# Teachers and YouTube: The use of video as an educational resource[i]

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**Abstract**
The appearance of YouTube in 2005 transformed the possibilities of using video as an educational resource. Our research aims to understand the use of videos in today's education from the teachers' point of view and to determine the factors that influence its implementation in the classroom. Through a survey study of 1,150 teachers, we delve into the following items: the number of videos they use, the selection criteria, the types of content of the videos, the agent that proposes them, the most used platforms, and the level of satisfaction in their implementation, relating them to the variables of sex, age, educational stage and type of educational centre. The results show how teachers are currently using the video resources in their lessons. We also conclude that the variables of educational stage and type of educational centre are significant in the implementation of videos in education. Our research offers reliable data to adapt teacher-training plans to educational reality.

La comparsa di YouTube nel 2005 ha trasformato le possibilità di utilizzare il video come risorsa educativa. La ricerca mira a comprendere l'uso dei video nell'educazione odierna dal punto di vista degli insegnanti e a determinare i fattori che influenzano la sua implementazione in classe. Attraverso un sondaggio condotto su 1150 docenti, approfondiamo le seguenti voci: numero di video che utilizzano, criteri di selezione, tipologie di contenuti dei video, agente che li propone, piattaforme più utilizzate e livello di soddisfazione nella loro implementazione, correlandoli alle variabili di sesso, età, fase educativa e tipo di centro educativo. I risultati mostrano come gli insegnanti stiano attualmente utilizzando la risorsa video nelle loro lezioni. Concludiamo anche che le variabili della fase educativa e del tipo di centro educativo sono significative nell'implementazione dei video nell'educazione. La ricerca offre dati affidabili per adattare i piani di formazione degli insegnanti alla realtà educativa.

**Keywords:** technology uses in education; YouTube; videos; educational resources; teaching methods

**Parole chiave:** usi della tecnologia nell'istruzione; YouTube; video; risorse educative; metodi di insegnamento


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## 1. Introduction

In recent decades, we have been able to observe the increasing impact of technology in most areas of society. In education, we have seen a significant movement to integrate the different potentialities of technology in daily academic life. The videos are highlighted as being among the most important resources in the technological-educational field and are used in order to improve academic performance through their wide social influence (Bardakci, 2019).

The use of video as an educational resource has grown in recent years, becoming practically irreplaceable in academic situations that are in need of an online or distance methodology for the development of the teaching-learning process, as we have been able to verify during the emergency period experienced due to the COVID-19 pandemic.

Historically, the use of video in education has been transformed depending on technological possibilities, with its implementation being focused on video case-studies (Herreid, 1997), video-based self-reflection (Van Es & Sherin, 2002), video podcasts (Heilesen, 2010; Kay, 2012) or video clips (Berk, 2009). However, since 2005, the year the YouTube platform was created, the use of video in education through the Internet has increased, becoming one of the most widely used resources in education today, due to technological change and the new ways of learning by students (Rangarajan, Begg, & Somani, 2019).

### *1.1 Conceptual framework*

The use of video is supported by numerous research and pedagogical principles that we can find throughout the history of education. Among them, we can highlight the sociocultural theory of Vygotsky (1978), where the videos would be part of social interaction in the cognitive development of the students, along with the empowerment of scaffolding. These principles have favoured the construction of the curriculum that takes into account constructivist currents (Jaramillo, 1996), where video can play a fundamental role. For this reason, the implementation of the video generates new learning contexts that shape and transform the mental processes promoted by teaching (Cole & Wertsch, 1996). Furthermore, vicarious learning theory (Bandura, 1969) supports the use of videos through the process of observation by users of examples or experiences offered by other people. In this way, this learning process allows the user to grow their own self-taught and autonomous capacity.

In recent years, the use of the flipped classroom methodology (Bergmann & Sams, 2012) in education stands out, which by modifying the traditional structure of the teaching process, tends to focus its effectiveness on the use of videos by students from their homes.

### *1.2 Literature review*

The latest contributions to the literature regarding the use of videos in education show us fundamental aspects in the process of programming and implementing audio-visual resources in lessons.

Firstly, students prefer the use of videos in their own education, as long as they are not very long (Alpert & Hodkinson, 2019) and they are closely related to areas familiar to them that promote positive feelings, which shows a relationship between the affective feeling of the users and their preferences when choosing videos (Choe et al., 2019). Furthermore, there is research that confirms that students appreciate the use of videos as part of


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their training due to their usefulness (Gillanders, Rodríguez-Fernández, & Eirín-Nemiña, 2019; Laugerman & Saunders, 2019; López-Rodríguez & Barac, 2019; Zaneldin, Ahmed, & El-Ariss, 2019), indicating a positive level of satisfaction with the implementation of videos in their lessons due to the motivation generated by the videos and the ability they have to explain concepts and provide real examples and contexts (Tiernan & O'Kelly, 2019).

Secondly, regarding the factors that determine the use of technology, we can highlight the following: age and educational level, where younger teachers and teachers with a higher educational level use technology more (Meyer & Xu, 2009), the number of students, where more technology is used with small groups (Kenney & Newcombe, 2011), and the educational area of teaching (Jenkins et al., 2010). If we focus on the use of videos in education, we can highlight the following significant variables: the duration of the videos, with shorter ones having the highest impact (Langworthy, 2017; Pattier, 2021), time management skills of students (Fresen, 2010), teacher-educators, courses and discipline (Arya, Christ, & Chiu, 2016), or the type of teaching used where the online format promotes more use of videos than the face-to-face format (Kampov-Polevoi, 2010).

Thirdly, it is currently important to cite the great impact of edutubers (creators of audiovisual content on the YouTube platform) in the use of videos from both formal education and informal education (Pattier, 2020). The most important investigations that have been carried out on the subject highlight the reliability, rigor and credibility of the content that youtubers upload (Vizcaíno-Verdú, De-Casas-Moreno, & Contreras-Pulido, 2020) and the success factors of their videos, such as the way to explain and the image (López, Maza-Córdoba, & Tusa, 2020), or the structuring of the videos and the editing process (Pattier, 2021).

### *1.3 Advantages and disadvantages*

On the one hand, literature shows us the following advantages in the use of videos in education: improvement of the understanding of content and, therefore, in the students' grades and their academic performance (Bohloko, Makatjane, George, & Mokuku, 2019; Fuller & France, 2016); promotion of digital literacy, as for example through stop-motion videos (Sun, Wang, & Liu, 2017); a reduction in stigmatizing attitudes (Zahn et al., 2014); the improvement of communication skills (Karami, 2019); motivation and learning (Yildirim, 2018); reflection and improvement of professional skills (Qarabash et al., 2019); the relationship of theory and practice (Klein & Taylor, 2017); accessibility and inclusion through captioning (Youngblood, Tirumala, & Galvez, 2018); self-reflection in teaching practice (Bautista, Tan, Wong, & Conway, 2019), or the possibility of the students' experience of watching themselves and their peers on video (Leung, Chan, & He, 2019), among others.

On the other hand, it is also important to show the studies that highlight the limitations and disadvantages of the use of videos in education: the best positioned videos on YouTube are not always the highest quality, truthful or relevant (Beltrán-Pellicer, Giacomone, & Navarro, 2018); the reality of post-truth, in which commercial, political, ideological or propagandistic interests prevail, on many occasions, over the search for truth (Gutiérrez-Martín, Torrego-González, & Vicente-Mariño, 2019); the inattention of the students during the viewing of the videos (Zureick, Burk-Rafel, Purkiss, & Hortsch, 2018); the necessity of having equipment and a lack of control over learners (Behesti, Taspolat, Kaya, & Sapanca, 2018); the difficulty of analysing social media due to the influence of many factors (Thelwall, 2018); or the reduction in socialization (Albrecht, 2017).


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### *1.4 Research questions*

As the literature shows, video is a powerful educational resource that can improve the teaching-learning process. Studying, therefore, the current use of video in education can open spaces for reflection, modification and rethinking of teacher training plans to meet a clear reality in both formal and informal education. Furthermore, due to the different contexts in which the teaching-learning process can take place, it is important to dwell on the correlation existing in certain variables to take them into account when establishing plans for the implementation of video as an educational resource. For all this, we focus our analysis on the following research questions:
Firstly, what is the current use of videos in education? To help us consider this, this question is divided into several levels: the number of videos used, the selection criteria, the type of content of the videos, the agent proposing them, the most used platforms and the level of satisfaction.
Secondly, what variables condition the implementation of videos in education by teachers? For this, we focus on the following aspects: sex, age, educational stage and type of centre.

## 2. Materials and methods

### *2.1 Instrument design and validation*

To answer our research questions, the survey was chosen as the most appropriate instrument to obtain reliable and large-scale data.
The survey was made up of the following questions: (1) How many videos do you use in class per week? This elicited the following response items: *I don't usually use them, between 1 and 5 videos a week, Between 6 and 10 videos a week, Between 11 and 15 videos a week, More than 15 videos a week;* (2) What selection criteria do you follow to choose the educational video? The following alternate answers resulted: *Clarity, Motivation, Subtitles, without errors, Quality, Authorship, Originality and creativity, Relevant duration, Relevance to objectives, I do not use videos, Others;* (3) What content forms the fundamental basis of the videos you use in class? The following options were offered: *Songs, Explanatory videos, Tutorials, Examples or experiences, Cartoons, TV shows or series, Films, Radio programmes, Documentaries, another teacher's lesson, I do not use videos, Others*; (4) Who fundamentally proposes the videos? The responses to this were as follows: *Teachers, Students, Parents, Educational centres, I do not use videos, Others;* (5) What platforms do you use to search the videos? The range of responses to this were: *YouTube, Educatube, Edublogs, Vimeo, Khan Academy, Instagram, NeoK12, Las 400 classes, I don't use videos, Others;* (6) How satisfied are you with the use of videos in your classes? The following answers were received: *Very high, High, Normal, Low, very low*. The questions that accepted multiple answers were: 2, 3, 4 and 5. The dependent variables of our research are (1) Sex: *male* or *female*; (2) Age: *less than 35 years old, between 35 and 45 years old, between 46 and 55 years old, more than 55 years old*; (3) The educational stage: *Kindergarden, Elementary School, Secondary School, Training Cycle, University*; (4) The type of centre: *public, charter, private*.
The design of the instrument took into account the contributions of the literature on the subject, drawing on the conceptual framework set out in Table 1.


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| Item | Conceptual question | Authors |
|---|---|---|
| **Number of videos** | How many? | Alpert & Hodkinson, 2019 |
| **Selection criteria** | Why? | Hwang & Ilari, 2019; López-Rodríguez & Barac, 2019; Neumann & Herodotou, 2020 |
| **Video content** | What? | Portugal, E-Meneghello, & Marinez, 2018 |
| **Agent proposing videos** | Who? | Di Paolo et al., 2017 |
| **Platforms** | Where? | García-Martín & Cantón-Mayo, 2019 |
| **Level of satisfaction** | Results? | Meseguer-Martinez, Ros-Galvez, & Rosa-Garcia, 2017; Tiernan & O´Kelly, 2019 |

Table 1: Conceptual framework used for the design of the instrument

This survey was validated by a group of 10 experts, among whom were education professionals from all educational stages (kindergarden, elementary school, secondary school, training cycle, and university), experts in the use of educational technologies, creators of YouTube audio-visual educational content and experts in statistics and research.

An ethical protocol was ensured throughout the process, complying with the principles of confidentiality, human dignity, proportionality between the expected risks and benefits, and non-discrimination.

The survey was disseminated online. The sample was established by convenience criteria and is made up of the teachers who filled out the survey.

### *2.2 Sample*

The sample is made up of 1,150 teachers currently working in Spain (academic year 2019-2020). It is characterized by a higher presence of women (68.3%) than men (31.7%), aged between the following ranges: less than 35 years old (37.3%), between 35 and 45 years old (34.5%), between 46 and 55 years old (20.8%) and over 55 years old (7.4%).

These education professionals teach pupils from three to six years old (kindergarden, 16.7%), from six to 12 years old (elementary school, 35.1%), from 12 to 18 years old (secondary school, 22.9%) and from 18 years old (training cycle, 5.4% and university, 14.7%). In addition, 42% of them work in educational centres supported


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by public funds, 33.5% in centres supported in part by public funds (charter schools), and 24% carry out their profession in centres supported by private funds.

## 3. Results

### *3.1 Number of videos*

The results regarding the number of videos used in class by teachers show that the teachers surveyed use in their lessons: more than 15 videos a week (3.3%); between 11 and 15 videos a week (3.3%); between six and 10 videos a week (17.8%); between one and five videos a week (62%); or do not usually use them at all (13.6%), as we can see in Table 2.

| | More than 15 videos a week | Between 11 and 15 videos a week | Between 6 and 10 videos a week | Between 1 and 5 videos a week | I don't usually use them. |
|---|---|---|---|---|---|
| **Kindergarden** | 4.2% | 4.2% | 18.9% | 54.2% | 18.4% |
| **Elementary School** | 3.0% | 5.3% | 21.6% | 60.2% | 10.0% |
| **Secondary School** | 2.7% | 1.9% | 13.1% | 64.6% | 17.7% |
| **Training Cycle** | 3.3% | 3.3% | 13.3% | 68.3% | 11.7% |
| **University** | 3.0% | 0.6% | 19.8% | 64.7% | 12.0% |
| **Total** | 3.3% | 3.3% | 17.8% | 62.0% | 13.6% |

Table 2: Number of videos used per week depending on the educational stage

Therefore, the majority of teachers surveyed (86.4%) usually use the video resource in their lessons. In this field, we found a significant difference as regards the variable of the educational stage in which teachers work ($p = .014$). The educational stage that uses the largest number of videos is the elementary school level. Furthermore, we can affirm that most teachers in all educational stages use between one and five videos per week. In addition, we can calculate that the overall average in the use of videos in teaching practice is four videos per week.

### *3.2 Selection criteria*

Teachers use different criteria to select which videos to use in their lessons. Taking into account the percentage of teachers that indicated each item, we can see the answers in Figure 1.


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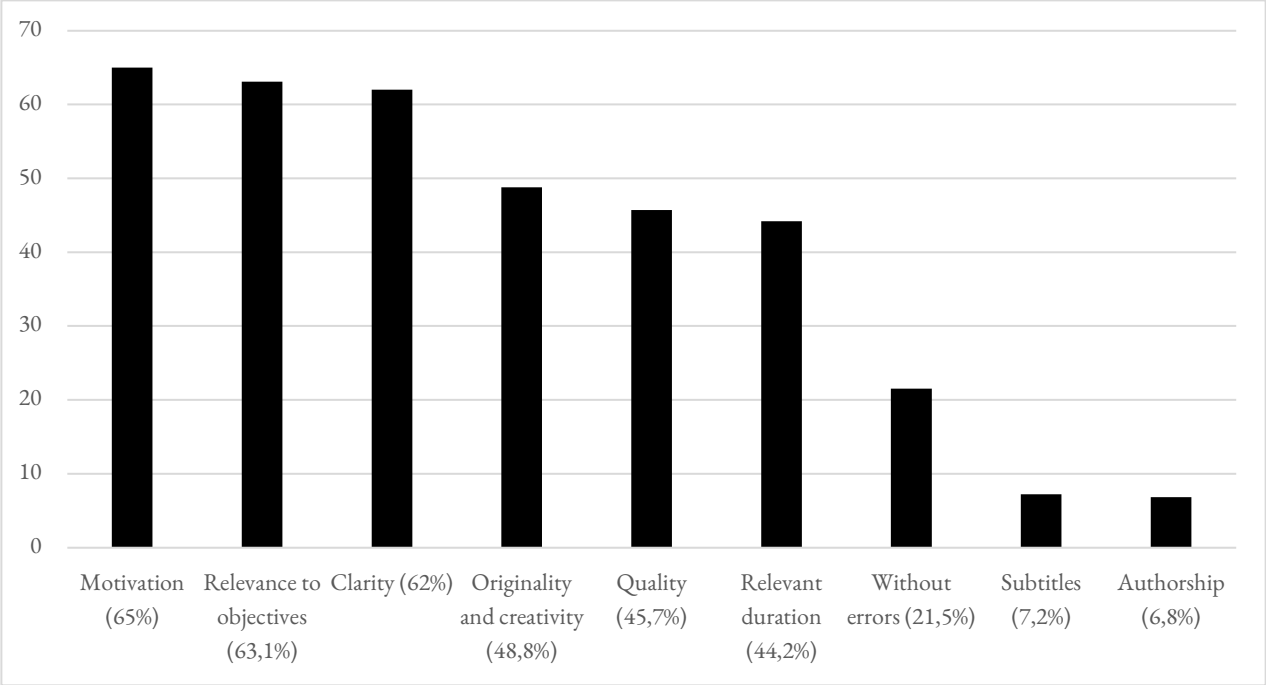


Figure 1: Video selection criteria by teachers

### *3.3 Video content*

Regarding the type of content of the videos that the surveyed teachers implement in their lessons, the results of this study show these results: explanatory videos (65.6%), songs (49.5%), videos of examples or experiences (48.5%), documentaries (38.9%), films (29.5%), tutorials (20.8%), cartoons (20%), television programmes and series (15.1%), another teacher's lessons (11.9%) and radio programmes (3.6%).

If we cross-reference the answers about the type of content of the videos used in the teachers' lessons with the educational stage, we find significant differences ($p < .001$), as can be seen in Table 3. Our research shows a preference by teachers for particular types of videos, depending on the educational stage, as we will discuss in the next section.

| | **Kindergarden** | **Elementary School** | **Secondary School** | **Training Cycle** | **University** | **Total** |
|---|---|---|---|---|---|---|
| **Songs** | 70.3% | 25.1% | 7.1% | 1.7% | 3.1% | 23.6% |
| **Another teacher´s lesson** | 0.0% | 0.0% | 2.0% | 1.7% | 1.9% | 0.8% |
| **Cartoons** | 7.7% | 2.5% | 1.6% | 0,0% | 1.2% | 2.8% |


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| | Kindergarden | Elementary School | Secondary School | Training Cycle | University | Total |
|---|---|---|---|---|---|---|
| **Documentaries** | 1.1% | 7.1% | 15.1% | 5.0% | 11.1% | 8.4% |
| **Examples or Experiences** | 2.7% | 14.7% | 17.9% | 26.7% | 38.3% | 17.6% |
| **Films** | 0.5% | 3.5% | 9.5% | 6.7% | 5.6% | 5.1% |
| **Radio Programmes** | 0.0% | 0.0% | 0.8% | 0.0% | 0.0% | 0.0% |
| **TV Shows or Series** | 1.1% | 0.8% | 3.2% | 1.7% | 3.1% | 2.1% |
| **Tutorials** | 1.1% | 1.5% | 3.6% | 6.7% | 7.4% | 3.3% |
| **Explanatory Videos** | 10.4% | 42.8% | 36.5% | 46.7% | 24.1% | 32.4% |
| **Other** | 4.9% | 2.0% | 2.8% | 3.3% | 4.3% | 3.7% |

Table 3: Type of content of the videos depending on the educational stage

Taking into account the types of educational centre, we found significant differences depending on the type of content of the videos used in them. The double implementation in the private educational centres of the tutorial videos is highlighted, in which they specify the steps for the development of a specific procedure (5.8%) more than in the charter schools (2.7%) or public centres (2.8%). On the other hand, while in public educational centres there is no significant variability in the type of content of their videos, in charter schools, fewer videos of examples or experiences are implemented to use more explanatory videos, that is, audio-visual resources that illustrate or talk about a topic.

### *3.4 Agent proposing videos*

In contrast, the results show that the proposal of the videos falls mainly on the teacher (95.9%). The students can also be part of the video proposals (30.2%), while the educational centre (6.8%) and parents (0.5%) have practically no influence in this area. Furthermore, there is a significant difference when we cross-reference the educational stage with the agent who proposes the videos ($p$ <.001). The proposal of the video only by the teacher, without considering the parents, nor the family, nor the educational centre, grows as the students go


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through the stages: kindergarden (51.9%), elementary school (60.2 %), secondary school (66.5%), training cycle (65.6%) and university (75.4%).

In addition, if we delve into the proposals of the videos by the different agents that make up the educational setting, we find significant differences compared to the type of content of the proposed videos ($p$ <.001). Regarding song videos, parents who propose them are the largest section (50%), then come the teachers (22%), the students (25.59%) and the educational centres (28%). This also highlights that another teacher's lessons are not usually offered by teachers (0.56%) compared to students (1.17%) or schools (1.33%) that widely duplicate this data.

There are also significant differences between the type of centre and the agent that proposes the videos ($p$ = .022). The educational centre, as the agent that proposes the videos, doubles its importance in private (7.6%) and charter schools (8.2%) compared to public centres (4%). However, the importance of families as an agent that proposes the videos doubles its importance in public schools (0.8%) compared to charter (0.3%) or private schools (0.4%).

### *3.5 Platforms*

Our study shows that the most used platform for video search by the surveyed teachers is YouTube (95.3%). This platform hugely exceeds Vimeo (22.4%) and Educatube (16.5%).

### *3.6 Level of satisfaction*

The results show that teachers are generally broadly satisfied with the use of videos in their professional development (75.8%), and very few have a negative view of their use (1.2%). Neither the sex ($p$ = .195), nor the age of the teacher ($p$ = .345), nor their educational stage ($p$ = .152), nor the type of educational centre ($p$ = .072) significantly determine satisfaction in the use of videos in education.

However, the results show significant differences between the level of teacher satisfaction and the number of videos used per week ($p$ <.001). We can see that the number of videos used per week increases depending on the level of teacher satisfaction with their use (Table 4). We can establish three clearly differentiated ranges in the positive evaluations of the level of satisfaction: teachers who use more than five videos per week (93.77% positive satisfaction), those who use between one and five videos per week (76% positive evaluation) and those who do not usually implement videos (41.4% positive evaluation). On the other hand, negative evaluations of the level of satisfaction in the use of videos are only collected from teachers who use between one and five videos per week (0.4%) and those who do not usually use them (7.9%).


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| | Very High | High | Normal | Low | Very Low |
|---|---|---|---|---|---|
| **More than 15 videos a week** | 51.4% | 40.5% | 8.1% | 0.0% | 0.0% |
| **Between 11 and 15 videos a week** | 52.6% | 44.7% | 2.6% | 0.0% | 0.0% |
| **Between 6 and 10 videos a week** | 39.6% | 52.5% | 7.9% | 0.0% | 0.0% |
| **Between 1 and 5 videos a week** | 19.5% | 56.5% | 23.6% | 0.4% | 0.0% |
| **I don't usually use them** | 9.3% | 32.1% | 50.7% | 4.3% | 3.6% |
| **Total** | 24.0% | 51.8% | 22.9% | 0.8% | 0.4% |

Table 4: Level of satisfaction with the use of videos depending on the number of videos used

There are also significant differences between the level of satisfaction in the use of videos by teachers and the type of content of the videos ($p = .001$), as we can see in Table 5. The types of content that most worsen the level of satisfaction in the use of videos by teachers are cartoons (41.9% of non-positive evaluations), films (26.8% of non-positive evaluations) and explanatory videos (26.5% of non-positive evaluations).

| | Very High | High | Normal | Low | Very Low |
|---|---|---|---|---|---|
| **Songs** | 24.5% | 55.9% | 19.5% | 0.0% | 0.0% |
| **Another Teacher's Lesson** | 33.3% | 55.6% | 11.1% | 0.0% | 0.0% |
| **Cartoons** | 25.8% | 32.3% | 41.9% | 0.0% | 0.0% |
| **Documentaries** | 19.4% | 59.1% | 19.4% | 1.1% | 1.1% |
| **Examples or Experiences** | 27.6% | 18.4% | 18.4% | 2.0% | 0.0% |
| **Films** | 30.4% | 42.9% | 26.8% | 0.0% | 0.0% |


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| | Very High | High | Normal | Low | Very Low |
|---|---|---|---|---|---|
| **Radio Programmes** | 0.0% | 0.0% | 100.0% | 0.0% | 0.0% |
| **TV Shows or Series** | 26.1% | 56.5% | 17.4% | 0.0% | 0.0% |
| **Tutorials** | 18.4% | 57.9% | 23.7% | 0.0% | 0.0% |
| **Explanatory Videos** | 24.0% | 49.4% | 25.7% | 0.8% | 0.0% |

Table 5: Level of satisfaction with the use of videos depending on the type of content

## 4. Discussion and conclusions

We will now discuss the results described above, taking into account other research that has been carried out internationally on this topic, and focusing our discourse on answering our research questions.

In reference to the use of video as an educational resource in current education, we find that it is very widespread among teachers (Rangarajan, et al., 2019) at all educational stages. Therefore, we can conclude that the process of implementing educational videos in the teaching-learning process is being considered as effective from the teachers' perspective, where practically nine out of 10 teachers surveyed use them in class.

If we delve into the study of kindergarden teachers, we find a polarity in the answers, this stage being, at the same time, the stage in which the use of more than 15 videos per week was most pointed out, but also the stage with the most indicative answers that videos are not usually implemented. This refers to two types of teachers who carry out their work in the kindergarden stage: on the one hand, teachers who use videos as a basic resource for their lessons through content such as songs, and on the other hand, teachers who have reluctance to use new technologies, screens and videos at such early ages. The recommendations of the World Health Organization, the campaigns against technological addictions, or the naturalistic currents present in today's education that emphasize the risk due to exposure to screens at an early age (Lin et al., 2019; Nergiz et al., 2020; Wolf, Wolf, Weiss, & Nino, 2018), divide kindergarden teachers between those who follow these kinds of recommendations strictly and do not usually use videos in their lessons, and those that obviate them by implementing many videos in their classrooms.

In addition, it is noteworthy that the educational stage that uses the most videos in class is elementary school. The international recommendations for the use of videos in children's education are less restrictive at these ages, and in elementary school a large amount of content from very diverse areas is studied, which makes teachers need to complement their lessons with videos.

The selection criteria of the videos most chosen by the education professionals who answered the survey (motivation, relevance to objectives and clarity) corroborate the results obtained by another research on this topic (Hwang & Ilari, 2019). Therefore, the most chosen item (motivation) shows us what environment exists in


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current education and how teachers are trying to transform it (Palazón-Herrera, 2018). Today's education is embedded in an environment in which students feel unmotivated. The implementation by teachers of resources such as videos has a clear intention of making students feel motivated within the educational atmosphere (Tiernan & O'Kelly, 2019).

On the contrary, authorship is highlighted as the selection criterion least used by teachers when choosing videos. We can conclude that teachers select videos through the YouTube search engine and not on specific YouTube channels (Pattier, 2020). The important thing is not who made the video, but if it is motivating, relevant to the class objectives and clear. In addition, we obtain an average of 3.7 criteria indicated by each teacher, or in other words: an education professional takes into account between 3 and 4 criteria in order to choose the video to implement in the classroom.

Another finding of this research is that the types of videos most used by teachers are explanatory videos, songs, and videos of examples and experiences. In other words, through the implementation of videos in their lessons, educational professionals seek explanatory support on some subjects (Portugal, E-Meneghello, & Marinez, 2018), playful support such as songs, and support to show experiences that cannot be stated in real school environment.

On the other hand, we can see that the results show that in kindergardens, song videos are particularly popular, data that decreases after elementary school compared to explanatory videos. Furthermore, the explanatory videos become the most used content in videos used at the secondary school and training cycle levels, until being surpassed at university for the use of videos about examples or experiences. This clearly shows us the general context that teachers create at each stage. Firstly, the professionals of kindergardens manage to establish an environment in which their pupils feel happy and motivated by using songs, dances and creative activities (Temple, Bentley, Pugalee, Blundell, & Pereyra, 2020). Therefore, song videos are the most used in class. Secondly, the teachers of the following stages, except for the university level, conceive the educational setting as a place for content transmission and, for this reason, the audio-visual resource they use the most is the explanatory video (Meseguer-Martinez, Ros-Galvez, & Rosa-Garcia, 2017). Thirdly, university teachers enhance a more open atmosphere by showing different realities in their respective areas and implementing videos in their lessons to show examples or experiences at national or international level that expand information or corroborate what they are teaching in their subject.

Our research shows that the authority of the teacher in the choice of educational resources, such as videos, is very high in current education. Therefore, the effective proposal in the implementation of videos in class by the students, parents or educational centre decreases as the students go through the respective stages. In other words, early-stage teachers are the ones who most create an atmosphere in which parents, schools, or the students themselves can propose videos to use as resources in their lessons, while higher stage teachers do not allow this type of proposition by other agents.

On the other hand, there is a reluctance by teachers to use videos of another teacher's lessons. The research by Vizcaíno-Verdú et al. (2020) showed that, although university professors indicated with a medium-high assessment the rigor, credibility and reliability of youtubers, in this case of scientific dissemination, they demonstrated a reluctance to use their videos by qualifying them as incoherent and lacking in scientific criteria. The proposal of these videos to the students may generate in the teacher themself a feeling of inferiority or lack of professional


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skills. As we can see in the results of this research, both students and schools propose this type of video more, taking into account the possibilities and thus improving educational practice in the lessons. In this way, the results of this study propose internal reflection for the teachers (Bautista et al., 2019) about the capacities of each one and the humility necessary for the use of audio-visual content in which another teacher appears teaching. Furthermore, it is important to build a culture of educational practices based on evidence from the Administration and national and international educational organizations to avoid this type of problem (Pattier & Olmos Rueda, 2021).

Therefore, we can conclude that in private schools there is a significant influence from the centre itself when proposing educational videos that are used in class, while in public schools there is an influence on the part of families in this field.

In addition, our study shows that the platform most used by teachers for the search and implementation of videos in their lessons is YouTube, corroborating another research on this topic (Ranga, 2017; Szeto, Cheng, & Hong 2016). We can conclude that YouTube is a video storage platform that offers a large number of possibilities in the three types of content most demanded by teachers, hence its great success in the educational implementation of these audio-visual resources (Pattier, 2021).

The level of teacher satisfaction in the use of videos is an extremely important aspect, since it indicates the future of the implementation of this educational resource. If teachers are not satisfied with an educational resource, the projection will be quite short. If, on the contrary, the teachers are satisfied, the projection will be long. In our study we found that three out of four teachers are satisfied with the use of videos in their lessons, corroborating other studies (Kabooha & Elyas, 2018), which leads us to think that the implementation of videos in education will continue to be important if the current trend is followed.

Moreover, most of the teachers surveyed who expressed negative satisfaction in the use of videos based their reasoning on technological causes such as failures in Wi-Fi systems, technical problems in computers or lack of resources in educational centres. If these problems were solved in the coming years, the trend towards positive satisfaction in the use of videos by teachers would increase (Jung & Lee, 2015), and, as we have shown in our research, the number of videos used by teachers would also increase. This leads us to think that the aforementioned problems may be key to understanding the level of teacher satisfaction in this area (Wei & Chou, 2020). Research on this topic should be carried out in order to corroborate it.

Therefore, our study shows that teachers' satisfaction in the use of videos in their lessons does not depend on any of our dependent variables: sex, age, educational stage and type of educational centre, as indicated by some research carried out on a smaller scale (García-Martín & Cantón-Mayo, 2019). However, we can conclude through this study that the types of content of the videos do directly influence the use of audio-visual content in the educational field. The reason lies in the possibilities offered by the YouTube platform. We can see that this video storage page fails to meet the needs of teachers when they search for content such as cartoons, movies and explanatory videos. The cartoons on YouTube are usually not of a high quality, the films are usually inaccessible and there are a large number of explanatory videos without differentiation by stages, content or areas, which makes teachers not satisfied, as it is difficult to find a video of this type that adapts to their academic objectives.


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Our second research question, regarding the variables that determine the use of videos by teachers, has also been answered. Our study indicates that both the educational stage and the type of educational centre where teachers work are two significant variables in the implementation of videos in education, as we have explained above. However, neither sex nor age are variables that significantly affect its current use.

### *4.1 Limitations and projection*

The limitations of this research lie mainly in the fact that it is a national sample of Spain. However, despite the limitations, we can argue that the data and conclusions presented in this work are a solid basis for comparing results and being able to develop new research at an international level.

Moreover, our study on the use of digital videos refers to a period prior to the COVID-19 pandemic that altered the operation of educational centres at international level for months, promoting telematic teaching work and, therefore, where the use of videos was essential as a distance educational resource. It will be very important that the research that we present in this paper is compared with other similar ones after the return to normality in the educational field after the pandemic, being able to relate variations in the results directly influenced by the new situation that the pandemic forced upon everyone in the educational field.

Finally, the data obtained through this research will allow us to adequately build the curriculum of teacher education, adapting their studies to the current educational reality, where this group of professionals will be highly demanded in the use of asynchronous audio-visual materials, such as videos, to face the various scenarios in the teaching-learning process (Álvarez, 2020) due to the regulations dependent on health emergencies such as that caused by the coronavirus pandemic.

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