Using video for fact-checking on *Facebook*. Analysis of the trend and reach of Ibero-American production (2016-2021)

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Abstract

Social networks –and *Facebook* in particular– have become an important element of the information diet for millions of people around the world. By using them, the traditional media lose control of the distribution channel for their content, whose reach now depends, firstly, on the relevance criteria established by the networks themselves and, secondly, on the interactions generated by the audience with each publication. Very often research on journalism has tackled the issue of reach and how efficient fact-checkers are. To find answer to the sociodemographic features of their audiences or the characteristics of their posts are explored. However, factors such as the influence of the algorithms which choose the content users are shown on the social networks is not often dealt with. This article aims to contribute in both areas. Firstly, it offers a broad perspective on the publications of Ibero-American fact-checkers on *Facebook* between 2016 and 2021, focuses on the evolution of video production (n=9075) and on the views and engagement achieved by this format with respect to the rest, and relates them to changes in the *News Feed* algorithm. Secondly, it proposes a content analysis to identify formal and thematic elements in the most popular videos in the same period (n=414) and relates them to previous research. Our results show significant similarities in popular videos, but also changes in video production, a generalized decrease in the ratio of views and a drop in the interaction rate more accentuated than in all the publications of the period. Although the focus of this research does not allow us to make direct causal inferences, the trends identified coincide with the changes in the *Facebook News Feed* algorithm that were made public in those years.

Keywords

Fact-checkers; Fact-checking; Algorithms; *Facebook*; Video; Gatekeepers; Social media; Ibero-America; Disinformation; Fake news; Verification; Digital communication.

Funding

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1. Introduction

In recent years the information industry has undergone a change towards more digital, social and mobile consumption. In this new scenario in which smartphones have become the main device for accessing the Internet (**Ericsson**, 2022) and the news, social networks are increasingly the main source of information for a large amount of people, (**Kemp**, 2022), especially the youngest users (**Newman** *et al.*, 2022), both for this purpose, and incidentally, by recommendations and posts from contacts (**Fletcher**; **Nielsen**, 2017).

Although conventional media is still highly significant, especially in terms of trustworthyness, the democratising impact of the social media has turned these networks into a space in which they compete for the attention of audiences with alternative sources, such as politicians and influencers (**Neuman** *et al.*, 2021). In this setting, organisations specialised in fact-checking have become a key part of the news ecosystem and today have reached unprecedented prominence (**Guallar** *et al.*, 2020). The presence of fact-checkers on social networks often enables their contents to be spread organically (**Robertson**; **Mourão**; **Thorson**, 2020) by interacting with users, which multiply their reach (**Margolin**; **Hannak**; **Weber**, 2017) in the same areas where disinformation circulates (**Humprecht**, 2020). Moreover, their credibility is raised by means of metrics (**Tandoc**, 2021). Another point is it also drives traffic to their websites and helps them remain financially viable (**Valenzuela**; **Correa**; **Gil de Zúñiga**, 2017). However, the inclination *Facebook* users have to identify themselves with profiles which validate their beliefs, as well as the confirmation effect –when the most polarised audiences are exposed to verified contents (**Nyhan**; **Reifler**, 2010)– paints a complex picture in which the fact-checkers themselves cannot be certain whether their contents will reach the consumers who have been exposed to the news whose truthfulness has been checked (**Ardèvol-Abreu**; **Delponti**; **Rodríguez-Wangüemert**, 2020; **Shawcross**, 2016).

Currently, there is no research corpus broad enough to determine the factors which influence the results of the contents dissemination strategy of fact-checkers (**Shin**; **Thorson**, 2017). However, references can often be found which stress how important the posting format in general is (**Amazeen** *et al.*, 2018; **Ecker**, 2019; **Shawcross**, 2016), and the video in particular (**Elizabeth**, 2016; **Mantzarlis**, 2016; **Young**, 2018). Nevertheless, there is an external factor which has been given little attention until now, which we believe is interesting: the effect the algorithm (which acts as a gatekeeper for deciding what contents are visible on the platform they are hosted on) has on reach and interaction levels.

2. *Facebook* as a gatekeeper: chronology of the algorithm criteria for videos

Facebook is still the social network with the greatest number of users worldwide (2.74 billion) (**Kemp**, 2022), but more significantly, regarding this research, it is the favourite platform for news (**Newman** *et al.*, 2022) in the global average for users. It is also considered to be the main channel worldwide for spreading disinformation (**Newman** *et al.*, 2021), since the design of the platform itself encourages the spread of controversial content which is rewarded in terms of users reached and time of use (**Horwitz**; **Seetharaman**, 2020). According to data from **Dafonte-Gómez**, **Míguez-González** and **Ramahí-García** (2022), *Facebook* is also the digital channel with the second most fact-checking initiatives worldwide (72.1%), just behind *Twitter* (75%).

In recent years different researchers have stressed the role *Facebook* –and other social networks and search engines– have as gatekeepers (**Bozdag**, 2013; **Powers**, 2017; **West**, 2017), and as intermediaries between the audience and the media, which traditionally has played this role, directly. The networks –and more specifically, their automated algorithms– not only affect what each consumer sees on them, but also determine journalism routines and editorial decisions (**Madrigal**; **Meyer**, 2018) in the rat race for visibility, whose aim is to adapt the contents to the criteria which the platform algorithm rewards especially at any given time (**Grygiel**; **Lysak**, 2021; **Peterson-Salahuddin**; **Diakopoulos**, 2020). **DeVito** (2017) summarised nine values –from the most to least relevant– which the automated contents filter in the *News Feed* revolve around: friendships, explicitly expressed user interests, previous participation of the user, implicitly expressed user preferences, age of the post, platform priorities, relationship of the page preferences expressed negatively and content quality.

In June 2014 *Facebook* announced a change in its algorithm with which native videos (those imported to the platform itself, rather than by links from third parties) would take priority over other types of content, such as links or photos (**Welch**; **Zhang**, 2014). This way, videos are viewed without users leaving the platform and in a more favourable setting for *Facebook* concerning copyright, monetisation and controlling viewer consumption metrics (**Tandoc**; **Maitra**, 2018). In the same year the time users spend viewing videos was added as a significant factor, regardless of their reactions. Since then, the video format has become an essential part of *Facebook´*s corporate strategy (**Honan**, 2016), and not only determines the content strategy for the media for distributing contents on the social network, but also creates a new way of communicating with its

audiences and interacting with them (**Kite** *et al.*, 2016; **Rein**; **Venturini**, 2018). In 2015, for example, *Facebook* began looking at how to activate sound, viewing with the full screen and in high definition as interesting options apart from reactions to the videos (**Wang**; **Zhuo**, 2015). In 2016 *Facebook* extended the alternative reactions to *Like* and the *Live Video*. Two new items were added for consideration in the *News Feed* settings, which, for videos, led to the prioritisation of live broadcasts (**Kant**; **Xu**, 2016). This demonstrated the platform was pushing for this format (**Meese**; **Hurcombe**, 2020) and, thus, any content that was not aligned with this strategy would lose viewing opportunities. In 2017 the new reactions supplementary to the classic *like* and which had been added in 2016 were prioritised. Moreover, with videos, the rate of finalisation and percent completion (the percentage the consumer views out of the entire duration of each video) were considered to be significant indicators, weighed in terms of their duration– a metric which replaced total viewing time for each video and which had been in operation since 2014 (**Bapna**; **Park**, 2017). In the same year they started to show those videos which consumers searched for and frequently revisited on a certain page (**Smith**, 2017).

Although *Facebook* announced consecutively in 2015 and 2016 that it would prioritise posts from friends in the *News Feed* (**Backstrom**, 2016), in 2018 a new update went on to give greater prioritise to posts from contacts in the *News Feed*, so that the organic scope of contents from the pages of institutions and companies began to decline gradually. This obviously had effects on its business model. According to **Newberry** (2022) the organic scope of a *Facebook* post in 2018 was 7.7% but by the end of 2020 it had fallen to 5.2% and the interaction ratio was at around 0.25% (and around 0.08% for pages with over 100,000 followers).

The way to make the contents from pages more relevant was now either via making paid campaigns, or generating interactions between followers which enabled the contents to be shared organically between contacts and thereby gain greater relevance for the algorithm.

With respect to the video in particular, in 2018, those contents which could capture user attention in under a minute were prioritised in the *News Feed*, and a minimum length of 3 minutes was recommended for monetising them by means of advertising (*Facebook*, 2018), although, the view was that despite video being an important part of the contents ecosystem, consuming them is essentially a passive experience in terms of interacting with the platform (**Vogelstein**, 2018 citing Adam Mosseri).

In 2019 this principle of capturing user attention in under 1 minute was maintained, but the minimum duration of three minutes (providing that high completed percentages were obtained) became a priority criterion for the *News Feed* (*Facebook*, 2019). That year the trend on *Facebook* was to give greater relevance to posts from close contacts with whom there was a high amount of interaction from users and videos which created organic interaction and conversation among friends and other users; it also maintained the "loyalty" criterion when consuming videos from the same page on a weekly basis in order to give them preference in the *News Feed* (**Miller**, 2019). In 2021, the year in which the company was renamed *META*, the push for video format became even more decided and constituted one of the main drivers for the social network (*Facebook*, 2021).

In the third quarter of 2022 10.6% of the *News Feed* from American users came from the pages they followed and 16.6% from groups they were part of. Therefore, although posts from friends were the main content –both for original posts (29.7%) and shared ones (19.6%)–, up to 15.2% of what users saw in their *News Feed* came from sources they did not follow, just from recommendations given by the algorithm (*Facebook*, 2023).

Therefore, in this respect, software for automated contents filtering on the social networks is crucial for examining the changes in the information ecosystem model (**Epstein**; **Robertson**, 2015; **Gillespie**, 2014), but constitutes a variable which is difficult to access and understand.

In light of this, it seems pertinent to observe the results of the contents distribution strategies of the fact-checkers and how their users behave on *Facebook*, in so far as they enable us to gain an insight into how a media scenario determined by automatic content filtering works. Moreover, we can observe the capacity fake news has to spread on social networks and how effective fact-checkers are at countering them. We have chosen the geographical scope of the research as Ibero-America: Latin American countries, Spain and Portugal. This is justified by the cultural and linguistic links which unite the countries in this category; the existence of large amounts of collaboration, precisely as a result of cultural affinity and needs. Very often, they face the same problems and need to provide alternative and complimentary outlooks to the academic fields to the dominant global north (**Mitchelstein**; **Boczkowski**, 2021), since although these initiatives are relevant, (**Ryan**, 2022), they have not been studied enough (**Molina-Cabañate**; **Magallón-Rosa**, 2021).

3. Research questions

In relation to the foregoing, and as there are no data to take as a starting point, we have created the following research questions:

RQ1. How has video production from Ibero-American fact-checkers evolved on *Facebook*?

RQ2. Has video production from Ibero-American fact-checkers been optimised according to the preferred format and duration criteria established by *Facebook* for showing contents on the *News Feed*?

Since user interaction and duration and video format are all the main criteria *Facebook* has for increasing the chances a post will have of appearing in the *News Feed*:

> RQ3. What features of the videos (formal, topical and expressive) and types of interaction can influence the ratios which define how successful *Facebook* content is?

Since the *Facebook* algorithm criteria for making contents more visible has changed over the years, we then posed the question:

> RQ4. Have the changes in the settings criteria for the *Facebook News Feed* had a negative effect on the number of views and interactions obtained by the videos posted by Ibero-American fact-checkers?

4. Methodology

The sample is made up of the Ibero-American initiatives which in January 2022 were part of the *International Fact-Checking Network* (*IFCN*) from the *Poynter Institute*, either as signees or as institutes pending renovation.

The study combines quantitative and qualitative perspectives.

Regarding the quantitative approach, *Crowdtangle* was used to capture the metadata from all the posts made on *Facebook* by fact-checkers from the sample between 2016 and 2021, and obtained a database containing 200,005 entries, out of which 9075 were videos (*Crowdtangle Team*, 2022).

Each registry showed the post dates, followers (likes on the page) when posting (link, live video complete, live video scheduled, native video, photo, status, video and *YouTube* –for non native videos outside *YouTube*–, interactions (likes, comments, shares, love, wow, ha ha, sad angry, care), duration and views (just for native video, live video complete), and interaction ratio, Ri (which is the result of dividing the sum of shares, comments and the 7 possible reactions from a post between the number of likes on a page at the time of posting multiplied by 100) for each registry. Additionally, for the videos posted, we calculated the viewing ratio, Rv; shares ratio, Rs; and the comments ratio, Rc, per follower, in a similar way to the calculation made by *Crowdtangle* for the interaction ratio, and the interaction ratio per view, Ripv (number of interactions between the number of views by 100).

Once the database was reviewed we saw there was a high number of posts in 2016 in which there were no data on the followers for the website at the time of posting. This meant we could not have representative data on the viewing and interaction ratios. Therefore, we used the 2016 data to plot the general trend in the number of posts, video category and durations in the broadest way possible and to keep to the 2017-2021 period for all that concerned with calculating ratios and, as a result, the make up of the posts whose contents we wanted to analyse.

With these data, by means of the different metrics (due to their robustness against the average for a set of data with notable deviations), and percentages we analysed their year-on-year trend throughout the period, and studied the correlations between variables with the R statistics programme.

For the qualitative analysis we chose a sample of 5% of the videos with the greatest interaction ratio for each year for every fact-checker between 2017 and 2021, including all the possible categories. This came to 414 videos for the analysis, out of which 391 corresponded to formats with comprehensive metrics.

This relationship underwent a content analysis from a coding sheet. This composition was fundamentally based on already validated coding such as that by **Míguez-González** and **Dafonte-Gómez** (2022) or **García-Marín** and **Salvat-Martinrey** (2022). For the other cases inductive coding was used, given the specific nature of the material and the aim of the research, no sources were found with classifications which fit the contents analysed and enabled deductive coding. After the three researchers initially encoded on an individual basis, they reached a consensus on their findings and this was reflected in a final categorisation.

For each video the resulting analysis template was applied, in which topical and expresive aspects were taken into consideration: content (science, culture, disinformation, ecology, economics, education, gender-LGTBI, politics-laws, racism-xenophobia, health, events, miscellaneous), intention (literacy, self-promotion, rebuttal, information, positive verification, others), scope (national, international), aspect ratio (horizontal, vertical, square), number of shots (various, sole shot) and presence or absence of: graphics, subtitles, visual identification elements from the fact-checker, voice over, presenters, experts, and level of comprehension with no sound which may be total, partial or zero/very low.

The three researchers encoded independently. The differences in classification for the category variables were then resolved by agreement.

Having collected the data, descriptive and inferential statistical analysis were carried out with the R statistical software.

> “In recent years different researchers have stressed the role Facebook –and other social networks and search engines– have as gatekeepers, and as intermediaries between the audience and the media, which traditionally has played this role, directly”

5. Results

5.1. Trend in video production 2016-21

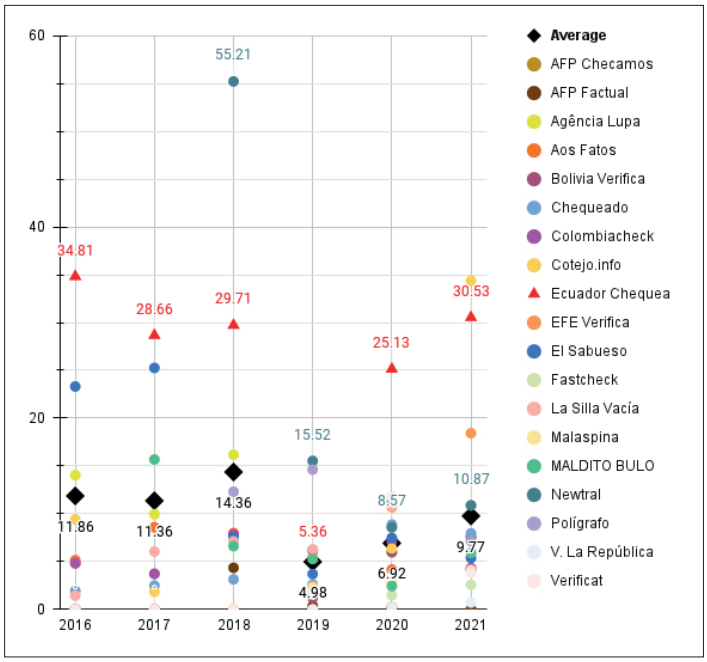
Table 1. Annual trend in posts and videos

	2016	2017	2018	2019	2020	2021
Fact-checkers	8	10	12	17	19	19
Total amount of posts	7757	12248	14634	22469	30051	36359
Average number of posts per fact-checker	969.62	1224.8	1219.5	1321.7	1581.63	1913.63
Average growth in posts	-	26.32%	-0.43%	8.38%	19.77%	20.99%
Total number of videos	284	711	1148	1463	2363	3106
Average number of videos per fact-checker	35.5	71.1	95.66	86.06	124.37	163.47
Average growth in videos	-	100.28%	34.54%	-10.04%	44.52%	31.44%
Video/posts ratio	3.66%	5.81%	7.84%	6.51%	7.86%	8.54%

As shown in table 1, throughout the study period, the number of fact-checkers belonging to the *IFCN* in Ibero-America and on *Facebook* rose notably, from 8 registries in 2016 to 19 in 2021. This increase came with a 368.72% rise in the overall number of posts between 2016 and 2021, although we must focus our analysis on the average per fact-checker.

Between 2016 and 2021 the average number of posts per fact-checker went from 969.62 to 1913.63, which shows a 97.36% rise over 6 years. Especially outstanding in this period is the rise in 2016 and 2017 (at 26.32%, it was the greatest year-on-year one).

As for the videos posted, we went from an average of 35.5 per fact-checker in 2016 to 163.47 in 2021. This shows a jump of 360.47% in the average number of videos posted over the 6 years studied. After a 100.28% growth between 2016 and 2017 and a 10% fall in 2019 vis-à-vis 2018, in 2020 and 2021 video posts increased by 44.52% and 31.44% respectively.



Graph 1. Percentage of videos broadcast by each fact-checker with respect to the total number of posts and regarding the annual average (n = 9075)

Although the percentage of videos posted shows a lower volume (under 10% in all the years studied) in relation to the total number of posts, the reality is there was a slow but sustained growth between 2016 (3.66%) and 2021 (8.54%). Therefore, the growth rate for videos, –above 30% except in 2019– surpassed that for the posts as a whole.

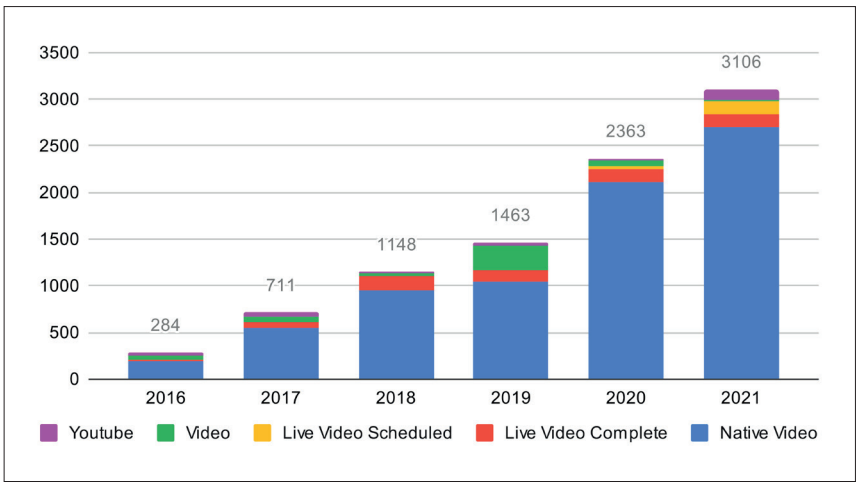
On analysing the level of video posts from each fact-checker, we saw that the push for this format varied widely. In absolute terms, just three fact-checkers reached 1000 videos posted within the 6-year window analysed: *Newtral* (2178, having started in 2018); *La Silla Vacía* (2042) and *Ecuador Chequea* (1015). However, the figures for video posting from each fact-checker must be put into context with respect to their own capacity to produce contents. If we establish the average percentage of videos for each fact-checker for each year analysed in terms of their total posts and we take that as the comparative reference point (graph 1) we see that *Ecuador Chequea* is the checker which had the strongest push for video within its contents plan. Also remarkable in this respect was *Newtral* whose figures for this fact-checker were above the average for the 4 years in which videos were posted, surpassing *Agência Lupa*, *La Silla Vacía*, *Polígrafo* and *EFE Verifica* –despite only recently starting– and *El Sabueso* in 2016 and 2017.

It must be pointed out that *Cotejo* (Venezuela) posts on an irregular basis and this affected the results obtained for this fact-checker, since it did not post anything between 25/08/2020 and 12/10/2021.

5.2. Trend in video formats posted 2016-21

The most frequent type of video on *Facebook* is the native one, as shown in graph 2. This is the clearly dominant category over the 6 years of this study, oscilating between a minimum percentage of 64.79% in 2016 and a maximum of 89.08% which the category reached in 2020. The lowest percentage of native video in 2016 coincided with the highest amount of them on *YouTube* (12.32%, which duplicated its second best registry in 2017) and with the second highest video percentage (14.44%) within the series studied.

Although in terms of percentages live videos did not stand out regarding the total number of videos produced, there was a notable rise in them broadcast in the period analysed, especially between 2016, 2017 and 2018 with 24, 73 and 164 videos respectively. In 2020 the number of live videos surpassed 180; and in 2021 they reached 275 with an ever higher amount of *Live Video Scheduled*.



Graph 2. Trend in video posts according to categories (n= 9075)

Despite the growth in production of *Live Video* between 2016 and 2021 was around 1045.83% this observation must be qualified by the fact that this rise largely came from the activity of a small group of initiatives which seemingly pushed especially for the format. Between 2016 and 2017 still only slightly over half the fact-checkers published *Live Video* (62.5% and 60% respectively) but in 2018 this figure jumped to 83.3%. Thus, at the same time, at 14.3% the peak value for *Live Video* was reached with respect to the total number of videos posted for the whole series analysed. From then onwards, the proportion of fact-checkers which posted *Live Video* dropped continuously: 52.9% in 2019, 42.1% in 2020 and 36.8% in 2021. *La Silla Vacía* is the most consistent of them all within the period studied and accounts for most live videos posted throughout the years: it produced 37.5% of all *Live Videos* in 2016, 67% in 2017, 38.4% in 2018, 54.7% in 2019, 53.8% in 2020 and 68% in 2021.

As for video links outside *YouTube*, these were strongly conditioned by one fact-checker, *Polígrafo*, which used the website *Sapo* to host its external videos and in 2019 accounted for 79% of the 269 videos posted in this category (the rest were from *Newtral*), while in 2020 it was the only fact-checker which used it.

Adding *YouTube* videos is also a minority activity and there was an average of 42.16 videos per year between 2016 and 2020. No specific trend was seen apart from the sharp percentage fall between 2016 and 2017 (from 12.32% to 5.39%).

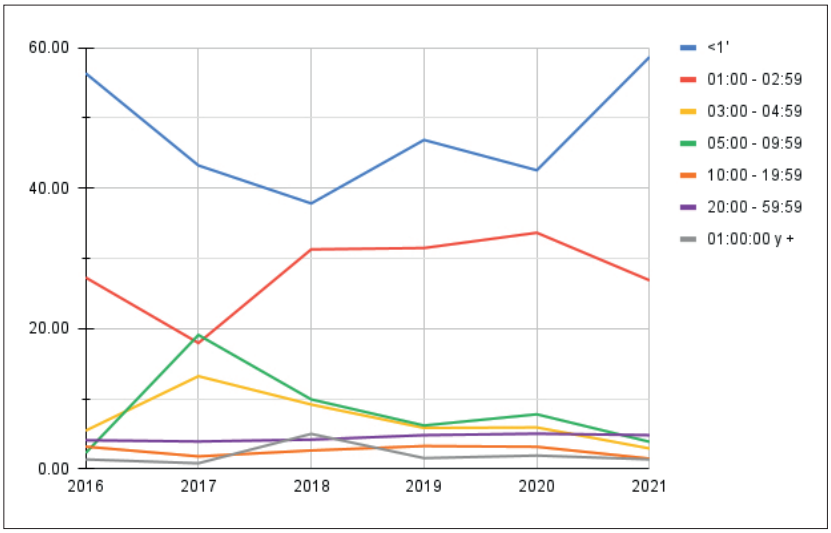
5.3. Trend in video duration

As we mentioned, *Facebook* just provides the duration of native or direct videos. These type of videos come to a total of 8369 within the study period and we have all the data for 8187 of them. This comes to 90.13% of the total number of videos posted under any format. In this group, 77.87% of the videos posted last under 3 minutes while 48.55% last less than 1 minute, a proportion which annually goes from a minimum of 37.82% in 2018 to a maximum of 58.78% in 2021.

On graph 3, it was observed that those lasting under 1 minute generally had an upward trend in the last years: after a very sharp drop between 2016 and 2018 in which it went from 56.36% to 37.82%, and reached 58.68% in 2021. The period in which there was a fall in video production of under a minute was in 2017 with remarkable growth in those whose duration varied between 05:00 and 09:59 minutos and videos between 03:00 and 04:59. In 2018 these three video categories fell to the benefit of those whose duration was between 10:00 and 19:59, which kept rising until 2020.

Videos over 3 minutes long, have gradually become less prominent over the years and have gone from representing 38.8% of the total amount of video produced in 2017 to 14.5% in 2021, with a slight upturn in 2020.

While short videos are transversal and typical to most verifiers, with those lasting 20 minutes or more there are highly specific formats such as webinars, video conferences and chat sessions in live video format or retransmissions from a *Twitch* channel as native videos which just a small number of fact-checkers implement.



Graph 3. Trend in video production according to duration (n=8369)

5.4. Viewing and interaction ratios 2017-2021

To calculate the correlations in which different ratios intervened we restricted the analysis to 2017-2021 and once again to native videos and comprehensive live ones. This gave us a sample of 7967 videos, out of which there were valid data for 7327.

Once normal data distribution was ruled out with the Kolmogorov-Smirnov test with the Lilliefors significance correction, Spearman´s correlation coefficient was chosen between the different types of interaction, video duration and interaction ratios (Ri), views (Rv) and interaction per view (Ripv), with the following results.

Table 2. Spearman´s correlation coefficient between types of interaction, Ri, Rv, Ripv (n=7327)

	Shares	Coms	Likes	Angry	Care	Haha	Love	Sad	Wow	Length	Views	Inter	Ri	Rv	Ripv
Shares	1.000	0.598*	0.827*	0.489*	0.283*	0.402*	0.596*	0.378*	0.496*	0.376*	0.721*	0.883*	0.588*	0.582*	0.328*
Coms	0.598*	1.000	0.663*	0.518*	0.272*	0.585*	0.543*	0.387*	0.473*	0.274*	0.632*	0.760*	0.450*	0.456*	0.247*
Likes	0.827*	0.663*	1.000	0.480*	0.291*	0.460*	0.682*	0.338*	0.500*	0.424*	0.821*	0.958*	0.576*	0.616*	0.308*
Angry	0.489*	0.518*	0.480*	1.000	0.231*	0.436*	0.348*	0.487*	0.496*	0.233*	0.487*	0.541*	0.342*	0.389*	0.128*
Care	0.283*	0.272*	0.291*	0.231*	1.000	0.242*	0.276*	0.202*	0.249*	0.179*	0.242*	0.301*	0.236*	0.170*	0.158*
Haha	0.402*	0.585*	0.460*	0.436*	0.242*	1.000	0.357*	0.297*	0.407*	0.155*	0.435*	0.539*	0.314*	0.298*	0.216*
Love	0.596*	0.543*	0.682*	0.348*	0.276*	0.357*	1.000	0.217*	0.380*	0.385*	0.594*	0.682*	0.412*	0.475*	0.188*
Sad	0.378*	0.387*	0.338*	0.487*	0.202*	0.297*	0.217*	1.000	0.440*	0.156*	0.374*	0.405*	0.267*	0.295*	0.097*
Wow	0.496*	0.473*	0.500*	0.496*	0.249*	0.407*	0.380*	0.440*	1.000	0.229*	0.487*	0.534*	0.342*	0.408*	0.117*
Length	0.376*	0.274*	0.424*	0.233*	0.179*	0.155*	0.385*	0.156*	0.229*	1.000	0.463*	0.408*	0.219*	0.383*	-0.028
Views	0.721*	0.632*	0.821*	0.487*	0.242*	0.435*	0.594*	0.374*	0.487*	0.463*	1.000	0.835*	0.459*	0.738*	-0.117*
Inter	0.883*	0.760*	0.958*	0.541*	0.301*	0.539*	0.682*	0.405*	0.534*	0.408*	0.835*	1.000	0.619*	0.637*	0.349*
Ri	0.588*	0.450*	0.576*	0.342*	0.236*	0.314*	0.412*	0.267*	0.342*	0.219*	0.459*	0.619*	1.000	0.629*	0.387*
Rv	0.582*	0.456*	0.616*	0.389*	0.170*	0.298*	0.475*	0.295*	0.408*	0.383*	0.738*	0.637*	0.629*	1.000	-0.049*
Ripv	0.328*	0.247*	0.308*	0.128*	0.158*	0.216*	0.188*	0.097*	0.117*	-0.028	-0.117*	0.349*	0.387*	-0.049*	1.000

*p-value <.0001

Exploring the relationships between interactions and views, we saw there was a slight positive correlation, (0.629) between the interaction ratios (Ri) and views (Rv). Also, if we study the relationship between views and interactions –without applying the matrix from the number of followers from the Rv and Ri variables– there was a strong correlation between both variables (0.835).

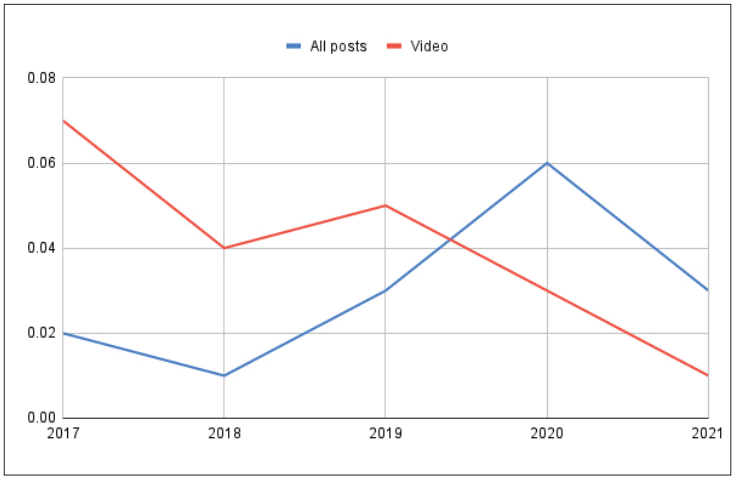
The interaction ratio (Ri) shows the highest positive correlations with shares (0.588) and likes (0,576). Moreover, the same happens with the ratio of views (0.582 for shares and 0.616 for likes).

With the interactions per view ratio (Ripv), the greatest correlations, albeit slight ones, also occur with shares (0.328) and likes (0.308), although the significant and negative (slight) correlation between the number of views and the Ripv (-0,117) is also salient.

Lastly, the duration variable shows positive and significant –albeit slight– results with respect to Ri and Rv. Therefore, it seems a longer duration does not have a negative effect on the views or interactions ratio, although the result with respect to Ripv is not significant.

To show the annual trend for the 3 ratios used as variables we chose to calculate the median due to its greater robustness as opposed to the average and to compare the comprehensive study and the sample.

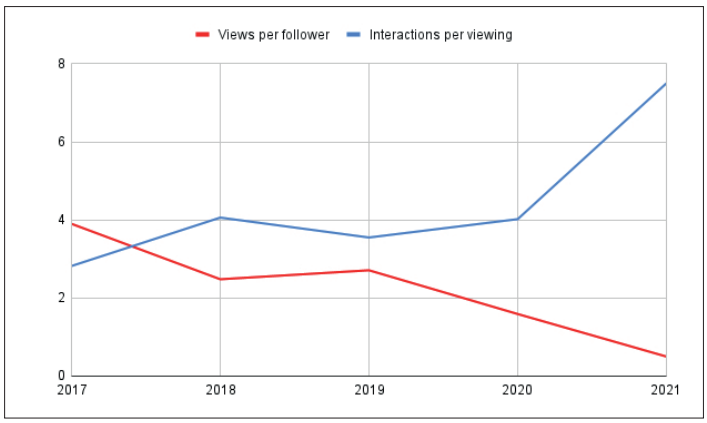
In graph 4 we see the interaction ratio for the whole sample shows a rising trend, with very little variation between 2017 and 2021, whereas with videos there was a clear falling trend over the same period. Moreover, it is



Graph 4.Trend in the interaction ratio per follower. Total number of posts versus videos

remarkable that between 2017 and 2019 videos obtained an interaction ratio median that was higher than that for the posts as a whole, but that trend was reversed in 2020 and 2021.

The ratio of views per follower for the videos shows a downward trend coupled with that for interactions per follower we saw in graph 3. However, the ratio of interactions by the number of views shows a clear positive trend in the study period (graph 5).



Graph 5. Trend in the views ratio per follower and interactions per view (n=7327)

5.5. Analysis of the most successful videos

In the sample of videos with the highest interaction ratio per fact-checker we see that native videos are the most significant category, and in an even higher proportion than in the group of videos posted as a whole. Conversely, the videos hosted by *YouTube* are far less abundant in the most successful group than what they represent in terms of the total number of posts (table 3).

As for duration, the data show meanwhile that videos under one minute are the main group within the whole group of videos posted for all the years analysed (all). As for the most successful ones (top) those between 1:00 and 1:59 are the main category in 2019 and 2020, and show a marked trend since 2017. In the global comparison 2017-2021, videos under a minute are less prominent in the group of the most successful ones and videos with higher durations surpass them (table 4).

Table 3. Trend in video production according to duration. Comparison between total and video sample

	All (2017-21)		Top (2017-21)	
	n	%	n	%
Native video	7340	83.50	365	88.16
Live video complete	627	7.13	26	6.28
Live video scheduled	185	2.10	3	0.72
Video	421	4.79	16	3.86
YouTube	218	2.48	4	0.97
Total	8791	100	414	100

Table 4. Trend in video production according to duration. Comparison between the total and the sample of videos with the highest interaction ratio from 2017-2021

	2017		2018		2019		2020		2021		2017-21	
	%All	%Top	%All	%Top	%All	%Top	%All	%Top	%All	%Top	%All	%Top
<1 min	43.23	50.00	37.82	29.27	46.86	22.81	42.55	24.14	58.68	35.10	48.34	30.30
01:00 - 02:59	17.94	14.29	31.27	24.39	31.47	43.86	33.64	36.21	26.86	32.45	29.37	33.33
03:00 - 04:59	13.21	7.14	9.18	24.39	5.85	12.28	5.92	13.79	2.92	6.62	5.85	11.36
05:00 - 09:59	19.09	21.43	9.91	12.20	6.19	10.53	7.79	12.93	3.87	12.58	7.38	12.88
10:00 - 19:59	1.79	0.00	2.64	7.32	3.27	10.53	3.16	3.45	1.48	5.96	2.40	5.56
20:00 - 59:59	3.92	3.57	4.18	2.44	4.82	0.00	5.03	7.76	4.82	7.28	4.72	5.81
01:00:00 y +	0.82	3.57	5.00	0.00	1.55	0.00	1.91	1.72	1.37	0.00	1.37	0.76

In the sample analysed 78.99% of the videos refer to national issues, the horizontal aspect ratio predominates (66.91%) over square (28.02%) or vertical (5.07%), and also those with various shots (79.47%) as opposed to those with a single shot.

As seen in table 5 there is a slight predominance of videos with no presenter, but experts frequently appear in order to make the messages more believable.

While visual identity elements and graphics are highly normalised in the sample and appear in over 90% of videos in both cases, subtitles (35.02%) and voiceover (23.43%) are lesser used resources. With videos which use voiceover the use of subtitles rises to 62.89%, although in the sample as a whole, 33.57% are incomprehensible without sound; in 23.43% of cases this is partial and in 43% they are completely incomprehensible without sound. 60.11% of the videos which are totally understandable without sound lack it originally (there is no presenter, nor expert, nor voiceover). However, we can show that 65.47% with virtually no or very little comprehension are those which have a presenter and/or an on-screen expert who are not subtitled.

Table 5. Presence of different elements in the videos

	Presenter	Expert	Identity	Graphics	Subtitles	Voiceover
Yes	43.00	82.13	90.58	91.55	35.02	23.43
No	57.00	17.87	9.42	8.45	64.98	76.57

Table 6. Classification of the most successful posts according to intention. Data for views and interactions

Type of post	Volume (n=414)	Ri (n=391)	Rc n=391)	Rs n=391)	Rv (n=391)	Ripv (n=391)
Literacy	13.04%	0.4%	0.03%	0.15%	7.55%	5.66%
Self-promotion	12.32%	0.5%	0.03%	0.09%	10.12%	4.59%
Rebuttals	22.71%	0.37%	0.04%	0.12%	9.56%	4.75%
Information	39.61%	1.06%	0.09%	0.34%	27.36%	3.88%
Verification	6.04%	0.37%	0.07%	0.06%	4.79%	4.57%
Others	6.28%	0.20%	0.03%	0.03%	4.25%	4.72%

In table 6 we see that the main part of the sample is concentrated in the information (39.61%) and rebuttals (22.71%) categories, with a very low proportion of positive verifications (6.04%). As for the analysis of interactions per category, it can be seen that information is that which creates a higher ratio of views, interactions, comments and shares per number of followers, although the ratio of interactions per view remains below the average. Neither rebuttals nor verification have salient figures, although the former category surpasses the latter in terms of the ratio of comments, shares and views per number of followers.

Table 7. Classification of the most successful posts according to topic. Data for views and interactions

Type of post	Volume (n=414)	Ri (n=391)	Rc (n=391)	Rs (n=391)	Rv (n=391)	Ripv (n=391)
Science	0.48%	1.66%	0.13%	0.60%	146.89%	4.96%
Culture	0.97%	1.19%	0.03%	0.62%	18.40%	6.19%
Disinformation	11.84%	0.50%	0.03%	0.10%	10.32%	4.65%
Ecology	2.17%	0.26%	0.04%	0.10%	4.48%	4.47%
Economy	3.62%	0.68%	0.05%	0.32%	10.92%	3.48%
Education	1.69%	0.22%	0.05%	0.12%	4.31%	5.75%
Gender-LGTBI	2.17%	0.27%	0.01%	0.04%	7.74%	3.74%
Politics and law	41.06%	0.97%	0.08%	0.27%	22.67%	4.14%
Racism and xenophobia	2.42%	1.04%	0.08%	0.27%	29.38%	3.73%
Health	24.15%	0.27%	0.03%	0.09%	5.75%	4.95%
Events	3.14%	3.24%	0.15%	1.73%	73.61%	3.81%
Miscellaneous	6.28%	0.34%	0.01%	0.12%	10.28%	5.09%

The main part of the sample is concentrated in the categories of politics and law (41.06%) and health (24.15%). The analysis of interactions and views shows the events category is the one which has the highest interaction ratio (3.24%) and is especially marked in the views ratio (73.61%) and for shares per follower (1.72%). If we omit the science and culture categories –given the small number of cases conditions the results– we can see that both politics and law, and racism and xenophobia stand out in terms of views per follower (22.67 and 29.38% respectively). In both cases this corresponds to interaction ratios of around 1%. The posts about gender and group LGBTI have the lowest rates of interactions per view and comments or shares per number of followers, although the views per follower figures are higher than those from other categories such as health.

Table 8. Trend in the median for the views ratio, interaction ratio and interaction per view ratio (%)

	2017		2018		2019		2020		2021	
Interaction ratio (total number of posts)	0.02		0.01		0.03		0.06		0.03	
	All	***Top***	**All**	***Top***	**All**	***Top***	**All**	***Top***	**All**	***Top***
Interaction ratio (video)	0.07	*0.45*	0.04	*1.91*	0.05	*1.13*	0.03	*0.45*	0.01	*0.19*
Views ratio (video)	3.90	*20.72*	2.48	*58.35*	2.71	*25.40*	1.59	*11.98*	0.50	*3.25*
Interaction per view ratio (video)	2.82	*3.38*	4.06	*0.007*	3.55	*3.00*	4.02	*3.92*	7.50	*6.57*

The videos in the sample achieve an interaction ratio which is far higher than that for the videos as a whole, but if we link the interactions per view, instead of doing this with the followers, we can see that, apart from in 2017, the results are lower than for the videos as a whole.

> Ibero-American fact-checkers made ever more posts on Facebook and the video is an ever more significant type of content

6. Discussion and conclusions

With respect to RQ1, with the data obtained in the analysis we can state that Ibero-American fact-checkers made ever more posts on *Facebook* and the video is an ever more significant type of content. In the period between 2016 and 2021 there was a clear rise in the average number of posts made by every fact-checker (a 97.36% rise) and greater still was the average number of videos posted (+360.47%). Videos go from accounting for 3.66% of the whole content posted in 2016 to 8.54% in 2021, albeit this trend was not distributed evenly between the fact-checkers in the sample and there were marked differences in the drive for video.

Most of the videos posted are native (90.13%), which is in keeping with the *Facebook* policy for rewarding this type of videos in the *News Feed* as opposed to alternative external ones. If we focus on the annual trend there is a clear tendency to adapt to the algorithm: in 2016 26.76% of video posts were still "outside *Facebook*" (they were neither native nor live video) in 2021 this figure fell to under 4.5%. We can add to this the small amount of videos hosted by *YouTube* among which are those which had the highest interaction ratios. Another example of adapting to the algorithm as the data imply is the *Live Video* format: production in absolute terms grew year-on-year, especially from 2016 (the time at which they were first prioritised in the *News Feed* algorithm) to 2018. Despite this, although *Live Video* was considered as a priority format in the *News Feed* from 2016 and drove certain growth in producing contents with this format, generally speaking, it was not fully consolidated into the everyday work of the fact-checkers.

As for duration, the trend in the study period was clearly favourable to briefer video formats, and this was in keeping with the features of online video consumption (**Dafonte-Gómez**; **Míguez-González**; **Corbacho-Valencia**, 2020). This occurred even given that, since 2019 *Facebook* has prioritized videos over 3 minutes long. Not even any special effort to produce videos that reach at least one minute by the fact-checkers is observed. Videos under one minute account for 48.55% of the whole period and peak in 2021 (58.68%). At this point, however, we should remark on the slight fall in production of these kind of videos and a rise in the percentage of almost all the other groups of longer duration in 2020, after updating criteria on the most favourable duration for appearing in the *News Feed* and within the context of a 44.52% rise with respect to 2019. This may indicate that video production from the fact-checkers was to an extent influenced by the criteria recommended by *Facebook*. In relation to this, the sample of videos with the best interaction ratios, the presence of pieces over one-minute-long are far more frequent than in the total amount of videos: specifically, the category between one minute and 2:59 is the most abundant from 2019. This may be linked to the algorithm favouring these videos by giving them more visibility, among other possible factors.

Therefore, as for RQ2 and how *Facebook* criteria influenced the *News Feed* settings, we could see that prioritising native videos had an obvious and permanent effect on the contents the fact-checkers produced. Meanwhile, prioritising live video did not lead to them adopting this generally, nor long-term. The policies regarding the optimal duration for the videos coincided with irregular and temporary variations in the most frequent durations. Although there was a clear predominance of contents of under one minute (not recommended) in terms of production, it is true that among the videos with the best interaction ratios, the durations *Facebook* recommends have a greater presence than in the group as a whole. In addition, the increase in video duration is significantly, albeit slightly, related to the fall in interactions per view (RQ3). Therefore, we considered, although *Facebook* gives precedence to the reach formats have and durations which increase the amount of time users spend on the platform, fact-checkers create content in which they must combine the rules of the "visibility game" (**Cotter**, 2019) in different proportions according to what they consider will be better received by their audiences and more appropriate for their purposes.

Looking at the conclusions concerning RQ3 in more detail, the results in terms of the interaction ratios (average success in relation to *Facebook*) show that this indicator is especially linked to the number of likes and shares, which stand out from the other interactions. In turn, the act of sharing, an essential action in the organic distribution of contents on networks, is closely related to likes and comments, but also to love, wow and angry, as opposed to other kinds of possible reactions. These results are in keeping with previous research on the link between sharing and emotions, which grant contents which elicit intense emotions (both positive and negative ones) greater capacity to go viral (**Dafonte**, 2018). They are also related, to a certain extent, with the fact that the *Facebook* algorithm for some years now has rewarded controversial content with greater visibility (**Horwitz**; **Seetharaman**, 2020). Other elements which show the interest a content creates are the comments, which are linked to likes, shares and ha ha, love and angry.

> Software for automated contents filtering on the social networks is crucial for examining the changes in the information ecosystem model but constitutes a variable which is difficult to access and understand

As for the content analysis applied to the sample of the most successful videos, the presence of native videos increased with respect to the total number of videos, while those hosted on external platforms such as *YouTube* fell remarkably. The presence of those between 1:00 and 4:59 were also prominent in the samples of the most successful videos which corresponded proportionately to the volume of production. Both circumstances coincided with formal aspects rewarded by the *Facebook* algorithm, and the results from Spearman´s correlation coefficient, a longer duration did not have a negative effect on the views or interactions rations (although it did on the interactions per view).

> In the sample of videos with the highest interaction rate per fact-checker, short videos without a presenter but with at least one expert tend to dominate. However, both the relevance of the horizontal format and the high proportion of videos that are incomprehensible without sound denote a production not particularly adapted to mobile consumption

Regarding the variables related to video production we believe it is remarkable that in most there was no presenter and in the vast majority (82.13%) there was at least one expert, data which are a far cry from research from videos on other social networks (**García-Marín**; **Salvat-Martinrey**, 2022). Both the predominance of the horizontal format, and the large amount of videos that are incomprehensible without sound, show production is not especially adapted to consumption on mobile phones.

A clear dominance of posts was observed that were considered to be informative as opposed to those strictly concerning fact-checking: rebuttals, positive verifications and literacy. The results did not match those obtained by **Míguez-González** and **Dafonte-Gómez** (2022) in terms of the predominant category (rebuttals, in their study) but they did coincide with a greater proportion of rebuttals than positive verifications. However, it must be stated that while **Míguez-González** and **Dafonte-Gómez** (2022) base their results on constructed week sampling over a year, we focus on the most successful posts, and in this respect, the information category in our research obtained the best interaction ratios, comments, shares and views, which explains their greater presence in the sample. With respect to the topics politics and health, they are clearly predominant. They have percentages which are very similar to those obtained by **Míguez-González** and **Dafonte-Gómez** (2022) (41.84% and 29.59 respectively) and also match those from **Ceron**, **De-Lima-Santos** and **Quiles** (2021), and **García-Vivero** and **López** (2021). Likewise, politics stands out as the main topic in the research by **Bernal-Triviño** and **Clares-Gavilán** (2019); **Blanco-Alfonso**, **Chaparro-Domínguez and Repiso** (2021); and **Guallar** *et al.*, (2020). As for other topics which are less abundant in the sample, the high ratios of interaction and views of events/catastrophes stand out, which may be linked to relevance, unpredictability and the tragic nature of the topics dealt with and the high rate of views- and, to a lesser extent, interactions, the topics of racism and xenophobia receive.

Regarding RQ4, the results on the ratio of views and interaction rates match the data provided by **Newberry** (2012) on the fall in the organic reach which has accelerated since 2018. The trend in the ratio of views and the rate of interaction gained by videos posted by the fact-checkers suggest that the changes made by *Facebook* in the settings criteria for the *News Feed* which show each user over the years (and especially within the study period) have had important consequences. Firstly, the ratio of views obtained by the fact-checkers for their videos underwent a fall of 87.18% between 2017 and 2021. Secondly, while the variation in the general interaction ratio shows a positive albeit slight trend within the period the variation in the interactions ratio for the videos fell by 87.71% in the same period, with especially sharp falls in 2018, 2020 and 2021.

Although, generally speaking the interaction ratio is low in the contents posted by the fact-checkers, with video, the declining reach of the results between 2017 and 2021 is patent. We also see that the same videos which obtain a higher amount of interactions in terms of the amount of followers do not stand out in terms of the proportion of interactions concerning views, although looking at the videos as a whole, there is a significant positive, slight correlation between both ratios (0.387). Even so, the interactions per view ratio improves year by year since 2019, both in the sample and the videos as a whole. In short, more interactions per view are obtained, but fewer views and interactions per follower. This may be linked to a better distribution among audiences who do not follow the fact-checker. With this "algorithm reward" there is a loop in which views feed interactions, which feed views, in turn.

Lastly, it is especially remarkable that, from our point of view, which although Mosseri insisted in 2018 (**Vogelstein**, 2018) that video is a type of content which creates fewer interactions, our results show that this format obtained a greater rate of interaction than that for the posted contents as a whole from the fact-checkers until *Facebook* made changes to its *News Feed* in 2018. From then onwards it began to decline until falling below those for the posts as a whole from 2020.

Although the research provides a topical and formal characterisation of the most successful videos posted by Ibero-American fact-checkers on *Facebook* between 2017 and 2021, and explores in detail previous research results, we believe its main contribution comes from its comprehensive anlaysis of video production since 2016 in order to plot a trend in categories, durations and results obtained in terms of interactions and views. Although with the methodology used (and the opaqueness of *Facebook* regarding how their algorithms work) we cannot rule out other types of variables that have not been contemplated in this study may have had an influence on the trend in video production from the fact-checkers

and on their reach, we do believe it manages to give data-based indications on the influence of criteria outside the inherent features of the contents, which affect their visibility on *Facebook*, in accordance with successive changes in its algorithm. In this way, although we believe it is important to keep exploring the features of the most successful contents for fact-checking, we believe it is essential in future research to bear in mind the control any social network has on what reaches users in an environment the latter perceive as being neutral.

> Although Mosseri insisted in 2018 that video is a type of content that, by its nature, generates fewer interactions, the results show that it was obtaining a higher interaction rate than the set of content published by the fact-checkers until *Facebook* made changes to its *News Feed* in 2018

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