Digital Culture in YouTube Categories and Interfaces: User Experience and Social Interactions of the Most Popular Videos and Channels

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Abstract. YouTube is able to generate new forms of user interactions and an entire evolutionary cycle in audiovisual languages and digital culture through the interface. This platform offers the possibility for the user to assume the functions of prosumer of audiovisual contents, through generating their own digital identities. In this way they are able to influence and be part of the society of production, diffusion and audiovisual user interactions. The main aim of this research was to obtain a general idea and a first approximation of the tendencies of audiovisual popular user interactions and the digital culture on YouTube, which was undertaken by means of the quantitative analysis of YouTube video interfaces selected by YouTube categories. In order to extract this information, a quantitative analysis of the most viewed channels and videos was undertaken. These interface categories were those with more views, with more subscribers, with more likes and dislikes, with more comments, as well as the average time of some of the most viewed videos. This was done through a sample of 160 most viewed videos of the platform. The aim was to understand the common denominators and interface preferences that users manifest through their interactions with videos, channels and thematic categories in the YouTube digital culture interface. The conclusion from the study was that the YouTube categories that enjoy the most popularity are education and music, at the same time the interaction features of each category can also be defined on the YouTube platform.

C. Stephanidis et al. (Eds.): HCII 2020, LNCS 12427, pp. 383–401, 2020.
https://doi.org/10.1007/978-3-030-60152-2_29

Keywords: Digital humanities · User experience · YouTube categories · YouTube interfaces · Human interactions · Cultural studies · Social interactions

1 Introduction

YouTube, an online audiovisual platform has been developing its own interface ecosystem through sharing audiovisual content and information with the user and viewer community. Whilst YouTube started as a shared amateur video platform, which achieved its success due to the contributions of its users, its conflicts with the industry due to the improper use of copyrighted content, led to a steady transformation of its business logics. On the one hand there are a great number of users that produce user-generated content (UGC) through self-expression, and on the other hand professionals inside the formal media and music industries also use and shape the same platform [1]. However, in some cases professional generated content is superior in availability of number of videos but UGC is significantly more popular [2]. Due to this, YouTube had to find a way to maintain a stable relationship between users and industry. This was done by modifying the algorithm, which is as "a set of automated instructions that transform inputs into a desired output" [3], to allow viewing preferences to users who had contributed their content to enable growth of the platform and, at the same time, offered advantages through partner agreements to the traditional media. Not surprisingly, YouTube had a "migration from video sharing to commercial video streaming" [4], which shows that YouTube was invented by the industry [5].

Although YouTube initially offered the possibility of renegotiating the dominant media discourses more independently, the platform later adapted to the conventional conditions of the broadcast media, which led to closer collaboration between users and industry, e.g. YouTubers and brands. "Often generating as a consequence significant advertising and sponsorship revenue and increasingly the attention of mainstream media" [6]. Due to this, content producers act as independent social mediators showcasing their own audiovisual narratives, promoting the YouTube communities and engaging fan followers. Not surprisingly, YouTube uses a partner program in order to group YouTube partners who earn profits from their views and channel subscribers, promoting them on the interface and organizing YouTube events to increase the visibility of both. YouTube started monetizing their videos in late 2007 and reconfigured it again in 2012, allowing anyone to monetize videos. These changes granted positioning preferences on the platform to those users who had contributed their content to YouTube's popularity. "It was restricted in 2017 and again in 2018 in favor of larger, ad-friendly creators" [4]. Thus, by modifying its algorithm, YouTube rewards former partners but makes it difficult to promote new users who want to gain a foothold on the platform, making their positioning more difficult. Therefore, YouTube platform appears as a commercial broadcast media that protect its business model, changing its algorithm, modifying usage policies, establishing partners, and incorporating new technological innovations when needed. The transformation of the user experience was the direct consequence of modifying its interface algorithm and its platform recommendation system, including other interface changes such as automatic reproduction and the continuous stream of commercials.

1.1 The User's Experiences and Interface Cultural Evolution

Thanks to the arrival of Henry Jenkins theory of the culture of convergence, users begin to exchange the roles of sender and receiver, leading to multiple-way communication and giving rise to viral phenomena. Today's users act accordingly by uploading their posts to attract traffic, launching controversial messages, and analyzing their own statistics to see what works and what doesn't. They know how this dialogue works and try to reach the best practices and strategies to grow their audience, instead of simply serving content [7]. Thus, the user becomes a prosumer [8], being able to consume and produce contents as a result of the development of communication interfaces and the democratization of media. These new content producers have followed their own intuition, expanding the possibilities of interactive video, by generating open audio-visual dialogues through YouTube channels. Furthermore, they are responsible for building their identity based on the user profile and producing their own digital active life, selecting at all times the content they consume and share, and through which channel they download it [9]. In this context, the remix culture uses the creative forms of absorption, assimilation, and sharing through the video productions, making something original and valuable [10] while often seeking to make a profit. In social networks like YouTube, using words or images is acting by constructing subjectivities, contributing meanings that stabilize space and order time in a constant dialogue between subjective experiences [11]. Thus, the culture of appearances, spectacle and visibility arises, where the discourse is increasingly dedicated to offering the prosaic spectacle of its protagonists [12], leading to self-exhibitionism and the continued publication of commercial contents, or even a "chaos of useless information" [13].

Although YouTube establishes a classification by categories, which is selected when uploading audiovisual content, the platform does not, in the same way, allow a search for videos to be undertaken by categories only. Its filtering is done by upload date, type, duration, characteristics and sort by (YouTube.com), giving a "limited quantity of exploitable information" [14] to researchers of the audiovisual genres and categories. In this way, the YouTube search engine invites its users to a continuous flow of videos, whose automatic reproduction and advertisements avoid user interaction. Thus, YouTube stands out for being a video platform making available a huge volume of content but with search restrictions. However, by avoiding limitations on the logic of classification by the categories established by YouTube, and during the production of their content, users are capable of producing new interactive audiovisual genres thanks to the characteristics of the interface.

To understand the sciences of audiovisual images on YouTube in depth, it was important to dedicate hours of study and analysis to cultural productions and new modes of shared consumption through the interface. The key task of cultural studies is to understand the interactive relationships that users have with each other and the different cultural activities that can be carried out on media platforms. The theme of interactive audiovisual culture should be about what meanings are shared or questioned by certain users in certain places and conditions. In YouTube, there is an encounter between cultural activities through audiovisual genres that "can produce tension and friction, but also a process of creative and joint hybridization" [15]. The knowledge of the interactions in the YouTube interface through its quantitative analysis allows

identification of the preferences of audiovisual user experience and the type of interactive relationships of the different categories that YouTube establishes.

1.2 The Emergence of New Narrative Genres

The interactive context and "the platformization of our societies" [16] with the appearance of audiovisual social networks such as YouTube, has led to the development of new interactive audiovisual genres. The medium itself was the one that demanded new interactive contents capable of audiovisual communication to fill the gaps offered by the new technology. As a consequence, the user experience changes completely, making users part of the social opinion and visual criticism through visualizations, subscriptions, likes, dislikes, and comments. In turn, all these social interactions promote the creation of communities and attracting content to the interactive audiovisual world. The need for different contents: comedy and humor, tutorials to share knowledge, the appearance of new advertising spaces, online videogame entertainment, shared betting pranks, activism videos, etc.; are some of the audiovisual and interactive needs that the information society demanded through new representation of the contemporary image. Therefore, in this interactive audiovisual context, a confluence of previous genres is produced, used in other media such as film and television, with the new interactive capabilities that the hyper-communication allows, giving rise to a broader audiovisual ecosystem open to new genres, incorporations and audiovisual typologies that change and develop the interactive audiovisual narratives.

Whilst the user structure the video in accordance with their own preferences, e.g. the pulse and the repetition, the unreality, the different graphic values included as the low resolution, the modification of the scale, the unusual casual relations, the intermediality and intertextuality, the comedy and the humor and the formal replication of contents [17], the videos can only be classified within one of the YouTube´s categories. From this we are able "to empirically analyze how these characteristics are assembled using various prototypical sequences and from a theoretical perspective study how inter-tipology works" [18]. Despite the fact that the videos can only be classified within one of YouTube´s categories, it is the prosumer who classified and give meaning to the productions, in turn establishing intertextual relations of the image and connections between communities based around thematic activities. All these visual meanings "require the interpretation of the viewer to discover the underlying theme, the apprehension of which will constitute the ultimate result of comprehensive activity" [19].

Although audiovisual genres usually come from literature, not all genres were previously found in other media. To understand the content classification established by YouTube, one must free the gaze from the culturally imposed one, "which tries to fit everything within the limits of that projection made up of the predominant representations and values" [20]. A YouTube category can be defined as an established content categorization by the platform to the recognition of common patterns of form and content, capable of establishing a stylistic system that organizes and classifies videos.

Based on the classification by YouTube categories, you can see videos of animals, cars, videogames, children's songs, activism, news, crafts, movies, entertainment, travel, etc. However, the borders between genres have been crossed to create hybrids as an extensive display of audiovisual hypertextuality, bringing new ways of thinking and structuring the digital narrative plots of new creations. Hence, the appearance of vlogs, tutorials, reviews, gameplays, unboxings, covers, challenges, fan video, video-reactions, etc. Tzvetan Todorov affirms that every literary genre comes from another: "a new genre is always the transformation of one or several old genres: by inversion, by displacement, by combination" [21]. If this statement is interpreted in interactive digital audiovisual contexts, it is possible to affirm that the new gender combinations start from previous genres and their multiple combinations. However, the interface features also give these genres the unique interactive properties of the medium, which requires an analytical perspective free of previous conventions.

Thanks to YouTube, audiovisual popular culture is empowered by showing alternative perspectives in their socio-economic and cultural contexts on the Internet. However, as Warren Buckland [22] exposes, following YouTube tags puts one on a cusp, precariously balanced and dangerously built over an abyss of thousands of similar or even the same videos, commented on and cross-referenced to yet more of the same and the similar, to immerse into an audiovisual homogenization of infinite repetition. For this reason, although YouTube shows the shared global spirit and can faithfully reflect the state of today's society and its ways of thinking, the lack of awareness of the repetitive user interactions through the stream of content and advertising, can lead to hypnotizing screen habits even without the need for users to share such ideals [23].

As Gilles Lipovetsky and Jean Serroy [24] explain, the hypermodern transformation "is characterized by affecting technologies and media, the economy and culture, consumption and aesthetics in a synchronous and global movement", which means that there is a temporal correspondence between the transformations of these factors. It is therefore necessary to study this type of interactive interface videos as a global memory based on a hypertextual network of superimposed connections, opening new paths of recombination of the image that remain for posterity, leading to new remixes and future reinterpretations. The same way that we revisit now and re-interpret the new narrative, techniques and social habits that photography and cinema brought to human cultural evolution, the new generations will study the meaningful changes that occurred during this digital culture re-evolution. It is our hope that this study serves as an initial insight of how contemporaries observed the influences of digital interfaces in the user experiences to become prosumers and viewers of the new audiovisual narratives and genres.

2 Materials and Methods

2.1 Methodology

Some of the YouTube studies are based on viewer interaction and the prediction of video popularity [25]. However, it is still interesting to focus on video categories and user's experiences in order to understand and contrast trends through the quantitative analysis of their audiovisual interactions. For example, some scholars have used the YouTube data API (Application Programming Interface), which allows a program to search for a video and retrieve its related information [26], to know how channels, uploads and views evolved over time [27]. On the contrary, other academics have exposed how YouTube imitates the rules of the old media [28].

This research was based on the study of quantitative data exposed on YouTube through video information and user interactions. As Davidson, Liebald, Lui, Nandy; Van Vleet [29] expose, there are two basic data sources; on the one hand, content data such as raw video streams and metadata (video title, description, etc.), and on the other hand, user activity data. In other words, some data are static and can be measured once: e.g. title, category, link, user update, length, etc. and other data are dynamic and can change over the time through user interaction on the YouTube interface [30]. Thus, the attractiveness and even the written opinion of every video are continuously changing over the lifecycle of a video based on the audience interactions. For these reasons, the quantitative analysis is considered the most appropriated tool to archive data streams of user experience and compare samples over the time.

2.2 Aims of the Research

The main objective of this work was to obtain a general idea of the trends in audiovisual user interactions, by means of the quantitative analysis of videos selected by YouTube categories. There were also several secondary objectives for this:

a) To know the themes, narrative and aesthetic content, which in general are most consumed by popular audiovisual culture on YouTube through identifying which are the most viewed categories on YouTube.
b) To recognize the most viewed videos in each of the 10 most viewed channels within the 16 YouTube categories.
c) To know the user interactions through the number of views, subscription, likes, dislikes, comments as well as the average duration of the videos for each category.
d) To establish inferences, when comparing various results on the data obtained, to get a global vision of the audiovisual user interactions of categories that takes place on YouTube.

2.3 Applied Methodology

The analysis of quantitative data of the most popular videos selected by categories was used to describe the user experience. The aim, from an analytical prism, was to identify the types of interactions on each YouTube category. As cultural trends change over time, the purpose of this research was to capture how these interactions were experienced as a whole, in the context of audiovisual culture on YouTube in a given period [31], in this case the data was collected in October 2017. To select a sample of 160 videos, from the most viewed 10 channels for each of the 16 YouTube categories were searched through www.socialblade.com. Once the 10 most popular channels by each category were known and ordered, the most viewed video was selected from each channel on www.youtube.com, 10 in total for each of the 16 YouTube categories. In this way, the data of the 10 most viewed videos from the 10 most viewed channels of the 16 YouTube categories were obtained, making a total of 160 videos to be analyzed using a quantitative analysis.

As the initial objective was to understand the trends in audiovisual consumption habits on YouTube based on quantitative data, the designed analysis model was in charge of collecting the data on the variables of: views, subscribers, likes, dislikes, number of comments and duration of the videos, in addition to other variables of qualifying interest such as the title of the video, the user name, the date of registration of the data, the date of uploading of the video and its link. These data were obtained by direct observation, to present and compare each variable together at the same time that the information was archived. This method was carried out to discover characteristic patterns of YouTube categories resulting from the total of interactions.

The data was collected in order to maintain a logic of analysis and exposure. The static variables were the title of the videos, date of upload, username and link, and the dynamic ones were the visualizations, subscribers, likes, dislikes, comments and the average duration of the videos for each category. The data collection included the following variables: the most viewed, with the most subscribers, with the most likes or dislikes, and with the most comments was carried out by means of a simple sum of each variable by category. The average duration of videos for each category was made by taking the total sum of the duration in minutes and seconds of the 10 most viewed videos, of each most viewed channel by category, divided by 10.

3 Results of the User's Interface Interactions by Categories

When expounding the results of this study through the analyzed quantitative data, an attempt was made to make it as clear as possible through Table 1. The order of the categories were organized according to the number of views in each category. Furthermore, graphs and descriptions show the results in a transparent way to relate and contrast data.

Table 1. Recorded data from YouTube categories. (Sources: www.youtube.com & www.socialblade.com). Own elaboration.

DATA OF THE MOST VIEWED VIDEOS INSIDE MOST VIEWED CHANNELS ORDERED BY AMOUNT OF VIEWS AND SELECTED BY CATEGORIES									
Order	Icon	Youtube Category	Views	Subscribers	Likes	Dislikes	Number of Comments	Average of Duration	TOTAL INTERACTIONS PER CATEGORY
1°		Education	24.530.224.462	52.740.000	4.458.000	3.049.000	154.396	28:00 m	**24.590.625.858**
2°		Music	9.886.869.983	154.020.000	27.595.000	3.111.000	2.997.605	7:35 m	**10.074.593.588**
3°		Shows	3.356.941.173	21.654.000	2.886.000	1.453.000	43.953	18:55 m	**3.382.978.126**
4°		Entertainment	1.816.011.947	90.400.000	2.401.000	941.000	189.916	9:25 m	**1.909.943.863**
5°		Comedy	1.509.089.491	153.400.000	4.217.000	252.000	269.030	7:57 m	**1.667.227.521**
6°		Film and animation	1.440.626.002	59.000.000	1.553.000	587.000	91.424	22:00 m	**1.501.857.426**
7°		How to and style	948.314.286	71.300.000	2.095.000	2.218.000	1.059.995	6:03 m	**1.024.987.281**
8°		People and Blogs	878.409.536	59.112.000	1.489.000	330.000	226.496	7:37 m	**939.567.032**
9°		Sports	848.402.816	82.400.000	221.800	82.025	133.125	8:53 m	**931.239.766**
10°		Pets and Animals	682.596.990	19.032.000	1.603.000	177.000	181.401	3:27 m	**703.590.391**
11°		Gaming	583.257.764	165.400.000	3.756.000	181.000	384.814	14:55 m	**752.979.578**
12°		Science and technology	358.687.383	67.200.000	2.208.000	455.000	270.195	4:18 m	**428.820.578**
13°		Non profit and activism	339.648.373	24.124.000	2.794.000	290.300	150.355	20:23 m	**367.007.028**
14°		Autos and vehicles	318.480.386	19.534.000	814.000	87.000	78.860	15:30 m	**338.994.246**
15°		Travels	294.079.846	9.216.300	674.000	54.571	102.242	9:26 m	**304.126.959**
16°		News and politics	260.899.102	52.406.000	512.000	123.000	82.585	5:02 m	**314.022.687**
TOTAL INTERACTIONS PER VARIABLE AND AVERAGE OF DURATION OF ALL CATEGORIES			**48.052.539.540**	**1.100.938.300**	**59.276.800**	**13.390.896**	**6.416.392**	**11:50 m**	**49.232.561.928**

3.1 Order of Categories by Number of Views

From the selected video sample, the category with the highest number of views was "education" (24,530,224,462), which presented mostly children's videos of children's songs. According to the data obtained, the next category with the most views was "music" (9,886,869,983), which featured different themed music videos from varying countries of production. The third category in the sample with the most views was "show", with varied content that included excerpts and sketches from series or

television shows (3,356,941,173). The fourth category with the most views in the sample was "entertainment" (1,816,011,947), in which a multitude of animation videos and intertextual content were found that included intertextual aspects through Disney princesses, Mickey Mouse, Donald, Pluto, Daisy, Spiderman toys, etc. Other categories such as "comedy", "film and animation", etc. closely followed (see Fig. 1).

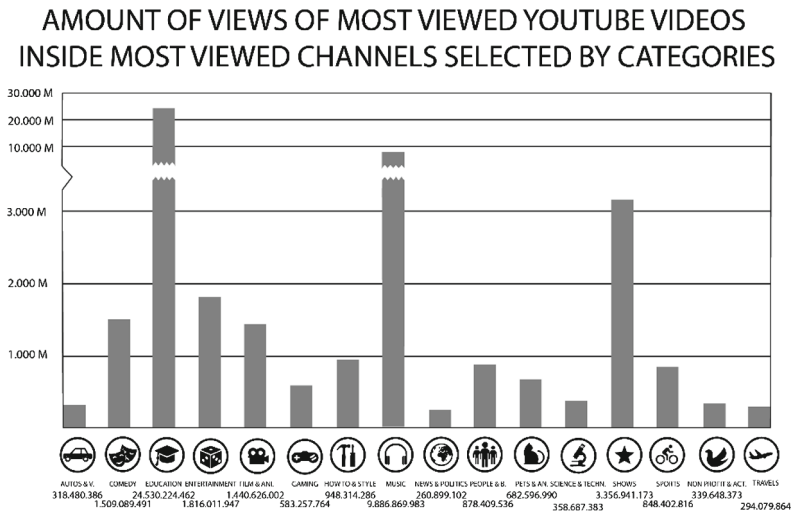

Fig. 1. Number of views of the most viewed videos of the most viewed channels selected by YouTube categories. (Sources: www.youtube.com & www.socialblade.com). Own elaboration.

3.2 Order of Categories by Number of Subscribers

Attending to the number of subscribers in the 16 YouTube categories, "gaming" (165,400,000) was in the first position, followed by "music" (154,020,000) and "comedy" (153,400,000). It was followed by the categories of "entertainment" (90,400,000), "sports" (82,400,000), "how to and style" (71,300,000), "science and technology" (67,200,000), "people and blogs" (59,112,000), "film and animation" (59,000,000), "education" (52,740,000) and "news and politics" (52,406,000). On the contrary, compared to far fewer followers, the channels that had the least subscribers were "non-profit and activism" (24,124,000), "show" (21,654,000), "cars and vehicles" (19,534,000), "animals" (19,032,000) and "travel" (9,216,300) (see Fig. 2).

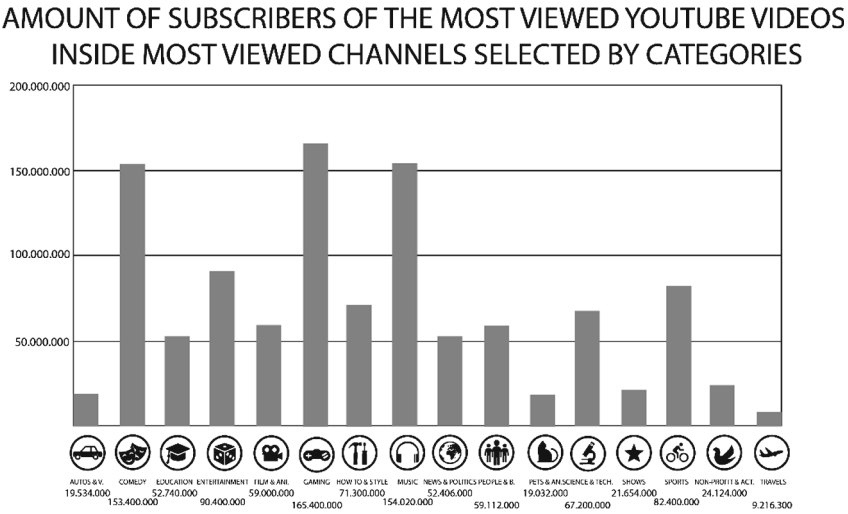

Fig. 2. Number of subscribers to the most viewed videos from the most viewed channels selected by YouTube categories. Sources: www.youtube.com & www.socialblade.com. Own elaboration.

3.3 Order of Categories by Number of Likes and Dislikes

Regarding the number of likes by categories, it seems that the clear winner was the "music" category, which had 27 million likes. The next categories far from the first were "education" (4,458,000), "comedy" (4,217,000), "gaming" (3,756,000), "show" (2,886,000), "non-profit and activism" (2,794,000), "entertainment" (2,401,000),

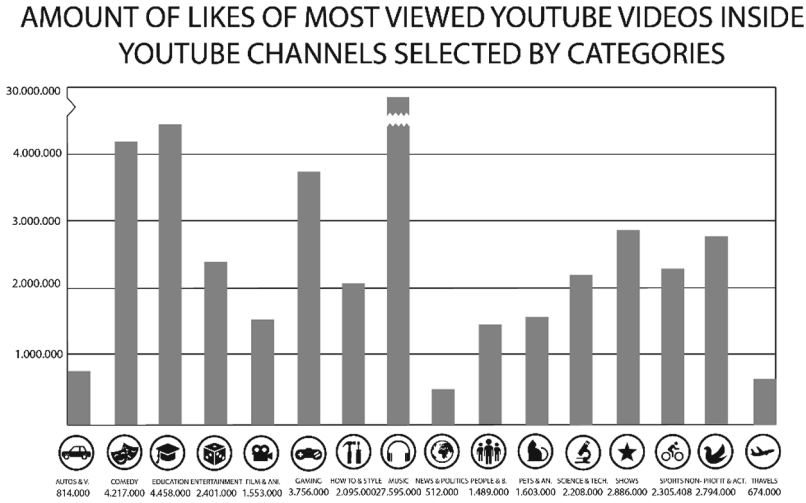

Fig. 3. Number of likes of the most viewed videos of the most viewed channels selected by YouTube categories. Sources: youtube.com & socialblade.com. Own elaboration.

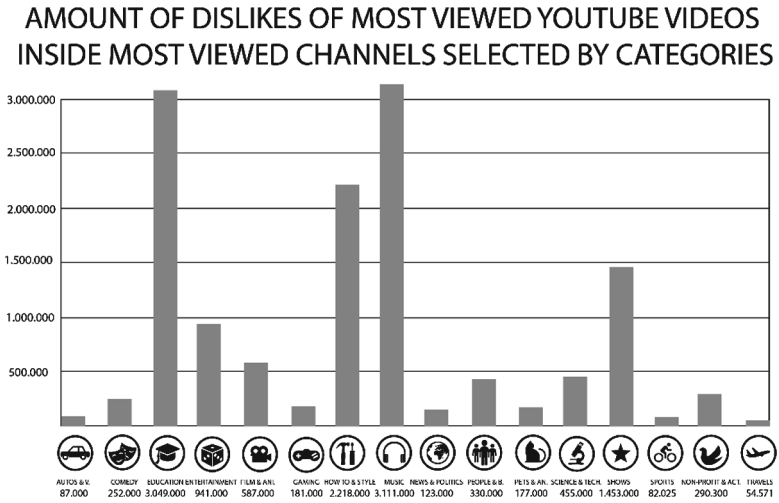

Fig. 4. Number of dislikes of the most viewed videos of the most viewed channels selected by YouTube categories. Sources: www.youtube.com & www.socialblade.com. Own elaboration.

"sports" (2,305,408), etc. (see Fig. 3). On the contrary, the most hated categories were also "music" (3,111,000), again in first position, "education" (3,049,000) and "how to and style" (2,218,000), showing the highest levels of dislikes (see Fig. 4).

3.4 Order of Categories by Number of Comments

The most commented category was "music" (2,997,605), with a lot of distance from the rest of the categories. In the second place were the videos "how to and style" (1,059,995). The next most commented categories were "gaming" (384,814), "science and technology" (270,195), "comedy" (269,030), "people and blogs" (226,496), etc. The data extracted that music videos were the most influential audiovisual genre in offering public opinion, followed by the interest in commenting on the tutorials or the didactic lessons of the videos "how to and style" (Fig. 5).

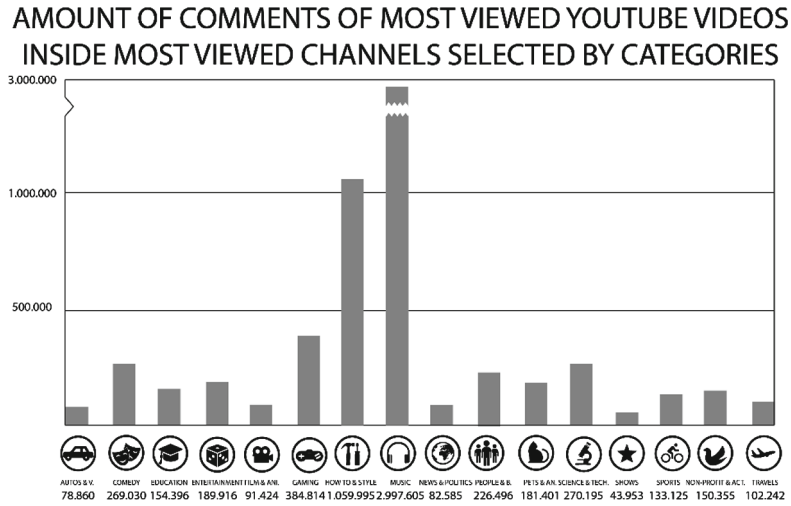

Fig. 5. Number of comments of the most viewed videos of the most viewed channels selected by YouTube categories. Sources: www.youtube.com & www.socialblade.com. Own elaboration.

3.5 Average Duration of the Most Viewed Videos by Categories

Based on the duration of the videos in each category, the average duration of the sum of time of the videos could be extracted. As a result, it was observed that the "education" category, which was mostly videos opening Kinder eggs and playing with toys, were of the longest duration (28 min). The next lengthiest videos were from "film and animation" (22:00 min), "nonprofit and activism" (20:23 min), "shows" (18:55 min), "cars and vehicles" (15:30 min) and "gaming" (14:55 min). Later the "travel" and "entertainment" categories were found with practically a tie between the two (9:26 min and 9:25 min). The videos in the following categories were "sports" (8:53 min), "comedy" (7:57 min), "people and blogs" (7:37 min), "music" (7:35 min), "how to and style" (6:03 min), "news and politics" (5:02 min), "science and technology" (4:18 min), and animals (3:27 min). These data allowed us to understand the average duration of the type of video according to its category (see Fig. 6). Taking into account the total number of categories, the average duration of the most viewed video on YouTube, regardless of the category, was 11:50 min (result of the sum of the means of all divided among the 16 categories).

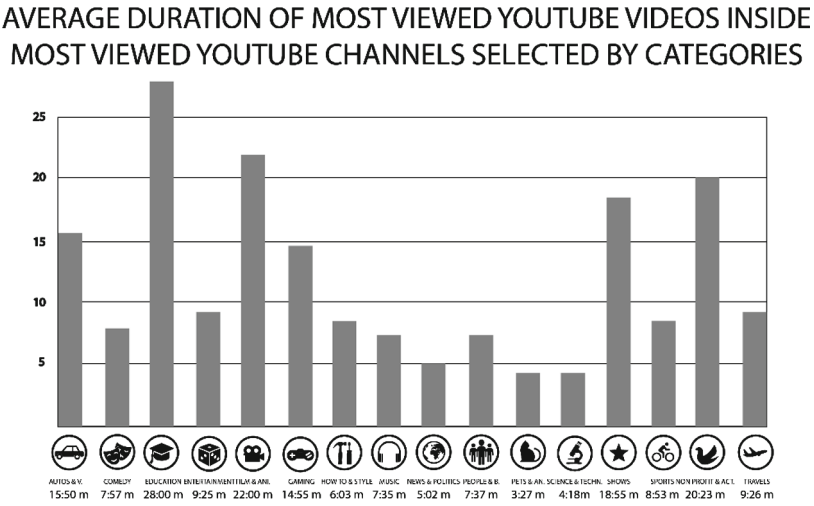

Fig. 6. Average duration of the most viewed videos from the most viewed channels selected by YouTube categories. Sources: www.youtube.com & www.socialblade.com. Own elaboration.

4 Data Discussion

In general terms, there is a great influence of YouTube on the current digital culture of user's interactions with online audiovisual interfaces. The massive totals of interactions that users have with each studied variable of the YouTube interface (views, subscribers, likes, dislikes and number of comments) make it evident that it is one of the most influential cultural interfaces. It counts with 48,052,539,540 interactions with the views category, 1,000,938,300 with subscriptions, 59,276,800 with likes, 13,390,896 with dislikes and 6,416,392 with comments, making a total of 49,232,561,928 interactions with all the variables.

If we compare these results with the previous research of Weilong Yang and Zhensong Qian [26], which was conducted in 2011 and based on YouTube categories, it was found in this current research that the category with more views was "education" instead of "entertainment." However, both research studies identified "music" as the second most viewed category, followed by other categories such as "comedy", "people and blogs" or "film and animation". Similar categories were also found in the top positions by number of views, such as "comedy", "entertainment" or "film and animation". On the contrary, "education" and "gaming" categories have gained more views compared to the previous study.

The fact that the "education" category has 24.5 million, 15 million more views than the second most view category "music" category (Table 1), denotes the great role that the social network YouTube plays in the context of educational development, and as an important digital tool for learning. However, it should be taken into account that when it comes to educational content on YouTube, this is mainly about educational entertainment content, namely edutainment, such as children's videos, which show modeling clay games and educational songs. The majority of videos in the "education"

category are Kinder's egg opening and children's songs, including learning techniques for singing songs that use karaoke subtitles. In this way, children develop interactive visual self-taught skills from childhood while learning activities such as modeling clay or traditional children's songs. Thus, parents lead by example and provide the first learning experiences online, by teaching children to develop strategies to use search engines and select suitable and appropriate elements online [32]. Based on this data, the use that parents make of new technologies during the education of their children can be highlighted, using the videos on YouTube as a resource of learning. The use of videos also helps parents to teach and learn a wide variety of practical skills with visual examples, which can be repeated as many times as necessary through the YouTube interface video player. Whilst this category has the longest duration of videos, it has the least number of interactions in the variables of subscribers, likes, dislikes and number of comments, suggesting a low level of interactivity from the user (Table 1), both parents and children give more importance to the content than to the interface extra options.

Regarding the "music" category, the large number of subscribers, totaling around 154 million should be noted, 102 million more subscribers than "education." This shows the higher dynamic consumption of musical content and its ubiquity, in its cultural uses in different places, motivate greater loyalty to certain channels' subscriptions and musical artists. On the other hand, similar to music, is the comedy category, with 153 million subscribers. This denotes the subscribers' attraction to the latest videos of musical and comedy artists, which are some of the most shared contents with other social networks, such as Facebook, WhatsApp or Telegram. In short, the digital cultural habits of sharing the latest music and comedy videos are a very popular interaction habit that motivates larger numbers of subscribers in these categories.

Following the rationale of user interactions through the shared of entertainment contents, it was observed an increase in popularity of gameplays. The "gaming" category, with 165 million subscribers, is the one with the most number of subscribers. This category shows mostly videos of expert video gamers playing Minecraft, or other games such as Fortnite, accompanied by online competitions and commentaries, as if they were football matches, including multiplayer games and others popularly known as LP's (Let's Play). In addition to machinima productions, videos made with online video game animation engineering that help generate hypertextual and transmedia content [33], also support social interaction between channels and YouTube categories, as the video games based on films, and vice versa, demonstrate. Video gamers communities subscribe the most, their videos shows the broad and complex nature of usability, narratives, levels of interaction and immersion that video games allow. Those hidden tricks and new levels can only be solved through the collective experience and interactions that the videos illustrate. For those reasons, gamers are those who are most interested in obtaining the latest updates from those channels on video game advances through their emails, and for improving their quality to compete in tournaments. Compared to "music", "comedy" and gaming", the "pets and animals" and "travel" channels have less subscribers. There is less interest in viewing the last video of a cat flipping or the last trip of a vlogger; therefore, the update that the subscription provides is not as important for its subscribers. However, these channels also form part of the user experience and digital culture habits of sharing videos with related social groups,

communities, friends and family since there a great number of subscribers 19 and 9 million, respectively in "pets and animals" and "travel" channels.

At the level of the variable of likes and dislikes, the category "music" has 27 million likes followed by "education" and "comedy" with 4 million likes each respectively. "Gaming" has 3.7 million and "non-profit and activism" with almost 3 million (Table 1). The great difference between "music" and the other categories exposes the degree of influence and interaction that music and its artists have on the tastes and hobbies of contemporary society, music market is the most influential themes representing likes interactions in the current digital culture. It should be appreciated the common denominator between categories, the digital cultural habit of emotionally sharing what one likes through the interface. It could be said that the common feeling of empathy, sharing a common human emotional space and experience, it happens through the user's interaction "likes" with the categories of music, education, humor and comedy, games, animal life and humanitarian campaigns. That emotional connection may have inspired YouTube interface designers to organize the categories based on the likes and similar contents.

In contrast to the above, but following the logic of the empathetic/non empathetic interactions through the "like" or "Do not like", "music" is also the category whose videos are more "disliked', or repudiated by haters. This is a term designated for the person who tends to criticize without argument on social networks. "Music" category accumulates 3,111,000 dislikes. In the case of the "education" category, although it is the most viewed, it has the second closest number of dislikes, 3,049,000, followed by "how to and style" and "show" (Fig. 4). This could be due to the fact that a large part of the interactive consumption that takes place on YouTube is by young people and adolescents who maintain a more critical position on educational contents, they may expect more updated semantic structures and production quality. These categories denote room for potential growth among these audiences. On the contrary, the least hated channels are "cars and vehicles" (87,000), "travel" (54,571) and "sports" (82,025), they are the contents least affected by public opinion, they focused on objects and actions more than in empathy.

There are a large number of people who participate in the YouTube community writing comments as subscribers (Fig. 5). The most commented category is "music", with almost 3 million, commenting mainly emotional over technical characteristics. However, the second most commented category is "how to and style" with 1 million comments, probably because Q&A interactions are most needed in how to descriptions. That is why many of the interactions are not only about the videos but also between the comments of some users and others, generating a richer debate in details than "I like" or "I don't like" in terms of what how to methods are more or less effective based on facts and styles. These comments are invaluable to both users and businesses since they provide data on user's engagement. They also allow prosumers to communicate with the audience and the audience among themselves, generating a sense of community or teams for or against some methods and implementation. For all this, some users are grateful that even negative comments provide them with improvement advice. In fact, in spite of the negative or positive nature of comments, YouTube congratulates users for having a highly commented video. However, these comments can also affect the self-esteem and acceptance of young and adolescents YouTube's users, and they may increase isolation if the proliferating comments are negative [34].

It can be seen that the YouTube categories with the lengthiest videos (Fig. 6), are "education", "shows", "gaming" and "film and animation" in contrast with the "how to and style" or "people and blogs," which are of a shorter duration. Average duration is an important factor both for the user to remain interested in the content and for the time they have to view the content, audiovisual digital consumption. In fact, there is an emotional, intellectual and social negotiation between users and time. To consider this further, and as previously explained, the lengthiest videos, 28 min on average, belong to the "education" category, which is also the most viewed category. The duration is probably tolerated because the investment of time is compensated by the acquisition of knowledge. The second lengthiest, with 22:00 min on average, is the "film and animation" category, which shows that feature and short films are still very present on the platform. The categories "non-profit and activism" follow with 20:23 min on average, where the duration is probably compensated by the socio-political and ethical message that these videos provide. "Show" category has 18:55 min in length on average, and where investment of time is likely justified by the nature of the videos. The videos in the "show" category are usually longer than others, this is because most of their most popular videos are television series or animations that follow the standard of television duration. "Cars and vehicles" videos are, on average, 15:50 min in length due to their documentary nature, followed by "gaming" with an average of 14:55 min, where entire plays are usually shown, being 15 min the medium-duration form of user gameplay experience. On the contrary, according to the data, the videos in the "pets and animals" (03:27 min) and "science and technology" (04:18 min) categories are the shortest. This fact is probably due to the more objective nature and narrative structure of their contents, based on concrete actions, animals or technological demonstrations. To contrast data, a more recent study, based on time average on YouTube categories, shows that the categories with more time average are "gaming" and "film and animation" [35]. This information confirms the emergence of the allowance of users' new digital cultural habits, uploading more traditionally paid entertainment in other paid platforms, united with the interest of YouTube to motivate its paid services since gaming and films are what audiovisual digital users are most willing to pay for. In brief, each video category establishes its own time standards according to its visual styles and narrative structures.

The contents on YouTube are very varied since prosumers can use the platform as they wish, influencing the information society in various ways. The contents that show high doses of innovation stand out because they are capable of establishing new audiovisual narrative genres. In addition, many of the most popular videos demonstrate the relationships between the industry and users in a particular way. For example, it is important to highlight that in the case of "science and technology", most of their most popular videos show short video tutorials with comedy content in which objects are broken to check their resistance. For this reason it may not be too striking that some of the most viewed videos in this category are videos that show the breakdown of the latest iPhone model. The interest in popular usability makes this type of video reach increasing views, offering huge profits to the creators of this content, since it serve the users and potential shoppers interest of checking quality control. Many of the most popular videos found in the YouTube categories expose the relationship and interactions between producers and consumers [36].

5 Conclusions

In conclusion, following the objectives of the study, carrying out a quantitative analysis of videos selected by YouTube categories, has allowed us to obtain a fairly approximate idea of the type of user interactions and their digital cultural habits that are recorded on the YouTube interface. To understand the digital culture dynamics between users and YouTube qualitative complementary analysis will be necessary to contrast the quantitative data. HCI and users' interaction on YouTube are a socio-cultural phenomena that requires a bigger scope of data to fully understand emerging digital cultural habits.

The user experience flow allowed through YouTube interface interactions will express how are the emerging media structures, the producer's mediation and the freedom to rich and meaningful interactive communications within a constantly updated online audiovisual network. Users' interaction can motivates media and interface transformations and can give the online media networks such as YouTube new properties, where the ability to synthesize information, interactivity and non-linear and arbitrary access gives rise to new variants of cultural habits that are still emerging.

The type of user participation in a new multidirectional communication system exposes the levels of interactivity, selective, transformative or constructive, being the more interactive the constructive level, the one that allows the user to become prosumer. Based on the quantitative characteristics of its interface, YouTube video visits interactions are selective because the interface allows to select from the content available to watch. The subscriptions interactions are transformative because the user can modify what date he receives according to several recombinant configurations. The likes and dislikes are selective interactions, focused on expressing simple emotions; and comments are constructive interactions, since each user can generate through textual content whatever they want [37]. From the perspective of the user experience all of these types of interactions generate certain freedom in the forms of HCI and flexibility in the change of communication roles that encourage interactions with YouTube interface.

The multidirectional and interactive media consumption and production encompasses all areas and habits of digital culture interactions. Even social relations and behaviors today represent a mediatized stage. An socio-cultural stage that goes from pure and simple abundance of social media accessibility and democratization of technologies, to the total conditioning of acts and time, having to be fully active and accessible through the cell phone, Facebook, Twitter, Instagram, etc. All passing through the network of globalized and systematized environments of commercial consumption on the internet [38]. The notion of "popular", built by the media and the digital humanities, follows the logic of the market. The popularly massive is what does not remain but in the instant, contrasting with the art and culture that last of ages, it does not accumulate as intergenerational experience, nor does it enrich itself with what has been acquired [39] but experienced in the here and now.

The YouTube ecosystem is constantly reconfiguring itself generating a hypertextual and reinterpretable audiovisual reality. Prosumers build their own mythologies according to categories, establishing their own meaning and contributing with new virtual constellations, new categories, formats and structures. New audiovisual

interactive narratives can tell stories that cover all genres and styles, creating new hybrids that overcome universal meaning that evolves generationally. The new type of narrator in the big theater of cyber media interactions has great capacity for expression by being able to modify multiple narrative possibilities and characters, while being prepared to assimilate new content that will later be interpreted and reworked [40]. Future research analyzing the aesthetic and narrative expressions of the productions that take place on YouTube, from an analysis of content to forms and styles, will be the next necessary step for contrasting the quantitative results presented here and to determine emerging digital cultural habits. With all, the milestones for how to develop, create and motivate the evolution of contemporary audiovisual languages and digital cultural habits and consumption will be better understood. These interdisciplinary and comparative quantitative and qualitative studies are necessary to establish the solid theoretical and practical bases of digital humanities so the new generation of HCI users keeps humanizing the social media interfaces.

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