Audiovisual verification in the evolution of television newsrooms: Al Jazeera and the transition from satellite to the cloud

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Abstract

With the spread of the digital sphere and the proliferation of images from indirect sources that can be accessed by systems and users, verification routines have become essential to ensure media corporations' credibility. The advances in artificial intelligence which allow automated fact-checking (AFC) initiatives to be created help detect falsehoods, but they do not eliminate the need for human intervention. On the contrary, information professionals are necessary, and their functions increasingly include procedures such as mediating in videos and images. This study analyses the evolution of verification routines in audiovisual journalism and how new techniques have influenced the perception of trustworthiness and the reorganization of the television newsroom by allowing content from outside the media's own newsroom. To do so, it combines a method that examines the main literature on verification processes and compares it with the procedure used by Al Jazeera. In this regard, an exploration was conducted out based on participant observation in this international TV channel via interaction with journalists and heads of the corporation. The results indicate that advances in verification procedures make it possible to introduce visual material from the social media into the corporation's common news topics contributing to the transition from the traditional newsroom to the cloud structure and the inclusion of new audiences. These changes affect journalistic routines in a profession which has no longer been in-person for some time, in which correspondents coexist with journalists working in virtual mobility, seeking and receiving images in and from the social media.

Keywords: verification; fact-checking; Al Jazeera; fake news; television; Newsroom

Resum. *La verificació audiovisual en el procés d'evolució de les redaccions televisives: Al Jazeera i el trànsit del satèl·lit a l'estructura de núvol*

Amb l'extensió de la digitalitat i la multiplicació de les imatges de procedència indirecta a les quals poden accedir sistemes i usuaris, les rutines de verificació han esdevingut imprescindibles per assegurar la credibilitat de les corporacions mediàtiques. Els avenços en la intel·ligència artificial en la conformació d'iniciatives de comprovació automàtica (*automated fact-checking*, AFC) faciliten la detecció de falsedats però no anul·len la intervenció humana. Els professionals de la informació, per contra, són necessaris i inclouen de manera creixent entre les seves funcions procediments com la mediació en el tractament de vídeos i imatges. Aquest treball analitza l'evolució de les rutines de verificació del periodisme audiovisual i com les seves noves tècniques, en permetre l'entrada de continguts produïts a l'exterior de la redacció del mitjà, han influït en la percepció del concepte de fiabilitat i en la reorganització de la redacció televisiva. S'ha efectuat una exploració basada en l'observació participant en la cadena Al Jazeera en interacció amb periodistes i responsables de la corporació. Els resultats apunten al fet que els avenços en els processos de verificació possibiliten la incorporació de materials visuals dels mitjans socials a l'agenda comuna temàtica de la corporació i contribueixen a l'evolució de la transició de la redacció tradicional a l'estructura en núvol i a la incorporació de noves audiències. Els canvis afecten les rutines periodístiques en un col·lectiu que fa temps que va deixar de ser estrictament presencial i on les corresponsalies coexisteixen amb periodistes en mobilitat virtual buscant i rebent imatges en i des de les xarxes socials.

Paraules clau: verificació; *fact-checking*; Al Jazeera; notícies falses; televisió; redacció

Resumen. *La verificación audiovisual en el proceso de evolución de las redacciones televisivas: Al Jazeera y el tránsito del satélite a la estructura de nube*

Con la extensión de la digitalidad y la multiplicación de las imágenes de procedencia indirecta a las que pueden acceder sistemas y usuarios, las rutinas de verificación se han hecho imprescindibles para asegurar la credibilidad de las corporaciones mediáticas. Los avances en la inteligencia artificial en la conformación de iniciativas de comprobación automática (*automated fact-checking*, AFC) facilitan la detección de falsedades pero no anulan la intervención humana. Los profesionales de la información, por el contrario, son necesarios e incluyen de forma creciente entre sus funciones procedimientos como la mediación en el tratamiento de vídeos e imágenes. Este trabajo analiza la evolución de las rutinas de verificación del periodismo audiovisual y cómo sus nuevas técnicas, al permitir la entrada de contenidos producidos en el exterior de la redacción del medio, han influido en la percepción del concepto de fiabilidad y en la reorganización de la redacción televisiva. Se ha efectuado una exploración basada en la observación participando en la cadena Al Jazeera en interacción con periodistas y responsables de la corporación. Los resultados apuntan a que los avances en los procesos de verificación posibilitan la incorporación de materiales visuales de los medios sociales a la agenda común temática de la corporación y contribuyen a la evolución de la transición de la redacción tradicional a la estructura en nube y a la incorporación de nuevas audiencias. Los cambios afectan a las rutinas periodísticas en un colectivo que hace tiempo dejó de ser estrictamente presencial y en donde las corresponsalías coexisten con periodistas en movilidad virtual buscando y recibiendo imágenes en y desde las redes sociales.

Palabras clave: verificación; *fact-checking*; Al Jazeera; noticias falsas; televisión; redacción

1. Introduction

Checking information has been basic practice in journalism since its inception. In just a few years, however, the spread of the social media has changed the dynamics of how the large television corporations work. The growing presence of images from the digital sphere has led the entire newsroom to undertake verification tasks that require some degree of technological training.

Every minute, 500 hours of video made by users from all corners of the globe using the cameras on their mobile phones are uploaded to the Internet (Mohsin, 2020). This shift poses a challenge for newsrooms, which have to ensure the veracity of this material in order to preserve their credibility.

The digital sphere poses a scenario in which the reputation of journalism has been brought into play, since not only have the traditional media lost sole sovereignty of the discourse but the social media themselves have become a source with no stable interlocution protocols; instead, there are only fortuitous exchanges which lack solid knowledge or trust. Hence, there is a growing interest in finding new technological verification resources, and the appearance of professional, specialized fact-checkers are at the root of this new reporting style (Graves, 2012: 1). Indeed, over the last decade, fact-checking platforms have been set up in over 50 countries, 90% of them since 2010 (Fernández-García, 2017).

Artificial intelligence and advances in creating automated fact-checking initiatives (AFC) have not yet rendered communication professionals expendable in this process, although if there is any suspicion they help streamline the detection of lies, online rumors and other kinds of disinformation (Graves, 2019).

2. Theoretical context: Disinformation and editing on the Internet

In this convergence of media industries, the digital sphere and telecommunications, information flows at a speed that would have been unimaginable only a few years ago (Thussu, 2007: 43). The Internet has turned newsrooms into permanently connected networks with uninterrupted information flows that have to be updated with little processing time given the demand for news production. This evolution has changed journalistic work (Castells, Van der Haak and Parks, 2012). Verification neutralizes disinformation only if it has not yet reached its peak circulation, because once it spreads the rebuttal may not reach the audience (Rodriguez-Fernández, 2019).

TV audiences' migration to the Internet has turned them into not only information consumers but also content broadcasters, thus generating what is called networking journalism in which professionals and amateurs work together to get a story (Jarvis, 2006) through collaboration, with the journalists acting increasingly as moderators (Duffy, 2011: 9).

In this news structure determined by digital platforms, there are converging possibilities for connectivity and innovation with the proliferation and saturation of news flowing at hyperspeed (Beckett, 2020).

Any technological advance has a potential distorting effect, and there is no information that cannot be turned into disinformation (Virilio, 1995). The Internet has facilitated an intentional change in meanings, which is why not only the volume of information but also the veracity of the content must be considered (Hernon, 1995).

In this scenario, the definition of fake news comes from the lack of correspondence between statements and facts, but if it is also done intentionally, it becomes what common sense identifies as propagandistic lies. Disinformation, on the other hand, is more difficult to detect (Del-Fresno-García, 2019). It is a phenomenon that is known for its intentionality, with false sources or no identification of the sources (Rodriguez Andrés, 2018), and an abuse of power to gain some benefit (Van Dijk, 2006).

Hypertextual media are multiplying their possibilities for becoming active subjects of disinformation in a scenario in which an unprecedented volume of images and content is being put into circulation on the Internet. Machines are capable of generating products that are journalistic in appearance for the purpose of disinformation, a polysemic phenomenon that mutates quickly (Manfredi and Ufarte, 2020: 65).

3. Method, research questions and hypotheses

The method used is based on a review of the scientific literature on the evolution of fact-checking, the strategies used to deal with disinformation (Roozenbeek and Van der Linden, 2019) and the preservation of the media's ethical principles in this communication context (McBride and Rosenstiel, 2013).

Consideration of verification is fundamental in today's digital journalism (Adair, 2019), and websites devoted to this purpose have been proven to be instruments that restore credibility (López Pan and Rodriguez Rodriguez, 2020) and work towards democratic construction in a period of changes (Amazeen, 2017), while acknowledging the difficulties posed by the discursive ambiguities (Lim, 2018).

We conducted the research in this context with a procedure based on scientific production via a systematic review that enabled us to provide a snapshot of the matter (Codina, 2017). We also applied participant observation using the Mixed Methods Review perspective, as well as interactions with stakeholders (Grant and Booth, 2009), namely the professionals in the Al Jazeera corporation who were consulted directly.

This work was carried out on visits to Doha, which came about because I was on the international jury at Al Jazeera's Documentary Festival from 2012 to 2017. I have also had interactions seeking updates in 2020 through my job as a journalist with Ahmad Ashour, the senior content editor in Al Jazeera's digital unit, and Taysir Alouni, one of the corporation's most veteran journalists and a witness to how the channel has evolved since it was founded. The contacts were initially in-person, but in recent months the pandemic has meant that the work has been done via videoconferencing. I have also sought

the professional opinion of Esraa Rabaya, the head of strategy and audience development at Al Jazeera. In this case, the communication and information exchange was conducted by email and telephone. The other professionals that contributed their points of view have preferred to maintain their anonymity. My aim is not to analyze specific cases of verification but to examine the little-studied matter of how audiovisual journalistic verification routines have evolved, as well as the new techniques used. By allowing content produced outside the medium's newsroom to be used, this content has influenced the perception of trustworthiness and the reorganization of the television newsroom.

In keeping with the literature exploration and especially my participant observation of the verification process, specifically in the case of Al Jazeera, the following research questions were posed:

Q1. Does the inclusion of material from digital sources in the media's agenda lead to changes in organization and hierarchies in a large audiovisual newsroom?

Q2. Do verification processes broaden the topics on news programs' agendas?

Q3. Are new forms and aesthetics being created for reporting with the participation of materials from social media users?

Q4. By permitting materials from the social media to be on the agenda, is the new verification a key resource in locating new audiences?

From these perspectives, the intention is to analyze the influence of verification processes on the journalistic routines of Al Jazeera's professionals and their impact on the different platforms that make up the audiovisual media conglomerate.

Hence, the following hypotheses were put forward:

H1. The new verification processes are essential in enabling the social media to be included into a global cloud newsroom model.

H2. The process of confirming the veracity of sources gives rise to new structures in which there is direct, continual mingling of communication professionals with engineers and IT experts within the newsroom, giving rise to new hierarchies in the decisions on the topics on the agenda.

H3. The increased accessibility to such diverse, plural materials and sources made possible by the social media increases the flow of images that may be broadcast, which makes it essential to use human supervision and algorithmic technology from artificial intelligence.

4. Interaction and evolution of Al Jazeera's verification routines

The television corporation Al Jazeera was founded in 1996 with the aim of providing a different view of the news for Arabic peoples (Miles, 2005: 234), and it quickly gained a wide audience in the region (El-Nawawy and Iskander, 2002). Five years later, its website in Arabic was set up (Satti, 2020). Its broadcasting and website in English were launched in 2008, chal-

lenging the West's media hegemony in the region and becoming a point of reference for modernization in audiovisuals and communication in Arabic (Zayani, 2005:1).

It began at a time when the land-based model of television distribution, which could easily be subject to government intervention, was evolving towards satellite broadcasting with the potential for expansion.

Al Jazeera reached its international standing following the 9/11 attacks in 2001, when it became the first network to provide images of Osama Bin Laden. That material was also distributed to the major global television corporations through agencies. The matter of whether the images of the Al Qaeda leader were real and how they had been obtained even became a subject of debate in high-level international politics.

At that time, without today's digital technology, verification depended on human resources, which for Al Jazeera meant having a correspondent in Afghanistan, Taysir Alony, who was keenly aware of the political climate in the region, as well as image and sound technicians who could certify that the videos and audios had not been manipulated. At times, the process ended in a decision to delay the broadcast, while other times the materials were broadcast but with subtitles under the images with the phrases "Attributed to Al Qaeda" or "We have been unable to verify the authenticity".

Today, technology has evolved to make it possible to use Internet-based video editing and management systems in the newsroom, which allows metadata to be imported, registered, organized, and synchronized so different departments have access to the cloud where all the information is stored. This entails a radical shift in the newsroom's professional relationship with the material that it handles, going from a binary relationship (in which the journalist sends something via satellite) to a networked distribution in which audiovisual materials and data move around the Internet and are placed not in a specific repository but in a shared-access cloud.

4.1. New editorial structure: The digital unit

In 2006, Al Jazeera set up its digital unit after noticing the changes in technology and politics as well as in the attitude of a prosumer audience that was shifting from being passive observers to active collaborators.

The unit conducted an experiment by handing out cameras to activists in different regions in the Arab world, and in 2008, during Mubarak's rule, it was considering the idea of a report with material from Egyptian bloggers.

In December 2010, the Tunisian revolution erupted and the authorities of the Ben Ali regime closed down the Al Jazeera head offices. Even so, the corporation had no problems providing images from the main conflict sites because social media and mobile phones were quite widespread by then. The same happened days later in Egypt: thanks to the installation of a satellite, Al Jazeera broadcast the signal from Cairo's Tahir Square to the world.

Figure 1. Recording from social media made in Tunisia. A man celebrating the fall of Ben Ali in January 2011 (Al Jazeera)

شاهد أقوى فيديو من ثورة تونس: يحيا الشعب.. بن علي هرب

793.005 visualitzacions • 15 de gen. 2011   👍 4,6M   👎 114   ➡ COMPARTEIX   ⧎ DESA   …

alwannews
3,72m subscriptors   SUBSCRIU-ME

Source: (23) شاهد أقوى فيديو من ثورة تونس: يحيا الشعب.. بن علي هرب - YouTube <https://www.youtube.com/watch?v=OKKvc4sxwfw>.

4.2. Distortion of user-generated content

When the Arab revolutions erupted in 2011, thousands of images were sent to Al Jazeera's headquarters, making it a vital source of information for the rest of the world. At decisive moments, the traffic on Al Jazeera's website rose by 1,000% and liveblogging by 2,000%. The traditional blog was overwhelmed, and Al Jazeera had to seek a platform capable of securely storing the traffic it was receiving from the social media. It hired a content management system (CMS), a framework for managing images and content that hosts users' forums and blogs (Bañon, 2016). User-generated content (UGC) is defined as images and content uploaded to the Internet by authors unrelated to the media (Van Dijk, 2009; Cheong and Morrison, 2013; Bahtar and Mazzini, 2016).

At that time, Al Jazeera was still seeking a model for guidelines to validate the images it received from activists, especially Egyptians and Tunisians, who were particularly active. It was a new experience for the entire world media

and mistakes were inevitably made in the midst of this historical acceleration. Nevertheless, a culture began to coalesce in which verification played an essential role, with the war in Syria marking a turning point. A specific unit with newsroom professionals was created, tasked primarily with verifying UGC, which became a news source virtually as important as agencies and the traditional newsroom (Marai, 2017: 22).

As the war in Syria dragged on, Al Jazeera became strongly committed to covering it, which brought about a new phase in the network's verification procedures. Training was provided to a hundred journalists to improve their skills dealing with UGC.

Even so, the network was unable to avoid mistakes. Recognizing and explaining them is part of its newsroom code of conduct. One example occurred in December 2015, when several channels, including Al Jazeera, broadcast a video going around YouTube in which some Canadian children were supposedly singing the song *Tala al Badr Aleina* to welcome refugees. The song comes from the Islamic tradition and tells of the times when the prophet Muhammad had to seek refuge in the city of Medina. At a time when there was a sense of solidarity towards Syrian refugees, the video received thousands of displays of solidarity around the world. However, after the broadcast it was proven that it had nothing to do with them. The network apologized and prepared a second piece explaining how the misinformation had occurred (Marai, 2007: 26).

Figure 2. Concert falsely attributed as a welcome for Syrian refugees in 2015 (Al Jazeera)
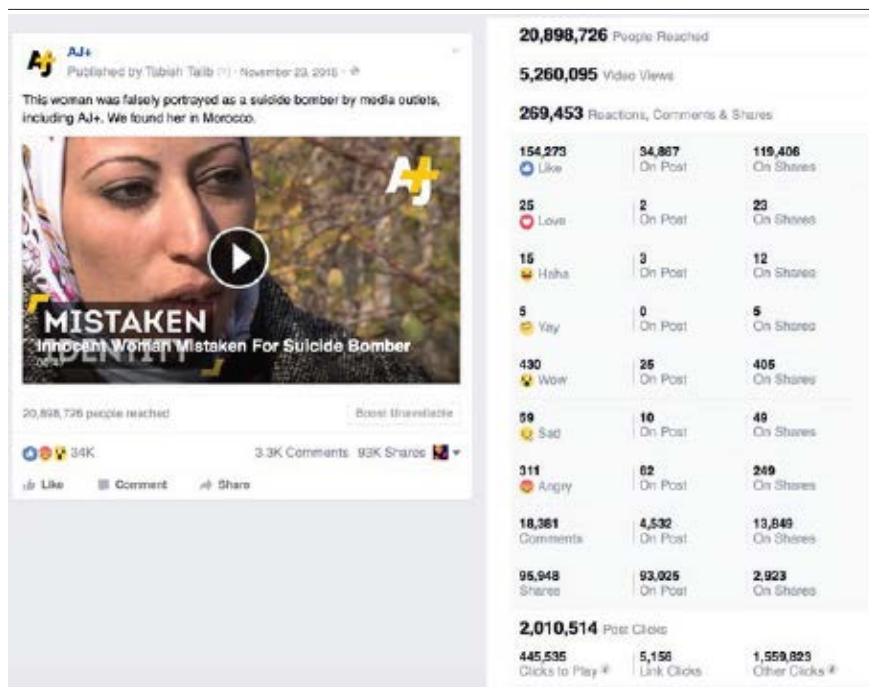

Source: Access to the video broadcast with false information about the performance: <https://www.youtube.com/watch?app=desktop&v=DSgoZNkA92>; access to the news item in which Al Jazeera apologizes and recognizes the mistake. Watch | Facebook <https://www.facebook.com/ajplusarabi/videos/989020491141496/>.

Another example of how the atmosphere can create the conditions for disinformation occurred following the terrorist attacks in Paris on 13 November 2015, which were committed simultaneously by gunmen and suicide bombers

in different places and caused 130 deaths. The Associated Press had recordings of the attack and identified a suicidal woman as Hasna Ait Boulahcen, without providing photos of her. But they began to circulate in the social media and Al Jazeera trusted one that several media had published. It turned out that the person in that photo was really Nabila Bakkatha. They located her in Morocco and interviewed her, admitting the mistake (El Katatney, 2017: 62).

Figure 3. Al Jazeera Plus broadcasts a video with statements by Nabila Bakkatha, a Moroccan woman, rectifying the news in which she had been identified as a suicide terrorist (Al Jazeera)

Source: Access to the news item in which Al Jazeera recognizes the mistake: <https://youtu.be/-xih_Q8OXpw>.

4.3. The effects of verification on the newsroom

The introduction of streamed images from the social media also entails a psychological leap in the concept of the newsroom, and in Al Jazeera there was resistance from some journalists (Khalifeh, 2017: 29).

In the midst of this digital context, the verification procedure always begins with checking routines similar to the journalistic procedures before the social media. Hence, before conducting technical checks, journalists conduct a prior exploration in an attempt to discover the origin of the source and ascertain whether it is reliable and therefore sent by someone they know or shared by a close colleague.

The level of falsehood in materials from UGC can appear in different forms:

— Totally authentic.
— True, but not recorded on the date it is broadcast.
— True, but recorded in a different place from the one stated.
— Manipulated, with distorted or added elements.
— False and created with the explicit intention to deceive (Ghazayel, 2017: 69).

Using this classification, the basic verification routine follows these basic steps:

— Checking Twitter lists, enabling the followers to be classified.
— Creating our own list to add accounts that interest us.
— Searching via Google for lists created by other organizations and people, creating networks.
— Using platforms like *Tweetdeck* that enable interaction with the platform.
— Joining a relevant thematic WhatsApp and Telegram list.
— Language check. Al Jazeera has a target audience in which Arabic is the majority language, with 420 million speakers and 30 dialects (Unesco, 2020). That implies consideration of the language, especially to confirm geographical location.
— And there is one basic precaution in the newsroom: downloading the video before beginning the verification process, since there is a risk it may be taken down.

4.4. Credibility tools and IT

Every day, digital journalism has more new resources to improve the verification procedure (Pellicer, 2019). Here are some of the accessible tools:

— Reverse image search, enabling images to be located if they are found elsewhere in the Internet. Google Image Search or Tineye are used with the key frames. The origin and context of the photo can then be ascertained.
— Comparing with other servers.
— Invid or Rev Eyecon can also conduct reverse searches for videos.
— ImgOps enables images with similar content to be compared and alterations to be detected.
— YouTube Data Viewer enables access to the main metadata.
— Fingerprinting Organizations with Collected Archives (FOCA) and Metashield Clean Up detect metadata and information that is not visible in documents that can be found on websites.
— Foller.me is a tool to find information about Twitter profiles.

— Pipl enables people's profiles to be found via what they post on the Internet.
— Anylizer analyses videos frame-by-frame, discovering irregularities if changes have been made.
— Google Earth, Wikimapia, Open Streets Map and Google Maps can be used to verify places via geolocation.

The list for detecting bots or fake profiles does not end there, nor do the techniques. For example, one can also look for the video's URL or its ID code in Twitter to trace the first person who started circulating it. It is also important to be able to demonstrate that the stated location is correct (Younes and Mackintosh, 2017: 45-46).

4.5. The purpose of the Al Jazeera+ online platform

By having professionally checked material, this study has been able to broaden the topics on the agenda by introducing material from the digital sphere while preserving credibility – an essential factor for any medium, and even more so in a region in serious political upheaval.

Hence, Al Jazeera's digital platform is an Internet space that works: the YouTube channel has racked up an average of three million views, and it has over a million followers on Twitter. In this vein, it has successfully managed a transition involving turning a simple news website into an experimental informative online platform (Bañon, 2016).
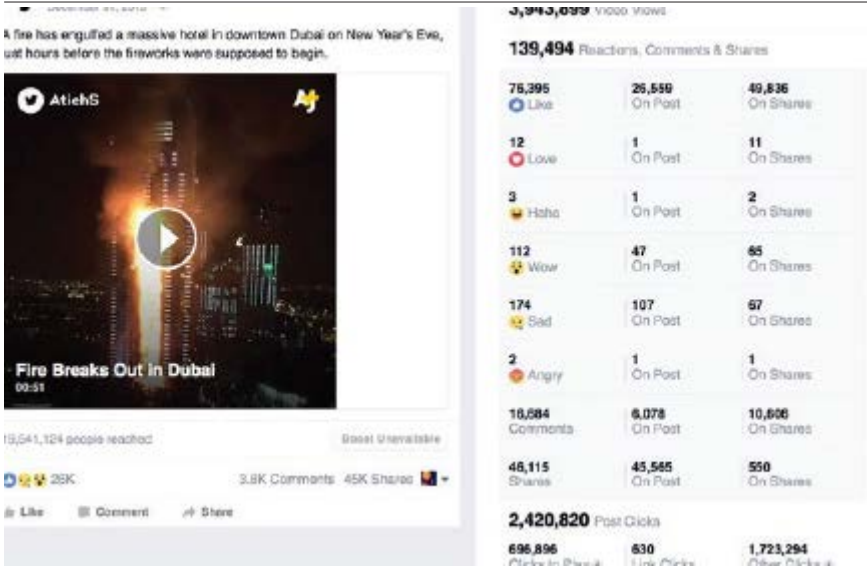
As a result of this evolution, in 2014 the corporation launched Al Jazeera Plus (AJ+), offering videos directly for Facebook, YouTube, Instagram, Twitter and Medium through mobile apps. It thus uses the social media to attract followers by encouraging them to share their stories, with formats based on very recent images or very short videos with little text. These changes and the entry into the digital world rendered it necessary to rethink internal procedures (Roettgers, 2013).

The experience of AJ+ increased the importance of verification in journalistic routines: the professionals are not always on the ground and the eyewitness reports come from indirect sources whose authorship is unknown at first glance, nor is there always information on the circumstances in which the images were recorded or the reasons for spreading them. One example of a verification process taken to the extreme of instantaneousness was the case of the Address Hotel fire in Dubai on New Year's Eve, 2015. Minutes before the traditional media reported the news, AJ+ used the Datamindr service to which it subscribed in order to verify the location of the tweets. They thus detected that three eyewitnesses were transmitting the information with *Periscope*.[1] The verification was completed by checking the location and comments from eyewitnesses in the social media and by securing permission to

1.   A Twitter app that enables live videos to be transmitted.

use images from one of them. Thus, AJ+ created a story in a matter of minutes (El Katatney, 2017).

Figure 4. The video of the Address Hotel fire was viewed three million times and shared 40,000 times in just one day, with an impact calculated at twenty million people

Source: Al Jazeera.

The observation that new formats have been incorporated into news spaces has thus been confirmed. One feature of AJ+'s posts is raw videos uploaded directly from mobile phones to the social media which are far from the quality standards of traditional broadcasts. They are products created for the digital sphere bearing the shared behavior and consumption of different social media in mind. This has enabled AJ+ to achieve audience growth, especially at times of humanitarian crises such as in Palestine or the exodus of refugees from the war in Syria. Such newsworthy situations have revealed that the most solid criteria to become viral are relevance, immediacy, and emotiveness (Rahimi, 2015). AJ+ averages half a million interactions a day, reaching 30 to 40 million people (El Katatney, 2017: 66).

5. Results: Examples of verification and impact in the newsroom

Al Jazeera's verification unit contributes 60 news items a day on average, which are added to the topics in the agenda after passing the pertinent checks. Here are examples in which it successfully detected fake news:[2]

2.   Data provided by Ahmed Mansour, Senior Editor for Digital Content at Al Jazeera.

1. Displacement of Syrian refugees after floods in northern Syria (20-01-21):
    Fake Link: <https://twitter.com/ahmadal_shame/status/1350887459366854656?s=19>
    Old story: <https://twitter.com/hamza_habboush/status/1205184394669051905?s=19>
    The verification unit discovered that the recording was from a video from 2019.

2. Photo of floods in Sudan (6-09-2020):
    Fake Link: <https://twitter.com/NadineKh/status/1302718409382264844>.
    Real Story: <https://www.flickr.com/photos/un_photo/4081320650>.
    The verification unit discovered the photograph was from Haiti, dated 2017.

3. Attack on Hassan Nasrallah's vehicle in the Lebanon (18-01-21):
    Fake story link: <https://twitter.com/ar28ar/status/1351405437111984129>
    Real story link: <https://www.facebook.com/100062033836280/videos/106490371428757>
    The verification unit discovered that although the date was correct, the image showed an explosion in the Syrian city of Idlib.

It is clear that using materials from the digital sphere entails a transition from the traditional, highly hierarchical newsroom to another model more in line with a horizontal rationale. This shift means that journalists have to work with a content management system, which enables them to make productions using accessible software and coexist with a system hosted in the cloud.

The nine members of Al Jazeera's verification unit are all under the age of 35 and have previously worked in the newsroom, preferably in posts in the international and sports sections.

The trend is towards a newsroom in which there is a shift from being producers of visual and news products to mediators and custodians of quality standards, with verification the top priority. This evolution will intensify as the subscription systems for distributing signals using broadband or IPTV connections improve,[3] thus enabling streaming media[4] with audiovisual content broadcast via the Internet. Guiding protocols are also increasingly being adopted to improve the security of the Internet as a mechanism for conveying the production processes (Hunter, 2021).

In the case of Al Jazeera, this transformation itself has given rise to new sources and a differentiated agenda of topics, although journalists specializing

3.   Internet Protocol Television.
4.   Streaming audio-visual content broadcast via the Internet.

in the tasks typical of each medium are still required even in newsrooms that have undergone integration processes (Salaverría and Negredo, 2008: 169).

In the traditional newsroom, organizing a live broadcast required hiring a satellite, finding a time zone when the content can be uploaded to it, and broadcasting it, not to mention a very significant economic investment. With the Make TV platform, Al Jazeera can download dozens of videos via Internet simultaneously. Thus, journalists from anywhere in the world can send news to a central clearinghouse, which decides whether the image should be stored or broadcast live, depending on the circumstances. One-way organization is thus giving way to work dynamics in the cloud, where the stream of images and data have to be managed. Satellites are still necessary for distribution, but the mobile networks have been playing an increasing role in channeling, exchanging, moving and organizing information. They generate and lend coherence to this movement and organization precisely in the cloud system.

At the core of this process are the verification routines, which provide recognition to the materials from the digital sphere. This intensifies the need for mediation from journalists, IT professionals and cross-disciplinary professionals. They are also highly specialized tasks that require a collaborative culture with the outside world, in which important entities become associates. For example, Al Jazeera is a member of the First Draft Partner, an entity encompassing the largest social media platforms and verification projects which are seeking to tackle these challenges together (Fernández-García, 2017).

Verification tasks guarantee credibility, but their use in a newsroom in the cloud where streams circulate poses four significant challenges: overcoming ethical tensions, putting proven facts into context, generating relevant information and observing public interest, and raising awareness about certain social issues. (Srisaracam, 2019)

6. Discussion and conclusions

This study has confirmed that including information and images originating from the digital sphere has made it necessary to broaden the agenda of topics and the number of sources (Q2). Since there is material coming from the circuit outside the newsroom, the verification process is crucial and has led to changes in the organization of the newsroom (Q1), with the creation of a group of journalists and technicians specializing in this task. The qualitative characteristics of these materials coming from the audience's mobile phones are far from the usual quality standards in the professional sphere, but they provide advantages such as immediacy and accessibility, which is leading to a new aesthetics of reporting (Q3) and contributing to the culture of TV viewers' participation. In this sense, management and verification makes it possible to use material from the social media with quality assurances. These social media have helped redirect audiences to the screen and locate new potential audiences (Q4) for television broadcasts or the channel's website.

In this study, therefore, Hypothesis 1 was confirmed and we can conclude that the verification processes and their improvement are key features in enabling traditional newsrooms to transition to a cloud structure, since they allow the veracity of visual material from the social media to be checked, thereby preserving a fundamental feature of quality journalism. This model is also shifting from hierarchically organized professional relationships towards more horizontal models, in which technological training is essential.

Hence, Hypothesis 2 is also confirmed in the sense that the new newsroom has news professionals coexisting with experts in artificial intelligence and IT. The new nature of the newsroom is no longer strictly in-person; correspondents coexist with journalists via virtual mobility, seeking and receiving images streamed from the social media. The cloud needs to organize the traffic, and managing it is leading to the establishment of new horizontal hierarchies within the newsroom. This should be the subject of subsequent studies, because the harmonization of the list of functions of the different information professionals should include excellence as a goal not only to find the best image or video but also to create the context to provide audiences with the best explanation via new formats generated in the social media. Technologies enable all of the material to be available to the group in the cloud newsroom, although verification protocols are the first step in this availability. Nevertheless, this availability is subject to usage protocols, for example prioritizing broadcasting in the network's news programs over others for strategic reasons.

Finally, Hypothesis 3 is also confirmed, as the use of algorithmic technology is essential in verifying the volume and diversity of materials generated on the Internet. However, at the same time, the need for verification does not exclude traditional techniques. A newsroom with a hybrid coexistence of professionals in no way diminishes the importance of journalism but instead makes it necessary. There is increasing evidence of the need to lend meaning and context to the information, which means that journalists keep and preserve their topic specialization.

Moreover, insofar as verification preserves the audience's trust, it allows topics and sources in the agenda that have traditionally been excluded, including new coverage. It is therefore a relevant and inevitable way to incorporate new audiences, thereby helping to grow audiences and rendering it possible to maintain big audiovisual corporations.

The additional challenge posed for journalism by the new cloud newsrooms is how to boost creativity and create protocols for internal cohesion to motivate the professionals to organize the creation of quality content that serves society.

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