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Criteria for journalistic quality in the use of artificial intelligence

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Abstract

This study aims to assess the persistence of traditional journalistic quality features within the contemporary digital ecosystem. Digital advancements have fundamentally altered media creation, notably with the emergence of artificial intelligence (AI) in newsrooms. AI holds potential for substantial shifts in journalism, impacting business models, dissemination methods, and professional practices. Present in 75% of newsrooms, AI streamlines tasks, allowing more creative time for journalists. Ethical and quality concerns persist, particularly regarding AI's ability to meet journalism's established quality standards. This article aims to investigate the incorporation of these quality criteria in news articles generated by artificial intelligence (AI). Focus group and in-depth interviews were used as methodological techniques, involving ten experts. It is concluded that journalistic ethics have remained intact despite the disruptive technological advances in recent decades. However, there is a need to integrate these ethics with new criteria associated with the tools being used. Therefore, it is necessary to consider criteria from a dual perspective: both social and technological.

Keywords

Journalism, journalistic quality, artificial intelligence, newsmaking, automated content.

1. Introduction

Digital technologies have profoundly reshaped the contemporary media landscape, bringing about changes at all stages in the construction of the journalistic narrative. One of the latest innovations has been the arrival of artificial intelligence (AI) in newsrooms. Although it is not yet a "transformative" technology (Beckett, 2019, p. 6), it has sufficient potential to bring about "one of the most radical transformations ever experienced by journalism, affecting not only business models and ways to disseminate content, but also professional roles and routines" (Parratt-Fernandez *et al*., 2021, p. 10).

AI is already present in certain areas of the journalism value chain in 75% of newsrooms, such as gathering, production, and distribution, which is driven by its ability to increase efficiency and productivity, allowing journalists more time for creative work, among other factors (Beckett & Yaseen, 2023).

Among its multiple applications, the generation of automated content has taken on special prominence. These "algorithmic processes convert data into narrative news texts with limited or zero human intervention beyond the initial programming choices" (Carlson, 2015, p. 417), and they are gaining the attention of media company executives and professionals for their possible implications. From an economic standpoint, the former see an opportunity to improve the profitability of companies and reach new audiences (Dörr, 2016). For the latter,

the outlook is still uncertain due to lack of information and training, as well as doubts about the impact on journalists' roles and influence. Both face challenges related to ethical ramifications and editorial quality (Becket & Yaseen, 2023). The debate is centred on whether or not stories produced by artificial intelligence can maintain the standards that have been the cornerstone of traditional journalism.

Unlike humans, machines do not have a code of ethics; they are technological systems that follow the guidelines set by their programmers. This raises questions about how they can meet the criteria on which good journalism has been founded, all the more so when non-journalistic actors are involved in the programming processes (Dörr & Hollnbuchner, 2017).

In turn, the debate on the journalistic quality of texts produced by algorithms comes into play, which is closely related to ethical aspects as well. While automated information initially involved simple texts based on structured data from the world of sports, economics or climatology, advances in generative artificial intelligence make it possible to produce increasingly complex stories. In such narratives, aspects related to the databases used and their exploitation, such as reliability, objectivity, respect for privacy, bias, etc., play a decisive role in the final result (Dörr, 2016). From this perspective, it is necessary to assess quality from a social and technological point of view (Young & Hermida, 2015).

In a constantly evolving field in which advances are made with little time to incorporate them into the logic of production, this research aims to investigate the need to rethink the criteria of quality that have guided journalism up to the present day.

2. Theoretical framework and literature review

2.1. *The concept of journalistic quality*

Journalistic quality is "a concept that is just as recurrent as it is slippery" (Gómez-Mompart & Palau, 2013, p. 18), which has been studied and analysed from various perspectives in recent years in the academic literature (Pellegrini & Múgica, 2006; Gutiérrez-Coba, 2006; Pellegrini, 2011; Rodríguez-Martínez *et al*, 2012; Gómez-Mompart, Gutiérrez-Lozano & Palau, 2015; Lacy & Rosenstiel, 2015; Calvo & Parratt, 2021; Murcia-Verdú, Ramos-Antón & Calvo-Rubio, 2022). As a broad and multi-faceted concept that is applicable to both the resulting product (published information) and to the entire production process at every stage within a media outlet, the measurement of quality is a complex issue that is open to debate.

If we begin by observing the way in which academic literature has historically approached the study of journalistic quality, Meier (2019) reviews the concept and highlights the professional values inherent to journalism, which include providing information, critically evaluating and encouraging citizen participation (from which quality emanates, in his view), as well as the standards that serve as valid indicators for its measurement. Among the quality criteria, this author refers to accuracy, diversity, transparency and attractiveness, which are directly related to values such as independence, truthfulness/factuality, relevance and context.

A distinguished proposal is the Journalistic Value-Added method, developed since 2006 at the Pontificia Universidad Católica de Chile and the Pontificia Universidad Católica de Argentina (Pellegrini & Múgica, 2006), which differentiates between the journalistic process and product and establishes a series of indicators in the two stages of conception of the journalistic text: selection of the news item and its creation. Among the variables for measuring quality in the selection process are the editor's ability to discriminate between different news events, the originality of the news pattern of each medium, the number and types of sources involved, and the internal news balance between protagonists and antagonists. As for the creation process, the style indicators stand out, which group together actions related to the mastery of language and creativity in the construction of the news story, the contextualisation features carried out by the journalist to narrate the event, and the emphasis indicators, which cover the point of view adopted by the narrator to explain what happened.

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Another interesting approach was taken in 2007 by the Fundación Prensa y Democracia (PRENDE) in Mexico, which established eight principles of action, both those that depend directly on the journalist's work and those that are subordinate to his or her environment. On the one hand, this study prioritises transparency in the process of developing and processing information, cross-checking and contextualisation of data and information, research, and the creation of spaces for horizontal communication between journalists and their managers. On the other hand, it targets the application of professional codes of ethics, including respect and preservation of fundamental rights, separation between news content and advertising, and mechanisms to counterbalance the media in order to guarantee the right to reply, an example of which is the figure of the ombudsperson (PRENDE, 2007).

The truth is, in most cases the core elements of journalistic quality (Kovach & Rosenstiel, 2007) have been analysed and measured from the point of view of production. From a broader perspective, Lacy and Rosenstiel (2015) point out that the assessment of journalistic quality can be very different when carried out from the point of view of the audience. From the viewpoint of journalists, content may have the same quality standards, such as accuracy, impartiality, verification, etc., yet it might be assessed and perceived differently by news consumers depending on their particular information needs and desires. Thus, these authors argue that if news consumers do not fully agree with journalists when it comes to understanding and assessing the features of quality journalistic work, the media may need to consider these differential perceptions in their editorial decisions.

Other studies have approached the concept of quality by incorporating the viewpoint of reception, which is even more important when it comes to metrics and browsing on digital platforms and media. In this regard, Costera-Meijer (2012) coined the term "valuable journalism" in order to incorporate the view of users into the concept of journalistic quality. As such, she points out that quality must also take into account participation, the expression of people's problems and interests, and the presentation of content that not only informs, but entertains as well. Thus, she adds that "Media organizations would do well to develop innovative narrative forms that better meet the public's wish for a pleasurable, representative and engaging journalism, so that news use will become a quality experience for a larger group of people" (Costera-Meijer, 2012, p. 767).

In this way, the concept of quality in the current media scenario needs to be rethought in view of the need to incorporate new issues and adapt it to the current ways of doing journalism. Although the digital transformation might lead the media to focus on technology in order to produce eye-catching outputs that attract audiences, yet do not always meet the quality parameters of the profession (Manfredi-Sánchez *et al*., 2019; Gómez-Mompart, 2023), the use of new narratives and innovative formats does not necessarily affect quality. Instead, they might contribute to raising it (Calvo & Parratt, 2021), although the impact of innovation on quality is a more long-term process (Pavlik, 2013).

In this context, the proposal of Karlsson, Ferrer-Conill and Örnebring (2023) makes sense, as they advocate the need to rethink certain beliefs, norms, and values of journalism in order to bring it closer to the citizenry. To this end, they suggest incorporating increasingly relevant parameters such as aesthetics, automation, distribution, engagement, and proximity into the professional code in order to promote "a shared understanding of journalism, which cuts across institutional borders" (2023, p. 553). In this way, quality journalism would include other essential elements that are highly recognisable to audiences.

As Costera-Meijer (2020) argues, journalists seem to have accepted the need to pay more attention to audiences as an important component of their professional practice, thereby involving them in discourse related to journalistic quality as well. Reconsideration of this concept is necessary at a time when the media are betting on innovation, including technological novelty, in order to better connect with audiences without losing sight of professional standards (Cornia *et al*., 2020).

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2.2. *Journalistic uses of artificial intelligence*

One of the technologies that has brought a major disruption to the professional practice of journalism in recent years is artificial intelligence (AI) (Whitakker, 2019). Most importantly, since the emergence of data journalism and the development of big data tools (Sandoval-Martín & La Rosa-Barrolleta, 2023), the news media have begun to innovate and apply AI utilities to different phases of news production, such as the automatic writing of news texts (Rojas-Torrijos & Toural, 2019), and others such as the personalisation of content based on the metrics generated (Chan-Olmsted, 2019; Kotenidis & Veglis, 2021).

These new ways of using and taking advantage of the technology have led to substantial transformations in the ways of consuming news and in the active role of audiences (Sánchez-González, 2022), but also in the way journalists work, both when transmitting and distributing information to audiences in search of greater profitability and efficiency, as well as in the initial processes of selecting sources and collecting data, prioritising news, preparing pieces, and subsequently storing this information for future use (Túñez-López *et al*., 2021).

This continuous incorporation of artificial intelligence into journalistic work has opened up important debates within the industry and the profession which, for some time now, seem to have shifted from the possible replacement of the individual by the machine "to deontology, the veracity of content, and the creation of new spheres of control over the information that is published" (Túñez-López *et al*., 2019 p. 1416). As this situation has been intensified even more with the emergence of ChatGPT and the improvement of generative AI, an increasing number of authors have warned of the risks of this technology (Gutiérrez-Caneda *et al*., 2023), especially if it is not applied on the basis of a more ethical approach to such tools (Hermann, 2022).

In this regard, Caswell (2023) stresses the need to undertake positive professional practices in the media that adopt generative AI, given its fearsome potential for disinformation, such as the development of guidelines that help to ethically guide the use of this technology in creating and offering added value to audiences. Therefore, this type of best practice in newsrooms will enhance the implementation of this technology and strengthen the ethical values of journalism, resulting in higher quality coverage (Ventura, 2021).

The necessary coexistence between technology and human intervention in the use of AI (Marconi & Siegman, 2017) has given rise to the progressive shaping of semi-automated journalism (Rojas-Torrijos, 2021), which implies a greater degree of control and supervision of AI tools by professionals. Thus, the use of AI in delivering quality journalism must be viewed as a domain with increasing convergence in which technology and the ability of editors and writers to make decisions and tell stories are allied (Broussard, 2019).

Consequently, it bears questioning how news coverage based on AI tools can strengthen the values of the profession while relying on journalistic quality criteria. Beyond the potential of this technology for helping refine the quality of texts in automatable tasks (Silverman, 2013), as well as its limitations in managing more reliable sources or dealing with complex topics that are more sensitive (Thurman *et al*., 2017), the new scenario of AI in journalism poses numerous ethical challenges.

As a prior step to achieving quality AI-assisted journalism, different research studies point to the need for the media to focus on accountability and transparency as key elements in using this technology responsibly, as well as bringing it closer to the public with accompanying explanations (Sanahuja & López-Rabadán, 2022), monitoring of data to guarantee people's privacy, training of professionals for its use and application and, in short, applying the ethical principles that guide the profession, extending them to the most innovative practices (Ufarte *et al*., 2021).

3. Methodological design

Based on a review of the scientific literature, this study aims to analyse the extent to which the features that have traditionally defined journalistic quality are still valid in the current

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digital ecosystem, and also to what degree new criteria should be included in news stories generated by artificial intelligence (AI).

To this end, the following research objectives are posed:

O1. Analyse the validity of traditional journalistic quality criteria and standards in the new production processes of digital environments.

O2. Gain knowledge regarding the uses and limitations of artificial intelligence in current journalistic work.

O3. Discover the perception of AI professionals and experts regarding the degree of acceptance or rejection that the implementation and development of this technology is having on newsrooms.

O4. Analyse whether it is necessary to rethink the concept of quality in the current media scenario, or in other words, whether innovative aspects need to be incorporated and adapted to new ways of conducting journalism.

In addition, the following research questions are posed in an attempt to fulfil the objectives and to appropriately address the present study:

Q1. In which phases of the content creation process, from source selection to final publication, should AI involve human intervention, and in what ways should this be based on journalistic quality criteria?

Q2. What is the potential and limitations of using artificial intelligence for quality journalism?

Q3. Beyond journalists, what professional profiles are needed for this technology to be developed in today's newsrooms?

Q4. To what extent can ethical and responsible use of AI contribute to making technology an ally for quality journalism?

In an attempt to answer these questions, focus groups and in-depth interviews were used as methodological techniques, as they are the most appropriate for gathering valuable testimonies from experts, which enhance the understanding of the implications involved in using this technology in Spanish newsrooms.

On the one hand, focus groups are considered an ideal tool in the social sciences for gathering perceptions (Lunt & Livingstone, 1996) and concerns of the participants through interaction, which results in a more qualitative analysis (Wilkinson, 1998). Consequently, the focus group technique is better suited to the needs of this research as it allows the investigators to direct the discussion in a more efficient way based on a pre-established questionnaire-guide, thus obtaining responses from the participants that are easier to measure and compare (Domínguez & Dávila, 2008).

A total of ten experts participated in the study. The focus group, which was held on-line on 17 March 2023, was attended by the following participants: Jesús Rivas, CEO and founder of redacta.me, a business that generates content with AI (Participant 1); Javier Picazo, Head of the English Service Area of the EFE news agency (Participant 2); Martín Vaz Álvarez, journalist and researcher at the University of Santiago (Participant 3); Silvia García Vega, RTVE journalist (Participant 4); Pablo Escobedo, head of AI at Prodigioso Volcán (Participant 5); David Corral Hernández, RTVE journalist (Participant 6); and Francisco José Murcia, professor-researcher at the University of Castilla-La Mancha (Participant 7).

In October of 2023, the discussions with the experts were carried out with three in-depth interviews with the following professionals: Cristina Blanco, Customer Success Manager at technology solutions company Narrativa (Participant 8); Jordi Pérez Colomé, Technology Editor at *El País* (Participant 9); and Mario Vidal, Head of Innovation at *El Español* (Participant 10).

The selection of the sample was intentional, based on criteria of knowledge and professional relevance among the network of collaborators.

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The guide that was used for both the focus group and the interviews was divided into three sections, each with a series of questions:

1) The uses and limitations of AI in journalistic production (O2)
    - How is AI used in journalistic production (Q2 and Q4)?
    - What are the limitations of using AI (Q2)?
    - At which stages of AI content creation does the journalist intervene (Q1)?
2) The use of AI in newsrooms (O3)
    - How aware are journalists of the potential of AI in their work (Q4)?
    - Will AI replace the work of journalists (Q3)?
3) Quality criteria of journalistic stories developed by IA (O1 and O4)
    - Are the traditional quality criteria still valid in the analysis of items generated by AI (Q1, Q2, and Q3)?

4. Results

4.1. *Uses and limitations of AI in journalistic production*

The view shared by participants is that artificial intelligence is a valuable tool with great potential that can help journalists free themselves from routine tasks (P2), reduce production times (P5), help generate and combine ideas (P4), reach otherwise unattainable topics or audiences, guide them in the analysis of large amounts of data (P1), provide alerts regarding trends in social networks (P6), offer machine translation (P6 and P8), and limit human error (P2). As a support tool, AI is also useful for writing, video tagging, transcription, synthesis, metadata, assessment of the performance of publications in social networks, and the personalised distribution of journalistic products.

However, this technology has limitations. Firstly, "it is not suitable for all types of journalism" (P1). In the case of interpretative texts, "many nuances are lost" (P3), as in the case of *crónicas*, human interest stories, or interviews, in which the editor's perception and conveyance of feelings play an essential role (P7), and analyses as well (P1). "No matter how many trial runs you make it do, it's difficult for AI to transmit the feelings that a person can communicate by writing" (P3).

This means that most of the news generated by AI systems is limited to information items related to public services (P8), "data from official sources" (P2), such as stock market closings (P2), football scores (P6), lottery results (P10), commodity prices (P10), etc., which is valuable information, yet a journalist's time can be better spent elsewhere (P6).

The general feeling is that this situation may change in the not-too-distant future. Currently, the most popular models, such as ChatGPT, are very general and trained with databases culled from the Internet, but there are also "more specialised" tools prepared to work in a field of knowledge or specific domain (P4).

For the time being, "although systems are becoming increasingly precise," they cannot compete with "originality" and "journalistic style" (P6). Today, texts written by competent journalists are "richer in lexis, adjective use, and interpretation" (P7).

Finally, the potential for errors is mentioned when dealing with information related to events that are "moderately close in time" (P10).

Despite the acknowledged potential of AI, the general perception is that "a lot of reluctance still exists" regarding its implementation in newsrooms (Q8). Most experts believe that "a period of advocacy" is needed to increase the understanding of this technology, such as what it does, and what its benefits, risks, opportunities and challenges are" (Q4). In short, what is needed is to give "training and information" to professionals (Q3). From that point onward, journalists must find "the best use" for AI (P1), bearing in mind that the greater the expertise, the greater the benefits on issues such as time savings (P5).

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Despite these limitations, "the media are fully prepared to assimilate and introduce artificial intelligence into different departments and identify where it is going to generate greater or lesser benefits, depending on what they do" (P2). In this regard, there are teams who are currently experimenting with this technology.

The suggestion has also been made that this knowledge should be implemented in faculties where future journalists are currently being trained (P7), and even the general public, so as to enable them to differentiate between "the real information produced by a journalist with sources and the avalanche of noise that will be generated by artificial intelligence" (P2). Moreover, journalists themselves can also collaborate in this task: "We have to know how to spread the word about technology, so that people understand what it does, what its benefits are, its risks, and the opportunities it offers us" (P4).

Table 1. Uses, limitations and proposals on the regular use of AI.

Uses of AI in journalism	Release from routine tasks (P2) Reduction of production times (P5) Help to generate ideas and combine them (P4) Reach unmanageable topics (P1) Analysis of large amounts of data (P1) Social media trend alerting (P6) Machine translation (P6 and P8) Limiting human error (P2) Writing assistance Video tagging Transcription Synthesis Metadata Content customisation Social media impact analysis
Limitations of AI in journalism	Difficulties in generating interpretative texts (P1, P3 and P7) Originality (P6) Journalistic style (P6) Errors in very topical issues (P10)
Proposals	Need for a stage of evangelisation among journalists (P1, P3, P4, P5 and P8) Training of future professionals (P2 and P7) Media literacy (P4)

Source: Own elaboration.

4.2. *Journalistic content generation using AI*

One of the possibilities offered by AI is the automatic generation of texts. Behind this process is a human-supervised computer system based on "statistical modelling" (P6).

In this workflow, the interviewees consider that the journalist must be present at all stages, from the inception of the tool to its use. On this point, a distinction can be made between working with large general models (LLM), such as ChatGPT, and systems that are developed for specific fields. Regarding LLMs, the service provider has trained the model with data from a multitude of sources and fields of knowledge. The main task in the wording is to properly configure the request given to the system of what is to be achieved (prompt) (P8). At that point, the algorithm starts working to deliver a result based on the content with which it has been trained.

The procedure is more complex with regard to a specific model. In this case, the process starts with a decision regarding the topic and approach (P4), as well as a search and selection of data to feed the system, along with its validation (P10). From there, journalists should be

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involved in the training of the model, the formal aspects of the expected results, followed by a review and verification of those results (P10). "The only phase in which they are not involved is when the news is prototyped and created by artificial intelligence" (P10).

Regarding its implementation, the usefulness of this technology is debatable for those companies that want to produce a lot of content for the purpose of generating more clicks, yet its use is more limited for firms that focus on the "veracity" and value provided by "verified sources" (P2). This might be the case with communication agencies who are in charge of distributing part of their content to the media: "You don't create news with the Internet; you don't expect a machine to give you information; the information has to be generated from a verified and contrasted file" (P2).

Table 2. Involvement of journalists in automated news generation.

Stages of the process	Choice of topic (P4) Choice of angle (P4) Data selection (P4) Data validation (P4) Goal definition (P8) Model training (P10)

Source: Own elaboration.

Beyond text, businesses involved in content generation are becoming interested in the production of images for use in design, illustration, and audio-visual productions (P4).

Also regarding images, work is being carried out on the idea of "mechanising certain processes in which human error can be minimised. Along these lines, the EFE Agency is interested in the generation of automatic video metadata. The results are positive: the time needed for an editor to enter all the metadata into the system is reduced by about 90% (P2).

4.3. *Generative artificial intelligence and journalistic quality*

Ever since the general public has had access to the major natural language models, such as ChatGPT, Bard, Copilot, and others, the potential of AI for generating journalistic content has been the focus of public and professional interest. This has opened a debate on the quality of texts. In this regard, all participants consider that "there is no need to change the traditional journalistic quality criteria" (P3), at least for the time being. This is based on the fact that these are "humanistic" rather than "technological" parameters (P6). AI "does not have a subjective notion to evaluate the quality of its texts, which are limited to technical, grammatical, orthographic coherence...," so it will be necessary to find "an alternative way of checking what the processing system says" (P6), because the reliability of the result cannot be determined (P9).

Table 3. Traditional quality criteria.

Accuracy Diversity Transparency Attractiveness Independence Truthfulness/timeliness Relevance Context	Meier (2019)
Appropriate selection of facts Originality	Pellegrini & Múgica (2006)

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Number and type of sources Balanced information Style (language and creativity) Contextualisation Indicators of emphasis (point of view)	
Transparency Verification and contextualisation Research Ethics Respect Preservation of fundamental rights Separation of publicity/information Defence mechanisms for users	Prende (2007)
Participation Representing the problems and interests of the people Informing and entertaining Innovative storytelling	Costela-Meijer (2012)

Source: Own elaboration.

However, it is essential to "incorporate new elements to verify" (P10) "strengthen the monitoring" (P3), and reinforce "ethical aspects." In addition to the "tasks that were previously inherent to the journalist, which journalists themselves controlled," there is now the need to "oversee the tool as well," regarding aspects such as the source and configuration of the data and the statistical models used by AI in the process of preparing the information (P6). This makes editorial control over what is generated "crucial" (P6) and more "exhaustive" (P8). Moreover, it is also necessary to "edit" (P5), or check, that the relevant data appear in the news," and that they are "correctly connected" and "interpreted" (P10). This change in the way of working offers the potential of new roles in the newsroom for tasks such as "checking information" (P7), or "post-editing and text review" (P3).

Furthermore, it will most likely widen the gap between the media who use this technology to generate a large amount of content without emphasising quality, and those who decide to use it merely as an aid in the news production process (P4). In the end, "how it is used will be the differentiating factor" (P5). In this regard, it would be beneficial for the media to have ethic guidelines on "how an organisation should act if it wants to use AI" (P8), and where they want to draw the "red line" (P9).

One point of agreement among all participants is that AI "will not replace journalists." Rather, it is "just another tool" (P4), or a type of "assistant that will never replace human beings" (P5), yet it will help "journalists to do their job better" (P2). AI will "free journalists from non-creative, non-writing tasks" so that they can do "many other activities that require their human intelligence and skills" (P2), which will bring "other kinds of value to the content" (P9).

In this regard, as with previous technologies, the media will have to adapt and make the best use of AI in order to fulfil its needs, yet always supervised by a journalist (P1). "Information will continue to be the business of journalists" (P1, P2, P3 and P6). However, they recognise that "certain jobs will be replaced, especially in mechanical tasks" (P7).

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Table 4. Traditional quality criteria, new requirements and professional profiles.

Validity of traditional quality criteria	Yes (all participants)
New needs related to the use of generative AI	Tool control: data and statistical modelling (P6) Strengthen editorial control (P6 and P8) Connection check and data interpretation (P10) Ethical guidelines (P8 and P9)
New professional profiles	Verification of information (P7) Post-editing/Revision of texts (P8)

Source: Own elaboration.

5. Conclusions and discussion

Given the advent of generative artificial intelligence in newsrooms, this paper aims to shed light on the validity of the traditional criteria used to assess journalistic quality. These systems are based on recognising patterns within large databases, along with an iterative learning process for the purpose of generating new content that emulates the distribution of data used in its training.

Although its potential is vast, this automated type of journalism is limited with regard to producing interpretative or emotionally rich items, which limits its usefulness in areas where human sensitivity is required. These restrictions mean that its use is mainly limited to informative texts, especially those based on structured data, such as financial and sports results, stock market closings, weather forecasts, and similar information (O2) (Q2).

As a social activity, journalism is subject to a series of rules of legal and ethical origin. These guidelines have helped to establish frameworks for assessing journalistic quality (Kovach & Rosenstiel, 2007; Gómez-Mompart *et al*., 2015; Palau *et al*., 2023). Based on these assumptions, the main findings of this study are twofold. Firstly, the human criteria that must guide the work of information professionals –which are summarised in Table 3– has been fully confirmed. These journalistic guidelines have remained intact despite disruptive technological advances that have taken place in recent decades, dating back to the advent of radio and television, followed by the Internet and even beyond (O1). Nevertheless, the second conclusion is related to the need to combine these ethics with new criteria associated with the tool that is used (O4). Therefore, in line with Young and Hermida (2015), it is necessary to use criteria from a dual perspective: both social and technological.

These new criteria must be aimed at ensuring the reliability of automated work. On the one hand, the validity of the data with which the system operates must be assured. On this point, characteristics that arise include reliability, comprehensiveness, relevance, diversity, pertinence, and consistency. On the other hand, an algorithm's treatment of such criteria must be monitored as well. In these matters, information professionals must play a decisive role, which they generally do when selecting and validating information sources (Q1). Possibly, the irruption of generative AI systems in newsrooms will make possible the emergence of new professional profiles related to the verification of information and the supervision of texts (Q3).

To achieve this objective, action must be taken along several lines. Firstly, journalism professionals need to be trained to recognise the capabilities and limitations of AI, as well as the need to adapt these tools to the specific needs of each media outlet. By doing so, it will be possible to mitigate the current reluctance to use a technology that is still largely unknown, which is valued from the symbolic framework that predominates in society and places AI at the same evolutionary level as humans (O3). Secondly, the essential role of editorial and ethical control in assuring the quality and veracity of the final content must be emphasised. On this point, it would be useful for media companies to establish guidelines on the use of AI in their newsrooms, something that is especially complex given that the potential of this technology is still not fully understood.

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Beyond content generation, AI is a tool that is also valuable to journalism as a tool for automating routine tasks, reducing production times, generating ideas, and analysing large amounts of data, among other work. Artificial intelligence is considered a complementary tool that is not intended to replace journalists. Instead, it will free up their time for more creative and value-added tasks (Q4).

The sample size is a limitation of this work. A larger sample –even at the international level– would have made it possible to generalise the results more broadly. Nevertheless, this work opens the door to new avenues of research that will help define the characteristics that computer systems must have in order to guarantee their validity in the generation of journalistic content. It would also be useful to analyse the audience's perception of these journalistic pieces.

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