

# Impact of the COVID-19 pandemic on the Spanish public universities' YouTube channels

## *Impacto de la pandemia de la COVID-19 en los canales de YouTube de las universidades públicas españolas*



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### **Abstract:**

The university system has had to unexpectedly face a complicated process since Spain's first state of alarm was decreed throughout the 2020/2021 academic year. This longitudinal study focuses on analysing the impact of the pandemic on the YouTube channels of Spanish public universities. To this end, data was collected on the presence, influence, and intensity of each YouTube channel, and we identified the themes of the videos shared during the study period. The videos with the most views have also been analysed to determine the content type with the most significant impact. The results indicate that from March 2020 until July 2021, the activity on these channels

### **Resumen:**

*Desde que se decretó el primer estado de alarma en España y durante el curso 2020/2021, el sistema universitario ha tenido que hacer frente de forma inesperada a un proceso particularmente difícil. A partir de un estudio longitudinal, empleando el análisis de contenido, en este artículo se analiza el impacto de la pandemia de la COVID-19 en los canales de YouTube de las universidades públicas españolas. Para ello, se han recopilado datos relativos a la presencia, influencia e intensidad de cada canal de YouTube y se han identificado las temáticas de los vídeos compartidos en el periodo de estudio. Asimismo, se han analizado los vídeos con más reproducciones para determinar el tipo de contenido que logra mayor re-*

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increased, mainly in terms of subscribers and views. It also confirms that COVID-19 monopolised much of these channels' content during the first state of alarm, followed by a decreasing trend. Thus, the COVID-19 pandemic transformed public universities' use of their YouTube channels. In addition, this situation also altered the channels' consumption trends.

**Keywords:**

Public university; YouTube; online video; COVID-19; Institutional Communication.

*percusión. Los resultados indican que desde marzo de 2020 hasta julio de 2021 aumentó la actividad en estos canales, principalmente el número de suscriptores/as y de reproducciones. Asimismo, se confirma que la COVID-19 monopolizó buena parte del contenido de estos canales durante el primer estado de alarma, pero después sigue una tendencia decreciente. Por tanto, puede concluirse que la pandemia de la COVID-19 ha influido en el uso que las universidades públicas han hecho de sus canales de YouTube y ha alterado las tendencias de consumo de los mismos.*

**Palabras clave:**

*Universidad pública; YouTube; video online; COVID-19; Comunicación Institucional.*

## 1. Introduction

The spread of the SARS-CoV-2 virus has caused an unprecedented global crisis, with enormous consequences worldwide (Núñez-Gómez et al., 2020). All sectors have been adversely affected, especially education, in which over 91% of students have been impacted worldwide (Acosta et al., 2020).

Three days after the World Health Organization (WHO) declared the outbreak of this coronavirus strain as a pandemic, the Government in Spain decreed the first state of alarm on 14 March 2020, mandating a lockdown of the entire population for the first time in democracy and suspending non-essential activities that could pose a risk of contagion. The Royal Decree 463/2020 on 14 March declared a state of alarm for managing the health crisis brought about by COVID-19; consequently, face-to-face classes were suspended and replaced by online classes at all levels as a measure to contain the virus in the educational area. This meant the total closure of education centers in the State, including universities. Universities in Spain have developed an organisational structure and educational model essentially oriented towards face-to-face classes (Torrecillas, 2020), which suddenly had to deal with this paradigm shift (García-Peñalvo, 2020).

The Minister of Universities and the Conference of Rectors of Spanish Universities (CRUE) took urgent measures to support the digital transition a few days after the state of alarm was decreed, launching 2020 Connected: The University at home on 20 March, a web platform with online resources for education and investigation and psychological support for the university community. Likewise, each university implemented specific measures and support services to face the situation in order to continue teaching and doing other university activities (CRUE, 2020).

The first state of alarm in Spain was extended until 21 June 2020; therefore, the 2019/20 academic year ended telematically. The beginning of the 2020/21 academic year continued to be marked by the health crisis and the restrictions to contain the spread of the virus. Education centres had to ensure prevention and hygiene measures in classrooms and a minimum safety distance of 1.5m under the Royal Decree-Law 21/2020 of 9 June and the *Measures of prevention, hygiene and promotion of Health Facing COVID-19 for University Centres in the 2020/2021 Academic Year*, its first version was published 10 June 2020, and the definitive one was published on 11 March. This meant that different educational scenarios had to be considered, and

a blended model (face-to-face/non-face-to-face) was chosen. At first, multimodal teaching was generally preferred. Still, this modality was substituted with non-face-to-face classes in response to the evolution of the epidemiological situation over that academic year. Shortly after the academic year had commenced on 25 October 2020 another state of alarm was declared due to the worsening of the health crisis, reinforcing restrictions throughout Spain to contain the spread of SARS-CoV-2 infections, which was extended until May 2021. Following this date, the restrictive protective measures were gradually eased thanks to the advances in the vaccination campaign (Güell, 2021). Thus, universities chose to implement face-to-face classes for the start of the 2021/2022 academic year after the meeting on 3 September 2021 between the Minister of Universities Manuel Castells and the CRUE. However, the context of uncertainty and anxiety continued until the start of the 2021/2022 academic year. The abrupt change to the online model in March 2020 and the flexibility required to make face-to-face and online activities compatible the following year led to the university community's overexertion and work overload, resulting in criticism from students and faculties (Tejedor et al., 2020). This has inevitably contributed to the opening up of old debates about the Spanish university system, highlighting the urgent need to transform the traditional educational system (García-Peñalvo, 2020).

On the other hand, we cannot ignore the informative and communicative context in which the COVID-19 pandemic has occurred. Since March 2020, the media ecosystem has reflected the extraordinary global situation as communication activity has increased like never before (Gil-Ramírez et al., 2020). Media consumption has shot up (Sierra-Sánchez et al., 2021), in particular on social media and online video platforms (IAB Spain, 2020; 2021), as an information-hungry population is immersed not only in one of the biggest health crises ever experienced but also in what has been described as “the worst wave of disinformation in history” (Valera, 2020, cited by Aguado-Guadalupe and Bernaola-Serrano, 2020).

Given the circumstances, information is relevant in this context (Masip et al., 2020). The scientific community is one of the most reliable voices (Xifra-Triadú, 2020). In this sense, the public university is a public service guarantor for generating scientific knowledge (Simancas-González and García-López, 2016; Simancas-González and García-López, 2019), and has had the opportunity to act as a reliable source of information for the citizenry during this crisis (Mut-Camacho, 2020). Thus, it is worth noting that public universities have used social media during the COVID-19 pandemic as a direct communication channel with their audience. Private universities have not been included in this study. The public university is independent and differentiated from the former in regards to its ownership and social function (Díez-Gutiérrez, 2018).

This work focuses exclusively on YouTube because its users access it for entertainment, reliable information, and educational material (Orduña-Malea et al., 2020). It is the most used social network in the university area, while Facebook or Twitter are rarely used (Rodrigo-Cano et al., 2019). Moreover, YouTube is the leading video platform worldwide (Statista, 2020), with a 66.4% penetration in Spain (Association for the Investigation of Media [AIMC], 2021). Different studies state that it is “a relevant social network in the study of the changes in communicative dynamics experienced during this health crisis” (Gil-Ramírez et al., 2021, p. 124).

Thus, this research's main objective is to analyse the impact of the COVID-19 pandemic on Spanish public universities' use of YouTube channels and its implications. Specifically, we aim to:

- Examine the Spanish public Universities' activity and the evolution of the themes on their YouTube channels during the pandemic.
- Determine these YouTube channels' scope in this period.
- Detect the consumption trends on these YouTube channels during the pandemic.

So far, Sanz-Hernando and Parejo-Cuellar (2021) and Suing (2021) have published research on this topic. The former analyses the impact of the pandemic on the scientific dissemination units of Spanish universities during the first state of alarm. The first impact study of the pandemic was carried out in the Spanish universities' scientific dissemination departments during the first state of alarm in Spain; the latter, which is more focused on this research's subject of study, analyses the most viewed videos posted on YouTube between 16 March and 16 September 2020 by the most prestigious Andean universities. It was concluded that they did not play a prominent role in socially managing information at this critical time.

### *1.1. Universities and YouTube*

Universities' communication on social networks is a thoroughly studied topic, mainly in the United States (Valerio-Ureña et al., 2020), although "the research community has not yet been able to produce a fair picture of the YouTube video-sharing platform"<sup>1</sup> (Mesenguer et al., 2019, p. 2). This may be because YouTube is not an accurate source for info metric analysis, as Orduña-Malea et al. (2020) point out.

Different studies coincide in highlighting that although there has been an increase in universities' use of social media since networks started to gain visibility and presence on the internet over a decade ago (Ladogina et al., 2020), its effectivity is limited (García-García, 2018; López-Pérez and Lobo-Olvera, 2016). According to Simón-Onieva (2017), this could be the result of the universities' management of these platforms since they do not make the most of their interaction potential, nor do they share contents of interest to users. Instead, their approach is unidirectional and to (self) advertise. They must also focus on other determining factors to generate engagement, such as the style of communication or periodicity of publications (Zarco et al., 2016). García-García (2018) focuses more on strategic planning than management, highlighting universities' need to work towards some objectives and a social network communication plan, determined by the importance that university authorities give to digital communication.

However, universities' impact and presence on social networks are not uniform. The most prestigious research or teaching universities tend to have a more significant impact; the scientific or social content they share seeks to inspire and motivate users, while the remaining universities do not seem to follow this strategy, as they focus more on institutional promotion (Segura-Mariño et al., 2020). Likewise, it has been found that private universities in the United States have a higher budget for marketing strategies, allowing them to attract more followers than public universities (Valerio-Ureña et al., 2020).

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1 Translation by the authors.

On the other hand, universities' main platform is Facebook: while YouTube has a lower reach (Ladogina et al., 2020; Valerio-Ureña et al., 2020). This may be due to the high investment in creating high-quality audiovisual content, among other reasons. However, the investment is worthwhile because Internet users are most interested in online videos and share them the most on social networks (De-Lara-González and García-Avilés, 2019). Be that as it may, the number of university institutional channels as well as the amount of available videos has increased exponentially in recent years (Segarra-Saavedra et al., 2020; Ros-Gálvez et al., 2021), since “university managers have identified the opportunities that YouTube offers as a free access broadcast channel with global impact”<sup>2</sup> (Ros-Gálvez et al., 2021, p. 1). However, as noted above, only prestigious universities' YouTube videos have a high impact (Meseguer et al., 2019).

Generally speaking, universities use YouTube to generate a brand image (Guzmán-Luque and Del-Moral-Pérez, 2014; Martín-González and Santamaría-Llarena, 2017), which is, in turn, university communication management's main objective (Simancas-González and García-López, 2017). Guzmán-Luque and Del-Moral-Pérez (2014) identify that institutional promotion videos are the most shared content on their YouTube feed based on a sample of Ibero-American universities. Concerning Spanish universities Martín-González and Santamaría-Llarena (2017) point out that the most shared videos are institutional ones, followed by those of academic interest due to YouTube's relevance as a didactic tool (Mesenguer et al., 2019; Rodrigo-Cano et al., 2019). However, Spanish universities and research centres make little use of this social network for disseminating research (López-Pérez and Lobo-Olvera, 2016), although young people are becoming increasingly interested in science and inform themselves about it through platforms such as YouTube (García-Arnau, 2019).

Despite this scenario, this social network could play a significant role in universities' strategic communication, mainly due to students' acceptance (Ros-Gálvez et al., 2021). Students are one of the priority audiences on social networks (García-García, 2018) to the point that success on YouTube can be determined by the number of students enrolled in a university, among other factors (Segura-Mariño et al., 2020).

On the other hand, online videos are a growing trend (IAB, 2018), accounting for 80% of total traffic on the internet in 2021 (Vidyard, 2021). Audiovisuals are thus gaining more and more prominence as a form of communication and a consumer product as they fit perfectly with audiences' fragmented consumption (Wang, 2020) since words are processed more quickly, and viewing can be combined with other activities (Costa-Sánchez, 2017). It is also a highly recommended format for communicating any type of content, thus making it accessible and attractive (Acosta et al., 2020; Costa-Sánchez, 2017; Lara-González and García-Avilés, 2020).

In this sense, YouTube could be a channel for universities to broadcast their institutional, academic, and scientific information to stakeholders and an internal and external space for communication since it enables users to interact and participate. However, for YouTube to be more than a mere repository of university videos (Santamaría-Llarena, 2017), these institutions need to design a strategic communication plan (García-García, 2018), specifically for this social network and to invest more resources in audiovisual content creation and management.

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<sup>2</sup> Translation by the authors.

## 2. Methodology

This study used a descriptive methodology based on the objectives set out. Forty-eight public Spanish universities' institutional YouTube channels have been identified. The following two centres have been excluded due to their unique nature: The International University of Andalusia and The International University of Menéndez Pelayo (Registry of Universities, Centres and Degrees [RUCT], 2008). Each universities' main institutional account has been considered "since even in decentralised organisational models that may have thematic or area-based accounts, the principal account is that which has greater symbolic power and aligns with the general image of the institution" (Ure, 2016, p. 254).

Content analysis was used as the research technique, as it is the one that best fits the study's objectives and is the most used in communication research (Eoira and Barranquero, 2017), specifically for YouTube videos and content analysis (Aznar-Díaz et al., 2019).

The study's timeline includes the first state of alarm from the beginning until the end of the academic year 2020/2021, a particularly critical period for these institutions. We carried out a longitudinal study to evaluate the evolution of institutional channels on YouTube. Three periods of analysis were established (Table 1): the first state of alarm, the second state of alarm, and the period that took place between the end of the second state of alarm and the August holidays 2021, a non-working month in Spanish public universities.

**Table 1. Study periods**

Period of analysis	Date	Duration
First state of alarm	14 March to 21 June 2020	97 days
Second state of alarm	25 October 2020 to May 2021	194 days
After the end of the second state of alarm	10 May to 31 June 2021	81 days

**Source: created by the authors**

The primary data was gathered from each university's YouTube channel as shown in the analysis sheet (Table 2): year of creation, presence, influence, and intensity. The intensity of the communication corresponds to the number of videos published (López-Pérez and Lobo-Olvera, 2016). The number of subscribers has been taken into account to determine the presence of the universities on YouTube. We have counted the number of views of the channel's contents (Zarco et al., 2016).

On the other hand, according to Atarama-Rojas and Vega-Foelsche (2020), the videos' subject matter was considered an analysis variable since it is an essential communicative element of valuable content on social networks. The theme classification follows Guzmán and Moral's (2014) proposal based on the public universities' essential functions (teaching, research, outreach, and

institutional functions). After reviewing and viewing the videos, two more topics were added to this classification: COVID-19 and EvAU (Evaluation for University Access). These tests are carried out on university sites.

**Table 2. YouTube channels analysis sheet**

Variables	Definition
Year of creation	Year of the channel opening
Presence	Number of subscribers
Influence	Number of plays
Intensity	Number of videos
Video Themes	Teaching: teaching materials and university teaching Research: scientific dissemination and knowledge transfer Outreach: dissemination of cultural, social, sporting, or social responsibility activities Institutional: university governance, institutional events, and promotional videos EvAU: Evaluation for University Access COVID-19: COVID-19 SARS-CoV-2 pandemic, its effects, and consequences on society

**Source:** created by the authors based on Guzmán and Moral (2014) and López-Pérez and Olvera-Lobo (2016) and Zarco et al. (2016)

On the other hand, the most viewed videos on the university YouTube channels during the three periods of study in the pandemic (48 videos/period: 144 videos) were identified and analysed to verify the types of content with the most significant impact as Bernal and Carvajal did (2019). The analysis variables correspond to the following parameters: date, duration, video theme (Table 2), and engagement rating, determined from Ballesteros-Herencia (2019) as the metric percentage derived from the positive votes minus the negative votes, divided by the number of plays.

All data was gathered during the week after each period studied to avoid bias. Finally, the data was tabulated using SPSS Statistics 24.

### 3. Results

#### 3.1. Primary data on the Spanish public universities' YouTube channels

The number of YouTube subscribers from the 48 public universities increased significantly from the end of the first state of alarm (21 June 2020) until 31 July 2021, from 747,736 to 980,060. The average number of subscriptions to the Spanish public university YouTube channels stood at 10.84 subscriptions/day throughout the study period. In contrast, since these public

universities had previously created their channel (the average creation date was 11 November 2009), the average number of subscriptions a day was 4.46.

From the time the universities set up their YouTube channel until the first state of alarm was decreed, the average number of plays/day on these channels was 1,192.83, while there was an average of 13,487.65 plays a day from then until 31 July 2021. Regarding these channels' influence during the pandemic, plays have increased generally in this period 19.97% (in absolute terms, 44,308,656), from 221,866,051 to 266,174,707 plays.

The polytechnic university of Valencia's YouTube channel had the most significant presence and influence among the public universities at the end of this study and has accumulated the highest number of followers during this period (55,000) and the most plays (17,961,695). Other polytechnic universities follow suit, such as the Polytechnic University of Madrid, with 23,600 subscribers and a total of 6,922,041 plays. In contrast, the Universidad Pablo de Olavide (UPO) did not increase its subscribers, and the University of Las Palmas de Gran Canaria only had 22,637 plays.

The universities' YouTube channels published 0.43 videos/day on average until the first state of alarm, while the intensity of the channels' publications increased to 0.67 videos/day during the pandemic.

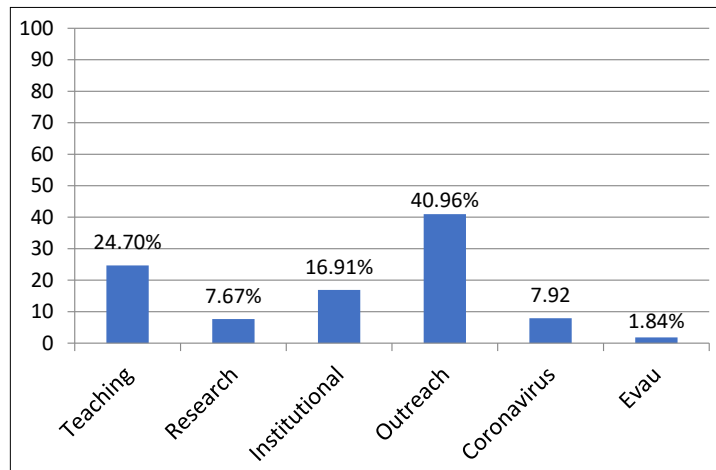
Each university posted an average of 0.63 videos/day in the first period analysed; in the second period, the frequency of publications was 0.64 videos/day; publications increased by around 10% in the third period with an average of 0.75 videos/day by channel. Thus, we can identify an upward trend regarding the intensity of publications; however, not all universities follow this pattern; the University of Cádiz, in particular, did not post any videos on its YouTube channel from 4 March 2020 to 20 September 2021. On the contrary, the Miguel Hernández University of Elche posted 2,136 videos. It was the Spanish public university with the most content on its YouTube channel, with over 16,000 videos.

### *3.2. Themes by period analysed*

#### **First state of alarm**

The public universities' central theme on their YouTube channels is university outreach, as shown in Figure 1 (40.96%), followed, in order of importance, by teaching (24.70%), institutional (16.91%), COVID-19 (7.92%), research (7.67%) and EvAU (1.84%) content.



**Figure 1. Public universities' YouTube channel themes during the first state of alarm**

Source: Created by the authors based on YouTube

It is essential to note that most university outreach videos are proposals for activities at home or focused on issues such as solidarity in the pandemic, psychological support, remote working, etc. Teaching videos are mainly tutorials on virtual teaching resources for students and teachers.

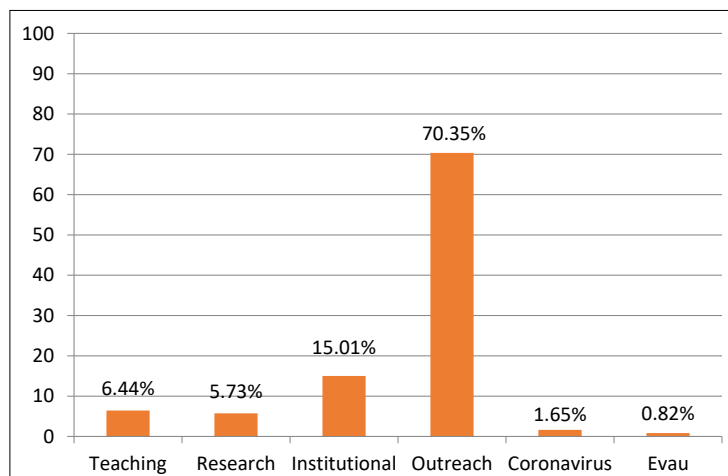
Regarding institutional topics, apart from promotional videos for undergraduate and post-graduate degrees, videos of top university leaders inform the public or convey a particular message concerning the situation caused by COVID-19. Similarly, scientific dissemination contents are often linked to the research on COVID-19. Regarding the EvAU, the videos refer to the security measures and protocols for holding the exams.

### **The Second state of alarm**

University outreach is still the Spanish public universities' YouTube channels' central theme, although this percentage increased by 29-31% in this period, from 41.04% to 70.35% (Figure 2).

Therefore the prominence of other topics decreased, although teaching declined the most (6.44%), which mainly featured videos on teaching resources for specific subjects. On the other hand, the institutional theme (15.01%) focused on disseminating courses, congresses, and conferences, not included during the first state of alarm.

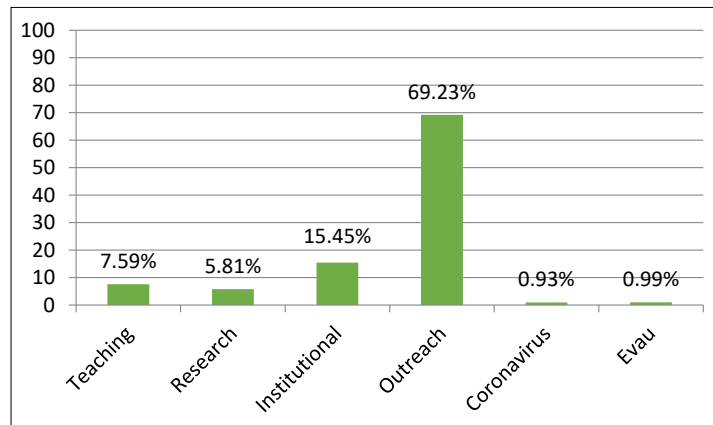
**Figure 2. The themes of Public universities' YouTube channels during the second state of alarm**



Source: Created by the authors based on data extracted from YouTube

### End of the 2020/2021 academic year

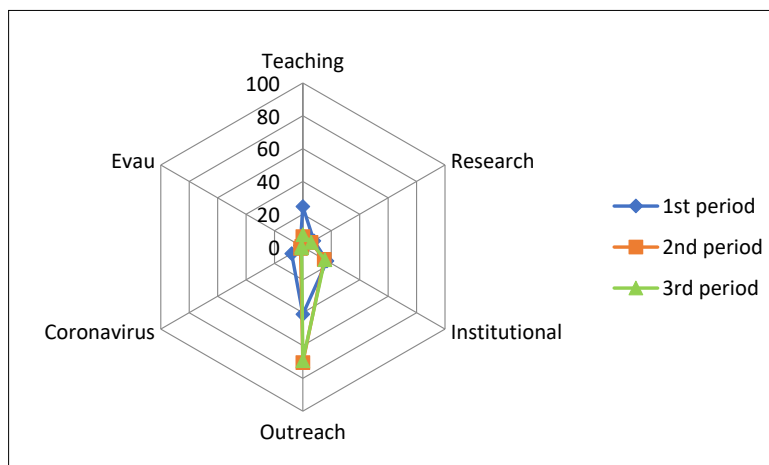
Outreach was the main topic in the third and last period analysed, followed by institutional content, which increased slightly compared to the previous period, as did teaching (Figure 3). Concerning institutional content and promotional videos of university authorities, there are publications on university elections, graduations, and investitures of university members, among others. On the other hand, the COVID-19 theme continues to fall. At the same time, the content on the EvAU increases slightly compared to the previous period since these exams are held in June and July, so universities offer information about these exams.

**Figure 3. Themes from the public universities' YouTube channels before the 2020/2021 academic year's summer vacations**

Source: Created by the authors based on the data extracted from YouTube

### 3.3. The most prominent themes in the three periods analysed

To summarise (Figure 4), teaching becomes particularly relevant on public Spanish universities' YouTube channels during the first state of alarm compared to later in the pandemic. The theme of COVID-19 also stands out in the first period but subsequently declines. In contrast, university outreach has less of a presence on the institutional channels during the first months of the pandemic. However, once the pandemic is more stabilised the contents on this topic increase since these types of activities are resumed and disseminated. Finally, it can be seen that there are few differences in the university YouTube channels regarding research, institutional, and EvAU topics in the three analysed periods. However, more videos were published in the first period in all categories.

**Figure 4. Evolution of the themes in the different periods analysed**

Source: Created by the authors based on YouTube

### 3.4. Most viewed videos during the pandemic

The most viewed videos from 14 March 2020 to 31 July 2021 are related to university outreach in the first place (70 out of 142: 49.3%) and, secondly, an institutional nature (46 videos out of 142: 32.4%).

The number of most viewed videos was significantly higher during the first period. In this case, the number of plays is almost three times higher than in the second period (2.8 times more) and six times higher (6.0 times more) than in the third period (Table 3).

The average time of the most viewed videos is 14 min 35 seconds in the first period; in the second, it is 56 mins and 14 seconds, and 41 mins and 33 seconds in the third period (Table 3).

Regarding the videos' number of likes, the public universities' most viewed videos reached an average of 136.8 likes in the second period, followed by 65.1 on average in the third period and 62.77 on average in the first period. It is worth noting that although there were the most plays in the first period, it was the period that generated the fewest positive votes and comments (Table 3). As a result, the engagement rating is much lower than the other two periods. Regarding the comments in the first period, they are often negative comments about the university.

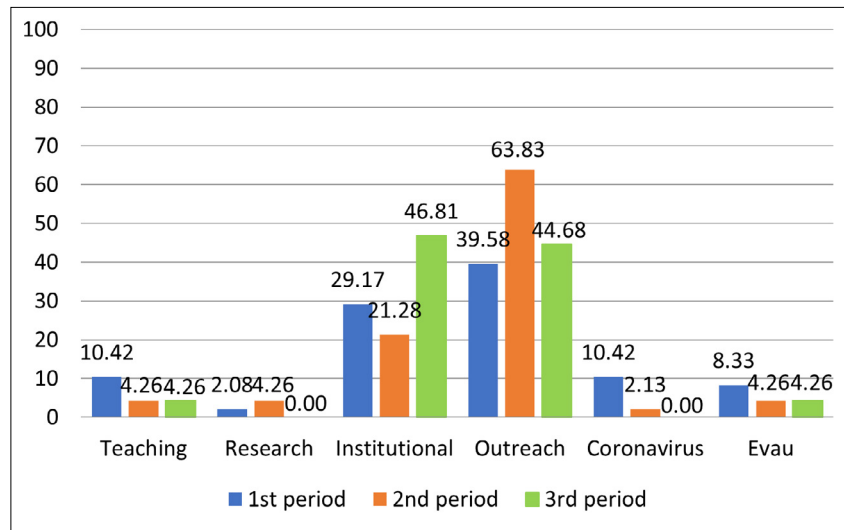
**Table 3. Comparison of the most viewed videos in the three analysed periods**

Period	Total number of plays	Duration of the video (average)	Total Likes	Total Negative votes	Total Comments	Rating %
1st period	27,379	14'35"	3.013	486	148	9.23
2nd period	9,770	56'41"	6.567	545	198	61.64
3rd period	4,528	41'33"	3124	148	302	65.72

**Source:** Created by the authors based on data extracted from YouTube

Considering the 3 study periods (Figure 5), teaching, COVID-19, and EvAU topics were the most viewed during the first period (10.42%, 10.42%, and 8.33%, respectively). However, the outreach theme gained importance in the second period (63.83%). Institutional videos are the most viewed (46.81%) in the third period, even more than those on outreach, while there were no videos on research or COVID-19 among the most viewed videos.

**Figure 5. Themes of the most viewed videos on the public universities' YouTube channels during the analysed period**



**Source:** Created by the authors based on the data extracted from YouTube

#### 4. Conclusions

The COVID-19 pandemic may have affected the activity of Spanish public universities' YouTube channels, and impact, which has been studied in-depth in this research. The results show that from the time the first state of alarm was declared until 31 July 2021, there has been a significant increase in plays and subscribers to these channels, while there has been less of an increase in the number of publications.

Regarding subject matter, outreach and institutional videos have been the most prominent on YouTube channels during the COVID-19 pandemic. This confirms what previous studies have highlighted regarding the type of content published by the university YouTube channels and their main objective: to generate a brand image (Guzmán-Luque and Del-Moral-Pérez, 2014; Martín-González and Santamaría-Llarena, 2017; Simón-Onieva, 2017). Similarly, it has been substantiated that universities make little use of YouTube for disseminating research.

After focusing on the first period of study in-depth, it has been observed that a high percentage of teaching videos are published compared to the two subsequent stages, and is the second subject by number of videos. On the other hand, it has been found that the institutional and university outreach contents correspond to COVID-19 during the first state of alarm. Proposals related to this topic (psychological support, solidarity, institutional messages, etc.) prevailed in both cases. Later on, the publications became more diverse, as cultural and academic events were publicised and broadcast on YouTube channels. It was also found that the research categories and EvAU were affected by COVID-19, therefore making it a transversal variable that has determined and affected all these channels' content in the first period.

In contrast, the prominence and transversality of COVID-19 have progressively decreased as the pandemic evolved in the second and third periods of study, returning to a situation of "normality." In this sense, YouTube channels evolved. The universities posted several (online) teaching videos and COVID-19 videos in the first period, while these contents declined in the second and third periods. In contrast, outreach content is lower in the first period. It later increases once the health situation allows online and face-to-face university activities to resume from the beginning of the 2020/2021 academic year.

Regarding consumption trends, the influence of the most viewed videos was more significant during the first state of alarm than in the later stages. This could be related to the fact that the population was in lockdown during the first period, and the level of uncertainty was higher. However, we must highlight that the high number of plays contrasts with low engagement and the negative comments, mainly made by students to show their disagreement with the universities' management of COVID-19.

On the other hand, it is noted that as the pandemic progresses, users watch longer videos. During the first state of alarm, videos tend to be shorter, considering the available resources. But once graduations, investiture ceremonies, inaugurations, or other university events begin to take place, these are broadcast on YouTube, and therefore, the average duration of these channels' contents increases significantly.

Regarding consumption trends related to the subject matter, the results confirm that Internet users prefer institutional and university outreach videos.

Coinciding with other authors such as García-García (2018) and based on different consumption patterns, university students among universities' most important interlocutors on social networks.

Finally, as indicated by previous studies (Meseguer et al., 2019, Segura-Mariño et al., 2020, Valerio-Ureña et al., 2020), a significant issue to consider is the university YouTube channels' lack of uniformity in their presence and impact. This could be regarded as one of the research's limitations. Future studies could provide more detailed results based on a classification of universities according to behaviour and reach on YouTube. In the case of Spanish public universities, we have observed that those with a polytechnic profile tend to manage their YouTube channels better during the pandemic. These universities have published more quality research and teaching videos during the study period, which is particularly useful for students, reaching a higher number of followers and obtaining more views. The remaining universities do not seem to have a defined strategy for posting on YouTube and have carried out a resistance strategy characterised by irregular quantities, quality, and frequency of content, especially during the first state of alarm.

It can be concluded that the management of universities' YouTube channel contents during the pandemic is a reactive response to the crisis based on the above since they have adapted the content to the needs at the time and the evolution of the health situation rather than to a previously defined crisis management strategy. In this sense, we agree with Suing (2021). Spanish public universities have not played an essential role in the social management of knowledge on YouTube during this health crisis due to the type of content that has been prioritised on this social network.

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## 6. Specific contributions from each author

	Name and Surname
Concept and design of the work	Esther Simancas and Tania Blanco
Methodology	Esther Simancas
Data collection and analysis	Tania Blanco
Discussion and conclusions	Esther Simancas and Tania Blanco
Writing, formatting, revision and approval of versions	Esther Simancas and Tania Blanco

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