior censorship should be more forceful "on those who contribute to promoting hate speech towards the most disadvantaged groups" (INT\_07).

Another assumed censorship mechanism is the blocking of accounts of those actors who are especially active in the dissemination of fake news: "Since they have the power to regulate their internal functioning, they should block false accounts or eliminate posts that contain malicious information" (INT\_10). The labeling of false information "through pop-up notifications like Facebook does or using similar models" (INT\_24) or the application of "mechanisms to hinder the spread of false content" (INT\_28) are other strategies that, although to a lesser extent, were mentioned during the fieldwork. The fight against bots should be articulated from "the verification of the identity of the profiles" (INT\_17), while these platforms must privilege access to reliable sources and "avoid directing the user to the untrue ones" (INT\_13).

The adoption of these measures is not exempt, however, from difficulties and ethical challenges that could endanger freedom of expression. Several of the journalists interviewed do not agree with the content censorship measures or with the blocking of accounts because “[the platforms] can exceed their powers, as has already been demonstrated in some cases in which certain posts are censored and other similar ones are not” (INT\_06), so “they should have mechanisms for verifying issuers, but never for censoring their messages” (INT\_19).

### **3.1.3. Educating citizens in the era of disinformation**

The last block of solutions provided by young journalists is located in the educational field, based on three clearly differentiated approaches: (1) digital education, (2) media education, and (3) critical education. We analyze each of them below.

1. Digital education. This first approach to the role of education delves into the technological discourse. If fundamentally the problem of misinformation is perceived as a consequence of the popularization of social networks and digital communication environments that favor the production and dissemination of fake news, digital education "for all citizens" (FG\_02) stands as one of the main factors in the fight against disinformation processes. For Gen Z professionals, the digital medium is the most fertile ground for the proliferation of malicious information. The irruption of the new information and communication technologies in our society would have brought with it the creation of a new need: digital literacy as a factor of human development and inclusion to reduce or avoid accentuating the digital divide, which they perceive as a “reflection of the existing social inequality outside the virtual universe” (INT\_01). They are aware that most citizens do not have the necessary skills to identify false information, so they should acquire technical knowledge because, just as technology is used for its dissemination, “there are also more tools than ever to check whether something is true” (INT\_13). These digital literacy actions must include the entire society, regardless of age, since the fact of “not having basic technological knowledge limits the quality of the informative diet of the audiences” (INT\_05).
2. Media education. Gen Z journalists understand this competency differently than digital skills. They define it as those informational skills that citizens should adopt to know in a basic way the standards of production and dissemination of quality news, as well as the structural composition of legitimate information to differentiate it from informational disorders. To these competencies would be added the capacity to manage the information overload that characterizes the digital society. Young journalists observe that a democratic society can mitigate the negative influence of fake news if its citizens receive education on the criteria and practices that constitute journalistic work. For this, educational institutions should teach to discern between opinions and facts and contribute to responsible and diverse consumption of information sources. They advocate the creation of an educational curriculum that includes “measures to make young people aware of the amount of information they have

in their pockets" (INT\_24), how to use it to be better citizens, and the immense damage that they can do, even to themselves, if they don't use it correctly. It would be essential, therefore, "to teach from the educational centers, to contrast the information since they are little, and not to stay with the first thing they hear, read, or see on television and the Internet" (INT\_29), as well as "educate in knowing how to read the news, contrast, discern, and assess" (INT\_39).

3. Critical education. The participants in the study argue that if we information to generate knowledge and that digital education does not have a purely instrumental character, being reduced to the acquisition of technical skills, access to education that places value on critical thinking should be facilitated. Otherwise, even if adequate instruction in technology is received, its full pedagogical potential would hardly be exploited. It is perceived that, by putting their own cognitive biases into play, the citizen also participates in disinformation processes. To combat them, they should "adopt a position of the critical subject and not only of passive consumer of the information who willingly and irresponsibly shares contents of dubious origin" (INT\_41). The interviewed young journalists claim for a demanding citizenry with the content it consumes and that it stops being attracted to "media that have provided us with false information" (INT\_12) to question the information it accesses and "always have critical thinking to ask themselves: is this true?" (INT\_04). In this sense, citizens must be aware of the interests behind the production of each piece of information. From their point of view, empowering citizens with this critical attitude would be equivalent to generating a less uninformed society.

In the opinion of the interviewees, digital, media, and critical education should be provided from the earliest ages through the "incorporation of specific subjects or programs in the curricula" (FG\_02). This opinion contrasts with the lack of education actions of this type at all educational levels. The general opinion is that neither schools, high schools, nor universities deal with the issue of disinformation in Spain. They affirm that beyond including theoretical conceptualizations about post-truth or disinformation, there is no subject throughout the degrees in the field of Communication that broadly addresses these issues, delves into their causes and consequences, and delves into the verification of facts and data and in teaching other specific tools to combat fake news.

From the educational centers, this problem is broadly treated through superficial explanations about its definition and the analysis of its importance for the profession, but without offering deep and practical approaches to the problem: "In high school, education in this field was totally non-existent; and in college, we sometimes talk about the matter, but never with a well-founded and organized education" (INT\_25).

Generation Z journalists perceive that in the Communication area degrees, disinformation is dealt with superficially and in all kinds of subjects, both with a theoretical, practical, and methodological approach. Some of the subjects indicated by the interviewed subjects were Structure and Power of Information, Digital Journalism, Methodologies of Journalistic Investigation, Journalistic Deontology, Public Opinion,

Journalistic Writing, Sociology, and Audiovisual Postproduction. It is perceived, therefore, that the treatment of this problem is not established in a specific subject, but is linked to the voluntaristic action of teachers interested in the subject and motivated by the analysis of the misinformative processes in the classrooms.

It is, however, in the workplace where they find greater opportunities for education in this matter. Our interviewees claim to have participated in short-term practical workshops organized by their companies and usually given by technology companies that offer instrumental training in the use of their own software to very specifically address certain journalistic needs, such as source verification, detection of false images and videos, and the identification of fake news on social networks: "The only time I remember receiving information in this regard was during my first stage of the EFE-LaCaixa scholarship when Google offered us training on online verification and tools against misinformation" (INT\_33).

This specific training usually focuses on the acquisition of technical skills based on fact-checking, data journalism, and the use of automatic artificial intelligence tools to detect false information or malicious sources. As we pointed out previously, these three journalistic practices were especially prominent in the discourse of the participants in our research. That is why the last part of our study analyzes in-depth the perceptions around these three instruments as useful tools in the fight against misinformation.

### **3.2. Fact-checking, data journalism, and artificial intelligence**

Through the application of the semantic differential technique, the surveyed subjects valued fact-checking as a markedly modern and current strategy (M=1.66), effective (M=1.87), dynamic and adaptable to future changes in the journalistic profession (M=1.97) (see Table 3 and Figure 2). The less positive charges associated with this tool are in the experience necessary for its execution (M=3.07). Furthermore, it is perceived as an instrument with a moderate capacity to operate in various circumstances and topics (M=2.74) and to provide a rapid response to the proliferation of fake news (2.69).

Data journalism achieves positive values in terms of efficiency (M=1.82), durability over time (perception of this instrument not as a fad) (M=2.18), and ability to adapt to possible changes in the profession (M=2.35). Its weaknesses would be in the slowness when carrying out its processes (M=3.78), the experience required for its execution (M=3.63), and its complexity (M=3.16).

Given their novelty and prospects in their application to the profession, the assessment of new journalists about artificial intelligence instruments is especially interesting. First of all, these tools make it possible to determine the credibility of news sources based on their reputational analysis, while offering a powerful answer to identify false profiles on social networks (bots) capable of developing campaigns against the stability of certain countries and create false tendencies of support to



certain ideological currents and political figures. The other great battlefield is the detection of misinformative content through the use of computational linguistics (using semantic and syntactic models), and non-linguistic methods to detect the possible manipulations present in the images (videos or photographs).

These developments have been implemented in recent years by large technology platforms in their fight against misinformative content. Facebook, besides hiring 5,000 workers to identify offensive messages, has also invested in artificial intelligence and machine learning tools to detect false content, especially those that come from computational propaganda (Iosifidis and Nicoli, 2020; Wooley, 2020), in response to the crisis generated by Cambridge Analytica. One of the algorithmic engines incorporated into the operation of the platform was Deeptext, a device based on computational linguistics capable of reading and understanding textual content from several thousand publications per second in more than 20 different languages.

In this context, artificial intelligence is perceived by the participants in our study as a very innovative tool, current (M=1.30), effective (M=2.05), and with great prospects for the future (M=2.10). It shares with data journalism the need for considerable experience for its management (M=3.89) and the lack of simplicity in its application (M=3.18) while presenting moderate negative charges in terms of the economic cost for its implantation (M=3.64).

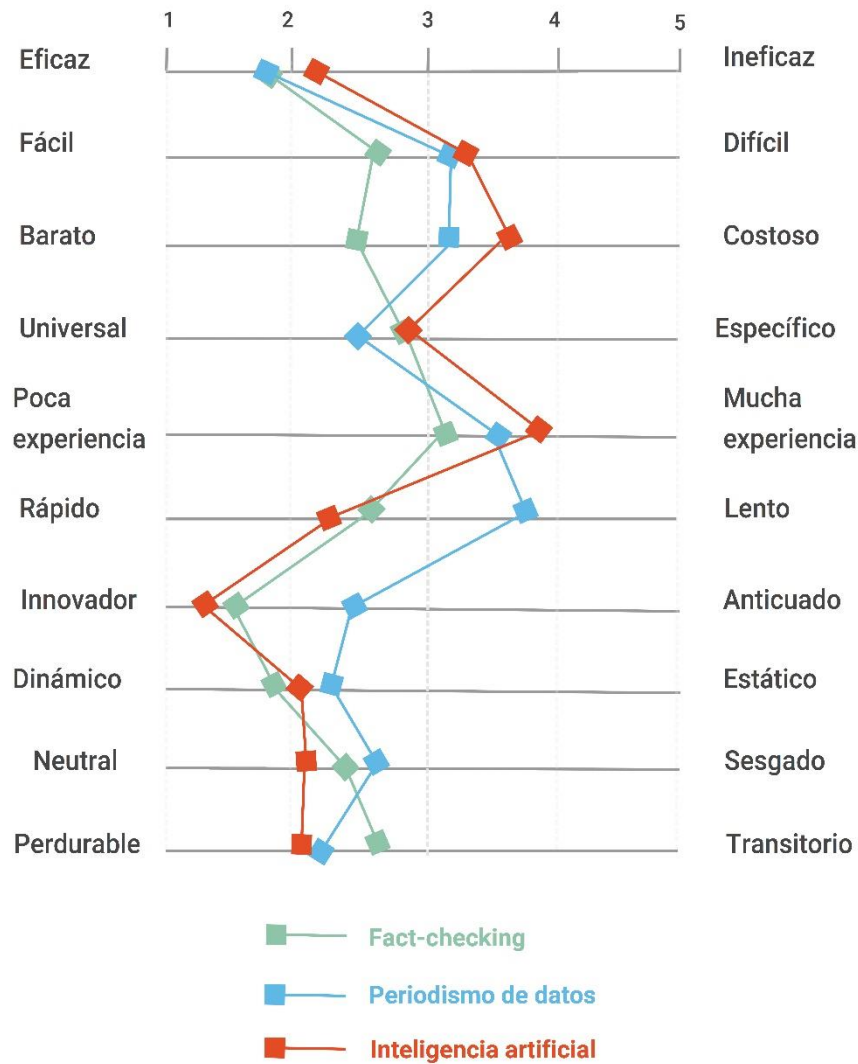
*Table 3.* Average ratings of each of the variables analyzed for fact-checking, data journalism, and artificial intelligence. The best and worst values for each variable in each of the instruments are marked in green and red, respectively; as well as the best and worst values of the general average of each variable and its standard deviation (S.D.)

Variable	<i>Fact-checking</i>	Data journalism	Artificial intelligence	General average of the variable	S.D. of the variable
Efficiency	1.87	<b>1.82</b>	2.05	1.91	<b>0.9</b>
Simplicity	2.56	3.16	3.18	2.96	1.24
Cost	2.42	3.10	3.64	3.06	1.23
Universality	2.74	2.53	2.71	2.66	1.23
Experience	<b>3.07</b>	3.63	<b>3.89</b>	<b>3.52</b>	1.13
Speed	2.69	<b>3.78</b>	2.23	2.88	<b>1.27</b>
Topicality	<b>1.66</b>	2.53	<b>1.30</b>	<b>1.83</b>	1.04
Dynamism	1.97	2.36	2.10	2.14	1.11
Neutrality	2.41	2.68	2.17	2.42	1.08
Durability	2.56	2.18	2.10	2.28	1.15
<b>General average of the instrument</b>	2.39	2.77	2.53		
<b>S.D. of the instrument</b>	0.39	0.60	0.74		

**Source:** self-made

In terms of efficiency, the three tools present positive charges with values closer to the positive pole of the variable (totally effective) than to the negative one (totally ineffective). The analysis of this variable determines that the best-valued tool is data journalism (M=1.82), which achieves very similar values to those achieved by fact-checking (M=1.87). Artificial intelligence is perceived as the least effective instrument (M=2.05), although it also acquires moderately positive values, located below the average score of the used scale.

On the contrary, the three instruments are considered certainly complex to apply, with artificial intelligence being the one that presents the worst evaluations for this variable (M=3.18), followed by data journalism (M=3.16). Fact-checking is perceived as the instrument with the least complexity in terms of its application (M=2.56). This last tool is considered considerably cheaper to implement (M=2.42) than the other two (data journalism has an average valuation of 3.10, while artificial intelligence shoots up to 3.64). However, artificial intelligence is valued as the fastest tool to deal with misinformation (M=2.23), marking a great distance from data journalism (M=3.78). All three instruments achieve moderately positive values in terms of neutrality. Artificial intelligence is perceived as the instrument with the least biases (M=2.17) compared to fact-checking (M=2.41) and data journalism (M=2.68). Regarding the variable related to innovation, artificial intelligence (M=1.30) and fact-checking (M = 1.66) achieve the best averages, with data journalism being the set of techniques considered under a more classic or traditional prism (M=2.53).



**Figure 2.** Profile of the applied semantic differential on data journalism, fact-checking, and artificial intelligence

**Source:** self-made

Multiple comparisons between variables and tools based on the ANOVA test ( $F [2, 45] = 0.64, p = .03$ ) and post hoc test using the Tukey HSD test, observe significant differences in four of the ten analyzed variables (see all values in the following link: <https://cutt.ly/HzExfuH>): (1) economic cost, (2) required experience, (3) speed of response, and (4) innovation. Artificial intelligence is considered significantly more expensive in economic terms than fact-checking ( $p < 0.01$ ) and data journalism ( $p = 0.026$ ). The study participants state that significantly more experience is required when using artificial intelligence instruments compared to the requirements demanded by fact-checking ( $p < 0.01$ ), while data journalism is considered significantly slower in its response to misinformation than fact-checking ( $p < 0.01$ ) and artificial intelligence ( $p$

<0.01). Finally, data journalism is perceived as a much less innovative practice in the fight against this problem than the other two instruments ( $p < 0.01$  in both cases).

#### **4. DISCUSSION AND CONCLUSIONS. TOWARDS AN INTEGRATING TECHNOCENTRISM**

According to the results of our research, the approach to the phenomenon of disinformation from the perspective of young journalists integrates two complementary visions: on the one hand, an evident technological determinism and, on the other, a traditionalist perspective that continues to place the old values of journalism as essential factors to combat the information disorders that proliferate today. They perceive that the lack of credibility of traditional journalistic organizations is also a cause to take into account in explaining the phenomenon and, therefore, they highlight the role of media institutions as part of the solution. A solution that would be based on increasing the rigor, ethics, and quality of journalistic work, the adoption of communication models with audiences under more two-way principles to regain lost credibility, and greater ideological pluralism in editorial lines to fight against the biases of the media outlet itself and its audiences.

This *integrative techno-centrism* that fuses techno-utopian principles with the classical foundations of journalism is substantiated in the assessment of the instruments that have been implemented in recent years to detect and combat fake news from the media (data journalism, fact-checking, and use of artificial intelligence), widely alluded to by the participants in our study. Data journalism, which fuses knowledge and practices of traditional journalism with new instruments for collecting, processing, and visualizing data, is perceived as a more effective solution than fact-checking and artificial intelligence, although these last two practices are considered quicker to confront the problem. It follows, therefore, that quality in the fight against misinformation must prevail over solutions that may be more immediate but are not necessarily perceived as the most efficient. Also relevant is the vision of artificial intelligence (the most technological tool of the three) as a less biased instrument than data journalism and fact-checking. The Generation Z journalists show here a certain techno-utopian tendency by forgetting that the design of any technological solution is imprinted with the values of its creators.

The individuals belonging to this generation are characterized, from the socio-cognitive point of view, by their desire for immediacy and continuous interaction, they conceive themselves as experts and competent in ICT, and attribute very high expectations to technology (Bennett et al. al, 2008; Gallardo, 2012; Fernández and Fernández, 2016). Furthermore, they maintain a clear preference towards visual information and present an easy development in digital and visual environments with a clear tendency towards multitasking, that is, the management of multiple tasks at the same time (Cassany and Atalaya, 2008; Reig and Vilchez, 2013). It is not surprising, therefore, that they show an optimistic perception towards the possibilities offered by technological tools as a solution against misinformation, given the context in which this generation was born and raised. Rather, the combination of this celebratory vision

of technology with the old values of journalism is somewhat surprising, which could indicate certain effectiveness of the Communication faculties in transmitting this traditionalist look and respect for ethical foundations typical of the journalistic profession.

The assumption of didactic work by the media to train the population in the detection of misinformation deserves special attention. For the Generation Z journalists interviewed, it is necessary to strengthen digital, media, and critical education from both information professionals and society in general. This perception connects with the results of numerous studies that have demonstrated the inability of the public to differentiate false information from true content, especially in electoral periods (Breakstone et al., 2019). Multiple pieces of research expand this vision, alluding to a possible ideological bias when granting credibility to false content, such that those citizens who define themselves as conservatives tend to perceive traditional media as less reliable and adopt non-truthful information from social networks as credible (Benkler, Faris, and Roberts, 2018). In this framework, a critical education of citizens towards the content they consume is indicated by our interviewees as an essential complement to digital training (of a more instrumental nature) to distinguish truth from falsehood. The didactic discourse of the interviewees suffers, however, from a lack of specificity in the methodologies and strategies to be adopted.

Lastly, it is worth noting the scarcity of references to certain actors that can influence the generation and spread of disinformation, such as the information monopolies themselves and governments or business conglomerates whose information manipulation and control campaigns facilitate a distorted representation of reality, sometimes promoted from the traditional media that observe the economic potential of the dissemination of contents of doubtful quality and veracity (Sánchez-Gey Valenzuela, 2019). Therefore, it is perceived in the discourse of young journalists more attention towards the platforms -the technological spaces- where disinformation circulates than towards the actors who promote it.

This study offers a first approach, an initial map, of the social representations and perceptions of young journalists about disinformation, one of the greatest challenges they will have to face during their professional careers since it is anticipated that this phenomenon will not be solved in the short term. It constitutes an exploratory study whose results should be contrasted and expanded with future research that, from a quantitative perspective, determines in a more granular and precise way the adherence of this group to the dimensions established here. Likewise, it is interesting to deepen with broader samples the vision that new communicators have about the journalistic instruments and practices analyzed here, as well as to compare their general perceptions about the phenomenon of disinformation and fake news with those of experienced journalists. Knowing what are the conceptual paradigms that communication professionals have around this problem and identifying what their perceptions are about its causes and possible solutions are fundamental aspects to envision what the role of journalism will be in the coming years in the fight against misinformation.

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