

"Babeş-Bolyai" University
Faculty of Political, Administrative and Communication Sciences
Doctoral School of Political and Communication Sciences
Field of Communication Sciences

Doctoral thesis - summary
The video tutorial as educational tool

Scientific coordinator :

Univ. Prof. Dr. Elena Abrudan

PhD student:

Alexandru Dorofte

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Summary

Keywords : *tutorial, video, youtube , educational , MOOC, content user - generated , how-to.*

This paper aims to analyze the production and distribution of video tutorials on the YouTube platform in order to better understand the mechanisms behind their success, with a potential for integration into the academic educational system (but not only), for a better understanding of the way in which this type of materials can bring benefits both to users and especially to producers of educational content. For this purpose, the work was structured in 4 chapters dealing with theoretical notions necessary for the practical study (the tutorial, the YouTube platform, video-based education and video production).

Whether we are producers of video content or just consumers, it is hard to deny the importance of this form of information transmission. From television, video conferencing, the film industry, instructions for using the various devices we interact daily, video chat, education and video games to smart devices, the video format has become an integral part of the human language and it is very important to understand where audience gets information about this language, how to understand it and, in many cases, become a content producer. The literature studied chapters manages to partially cover the topic of online tutorials, and it is known that there are still many unknowns in how users teach themselves how to produce video materials, from different specific platforms (such as YouTube), without benefiting from a well-structured educational environment. Precisely because of these shortcomings, the present paper wants to observe the phenomenon of tutorials dedicated to video production on YouTube (both on the hardware and software side), to try to outline the main characteristics of these materials but also to understand the phenomenon as a whole. It is important to observe how this system works and what are the elements that the public appreciates in order to be able to adapt these practices within the academic education system, to take advantage both of the way students interact on the platform but also of the possible recipes for success that can be identified from this study.

The second thing this study aims to do is gain insights into the structural elements of these tutorials, what they are made of, and how they fit into the final product. Afterwards, the model generated after analyzing the specialized literature will be consulted in order to observe the similarities and the major differences between the theoretical model and the one generated by the analysis, so that finally recommendations can be made regarding how content should be generated educational for video production. The study is based on a series of progressively more

detailed analyses, starting from an initial data set, moving to smaller and smaller subsets to create an overall view of how users learn video production from a platform of video content.

Thus, chapter 1 analyzes the specialized literature to identify the concepts underlying the research from the practical part of the paper.

The traditional educational system is still dominated by text despite the fact that the main beneficiaries of this system have developed in environments where the image is the main method of communication (photos, videos, memes, video-chat, GIFs). This can lead to the student moving away from certain contents or even the subject (Sweeney, Whitehead, & Odonoghue, 2004; Wyant, 2013).

The first stage starts with visual literacy, an element without which both content producers and the public consuming video products cannot understand elementary notions of visual language. Visual skills can lead to the development of cognitive ability, can increase the ability to understand the message of the visual product and can lead to a better integration of the knowledge that these tutorials deliver (Abrudan, 2013).

Also in this chapter expository text is treated to create a context in an attempt to define the main unit of work for this paper - the video tutorial. Whether we are talking about complex processes or operations as mundane as a culinary recipe, procedures are the basis of organized activities (Bovair & Kieras, 1996). Whether we're talking about a text-based tutorial, illustrated instructions for IKEA furniture, or a complex video tutorial, how a procedural text is constructed is the basis of a good or bad product.

Next, the YouTube platform is treated in relation to visual skills in order to establish the elements that connect the two concepts. At the same time, the chapter explores the most important features of visual literacy (or skills) to better understand how they underlie video-based education. In this chapter, the concept of tutorial was introduced with : definitions, advantages, disadvantages and general characteristics, recommendations from the academic environment based on previous studies, starting from the notion of tutorials in the broadest sense of the concept, moving to the video tutorial with its subcategories and ending with the video tutorial on the YouTube platform.

Chapter 2 will establish the general context in which the YouTube platform is used as a medium for the distribution of educational content (history, specifics, characteristics). Also here will be treated the principle of successive refinement, how knowledge is transmitted from experienced participants to beginners and their sense of belonging to a community with the same interests (Jenkins, 2009), the elements of participatory culture and user-generated content. The

YouTube platform as an educational tool will be analyzed and a classification of the main types of educational videos present on the platform will be made.

Chapter 3 discusses the main features of video-based education to better understand how this tool helps to complement traditional education. In the first part of the chapter, the main types of education that use digital tools (e - learning , m - learning , d - learning , smart learning) to better understand what their role is in the wider context of the educational process. The second part of this chapter deals with the mechanics of educational video content, from the beginnings of television education and learning through entertainment, to online education in the COVID era, going through the main advantages and disadvantages of education focused on multimedia content.

Chapter 4 analyzes the most important stages of video production in order to understand the general context of this format and its importance both at the level of visual skills and as a tool for the production, transmission and assimilation of informational content. The first part of the chapter discusses the main stages of the film evolution, from the silent film to the digital age, and the second part deals with elements of post-production, namely video editing, visual effects and audio.

Chapter 5 introduces the case study, research design and applied methodology.

The main purpose of this study is to identify the specifics of video tutorials on the YouTube platform that deal with aspects of video production. This analysis is necessary to better understand the phenomenon and how it helps to form new generations of content producers, what topics are of interest to them and what formats they prefer in the learning process.

The main objectives of the present study are:

OB1 : *Identify YouTube channels that produce video production tutorial content* . In order to be able to apply the research methodology, a sample consisting of videos correctly chosen for the treated subject is needed. The most important YouTube channels dealing with video production at the time of the analysis were chosen.

OB2 : *Identifying the main topics covered in the tutorial producer videos.*

The topics covered in the selected videos create a picture of what is of interest in terms of video production. They reflect user demand for this kind of video and can create a map of the most important operations required in video production.

OB3 : *Delineation of categories in the production of video tutorials.*

Based on the classifications resulting from the analysis of the specialized literature, we will try to classify the videos in the sample to understand which type of videos are more successful.

OB4 : *Delineation of structural elements specific to tutorial videos.*

The study wants to identify which are the most used components used in the creation of these types of contents in order to create a theoretical model applicable in the academic area as well.

Based on the formulated research objectives, a series of research questions were derived :

Q1 : What are the top YouTube channels producing video production tutorials?

Q2 : What is the specifics of the producers behind these YouTube channels?

Q3 : Which are the most important topics discussed in video production?

Q4 : What is the average length used in the analyzed tutorials?

Q5 : What video categories are most often used in video production tutorials?

Q6 : The ideal tutorial model – what is the typology of the ideal tutorial following the results of this study?

The study contains several progressively more detailed quantitative analyzes applied to progressively smaller data sets. The research is based on a number of 19,113 tutorial videos obtained from 41 YouTube channels in the general area of video production. A first sub-sampling involves extracting videos published in the period 2012-2021 (a decade), to identify the main topics and place them on the time axis. In order to be able to have a more granular view of the content posted on YouTube channels with the previously detailed profile, a second subset of data (SSDV2) will be created, which will only include the top 10 videos according to the number of views from each channel . Other criteria that will be considered are: (1) videos must be posted within the last 10 years (2012-2021); (2) have a maximum duration of 30 minutes.

In order to have an overview of the videos posted on YouTube channels with tutorial-type educational content, a first analysis will be made on the specific metrics of the sampled YouTube videos. Afterwards, the data set will be filtered to go deeper and specific analysis grids will be used (both for sampling and content analysis purposes). In order to identify the main themes in the selected videos, quantitative analyzes will be done on the text of the video titles, by creating co - occurrence networks. Because technology is constantly evolving, it is desirable to identify themes and anchor them in specific periods. This will be done using the KH Coder 3 program and term-term and term-variable co -occurrence networks , the variable being the year the video was published.

The next part of the analysis is based on a quantitative analysis focused on the first two clips for each channel (by likes) and uses an analysis grid to identify the structural elements most often used in these materials.

Chapter 6 introduces the analysis and discussion part based on the extracted datasets. Visualizations generated from Tableau Public will be observed to identify, where appropriate, the general characteristics but also the particularities of video tutorials focused on the production of video materials in an attempt to create an overview of the phenomenon. This chapter has 5 sections dealing in turn with the subsets of data established in chapter 5.

All 6 analyzes will be discussed, one by one, and the most important observations discovered will be noted, which are the specific elements for these tutorials, but also which are the exceptions in the sample. Key channel metrics will be analyzed based on year of release, number of videos, number of views, etc. In an attempt to observe what are the factors that turn a YouTube video into a quality and successful video tutorial.

The analysis of the titles of these video tutorials (for the last 10 years) will try to identify the most frequently addressed topics, to understand what is being sought, what is being studied, what the world wants to learn from the vast field of video production.

In the analysis of the first 10 videos for each channel (depending on the views), it will be observed in which categories they fall, how many types of materials are specific for each channel, what length is specific for each category and what techniques are used for the production of these videos. In an attempt to identify the characteristics of a tutorial that are as close as possible to an ideal model, the most frequently used categories of tutorials will be identified (*how to* , *special effects*, *basics*, *reviews*, *charts*, *comparisons*, *presentations*, *suggestions or graphics*), what kind of techniques they incorporate (screen capture, instructor voice, audio, animation, text, etc.) and then they will compare based on the number of likes and views for each of them.

In addition to the quantitative analyses, the paper also contains the qualitative analysis of some of the exceptions reported (YouTube channels or individual tutorials). These in-depth analyzes aim to identify deviations from the rules and whether these deviations have a positive or negative effect on video products. The analyzes detail how the tutorials of some of the most successful YouTubers in the sample are built to identify the most important elements and how they are structured.

A final part of the analysis identifies how the instructor is represented in these tutorials, using the categories identified by Crook and Schofield (2017), to observe whether the presence of the instructor in YouTube tutorials is comparable to that specific to the MOOC format.

Chapters 7 and 8 discuss the results, conclusions and limitations of the paper in order to identify the objectives and answers to the research questions.

The study identified a number of 41 YouTube channels that correspond to the selection criteria used in the sampling. These channels contain (mostly) tutorial videos covering the most important stages of video production and post-production. They were chosen according to the most important publications at the time of the study but were later manually filtered to fit into the analysis area of the study.

Following the individual analysis of YouTube channels, it was discovered that there is no very clear specific content producer for video production. The background of these producers is very different and the way they evolved over time differs a lot, from case to case. In some cases it is about producers who started from filming events, in other cases about personal filming with the family, and some channels have teams behind them that work together to provide educational material. Many of these channels have developed over time, as manufacturers have refined their methods and perfected their products with the help of users. Dividing them into professionals and amateurs is, firstly, difficult to do and secondly, irrelevant to this study, as we noticed that it takes more than studies in the field in order to develop a successful YouTube channel. Situations have also been discovered in which the producers of these YouTube channels have developed businesses adjacent to the platform in the form of sites where they offer, for a fee, video production services, courses, plugins, stock-footage, etc.

Analysis of the titles of the sampled videos identified a number of possible topics of interest to both producers and users of these channels. The terms *make, video, tutorial, camera, effect, premiere* are the most frequently encountered in the titles analyzed in the paper. We can deduce from this that the most common materials are tutorials dealing with the realization of some processes and effects either with the help of the video camera (in the case of software tutorials) or within the editing program (the most common being Adobe Premiere). Even if these channels do not exclusively contain video tutorials, it has been noticed that they are the majority, far surpassing the other types of productions (vloggers, documentaries, short films, commercials, etc.)

Other topics that are discussed in the analyzed tutorials are : *youtube evolve better, mavic air spark cinema pocket blackmagic, split-screen, basic filmmaker, youtube_channel grow, short horror, motion graphic essential, iphone android app, remove noise background, avoid mistake, tip trick, music video, sound design*. From these terms we can outline the area of general interest of these materials.

Another area of interest is related to YouTube channel development, specifically video tutorial content producers for users who want to develop a YouTube channel that will in turn produce video tutorials. It is about how information passes from the producer to the user who in

turn becomes the producer. In many situations it has been observed that this has already happened. There are producers who give as a source of inspiration other YouTube channels, other producers, there are collaborations between certain producers, both within the platform and outside it (personal sites offering different digital products) and this continuously developing community leads to an overall increase in production quality.

The length of video tutorials used in the university environment is a current topic of discussion and this study is intended to be a starting point in this direction. Guo, Juho, and Rubin (2014) analyzed 6.9 million MOOC viewing sessions and observed that 89% of them fell into either the “lectures” or tutorials category. The same study shows that the average time students spent on these tutorials was only 6 minutes, regardless of the total length of the video.

The results of this study suggest an average length of videos between 6 and 12 minutes. Consulting the specialized literature proposed limiting video tutorials to 6-10 minutes (Simon, 1957; Lagerstrom, Johanes, & Ponsukcharoen, 2015; Geri, Winer, & Zaks, 2017; Fishman, 2016; Guo, Juho, & Rubin, 2014). The fact that the majority of analyzed videos fall within this range confirms the results of previous studies and confirms the importance of these materials in the educational process (whether formal or informal).

This result shows that the best results are obtained for short videos, but also that this rule can be broken if the subject covered by the tutorial is one of interest. Due to the way the YouTube platform works, the freedom to share content, and the way certain videos become popular, it is possible that some longer content will perform well based on how users share it. The fact that the representative (most popular) videos fall within the literature recommendations reinforces existing research that shorter videos perform better.

After analyzing the videos in the sample, it was found that the most common type of material is the *how-to type*. Another result is the increased popularity of this type of tutorial among video content producers. Topics such as *how to resize the frame*, *how to make a short film* or *how to produce video without a budget* are discussed on almost all channels analyzed and outline the format preferred by their subscribers. This result confirms the sample selection and research of this paper and demonstrates that the materials produced by these creators are, for the most part, educational materials.

The second important topic is *visual effects*. This fact indicates the increased interest in the final stage of video production, the most advanced, which until recently involved knowledge and equipment that were not within everyone's reach. The fact that subscribers to these channels want to learn how to achieve these advanced effects indicates both the development of the technology and the public's access to it, as well as the importance of these

techniques in video production today. This result indicates the higher interest in tutorials that deal with software topics than those that deal with hardware topics, that the audience turns their attention more to post production than to production. This result can be explained by the way these tutorials can be done by users: in the case of a software tutorial the user/student only has to follow the instructor in front of the computer and apply a series of steps in the analyzed software. In the case of hardware tutorials the situation is more complex, it takes more equipment, more time and more hands-on experience to make a product.

In third place in user preferences we find materials dealing *with basic topics* in video production. They describe procedures dedicated to beginners, simple and clear operations that are the basis of video production. This indicates increased interest in beginner material and helps shape the tutorial model for YouTube video productions. The result can be explained by the profile of users looking for video production tutorials. The interest in such materials is much greater when the producer is at the beginning, when the amount of information he has to accumulate is greater. As his experience decreases, his desire to learn new things decreases, and the supply of tutorials reflects this demand.

Following the analysis of tutorials dedicated to video production, a compilation can be made with the most important features observed in the most popular videos (software tutorials) on the sample channels. A successful video tutorial : has an average length between 6 and 12 minutes ; covers topics on how to film, edit or introduce visual effects to materials in the fastest and easiest way possible; contains, in addition to an educational component, elements that break the monotony of the traditional teaching act with elements related to the entertainment area (illustration frames, frames with the instructor telling jokes, examples of similar materials); follows the how-to format, presents a procedure to perform a task following a series of steps; belongs to a channel that has an average of 600-1000 materials; belongs to a channel that has a large number of subscribers (over 1 million); contains frames with the instructor's demonstration; contains frames with the software used for editing; contains frames with the final product; the information is presented through text, voice or animation.

There are a number of terms that can be found in the titles of the materials from the entire analyzed period . The topics of interest for users who want to learn video production remained roughly the same throughout the analysis period. Problems that a beginner faces have remained more or less the same, whether we are talking about camera basics, ISO, aperture, exposure, or the first steps in the field of video editing or text animation. It has been observed that some channels produce updated variants on topics of interest or alternative variants on the same topic (eg different materials for editing a material in PremierePro , Davinci Resolve or

Sony Vegas). This aspect is important to remember in the perspective in which it is desired to adapt this model for the field of institutional educational products – it is important to follow market trends and user needs in order to be up to date with the offer of relevant materials for a certain audience at a given time. Even if the topic covered by a tutorial is still relevant, the fact that the video tutorial does not match the student's learning style can lead to its abandonment. Video content tutorial producers are essentially service providers and are compensated in one way or another for their efforts (either by YouTube or through donations, contracts with third-party companies or other sources of income). . The same must apply to tutorials produced for the university environment. Video tutorials have a big disadvantage compared to text tutorials in the sense that in the case of an update, the manufacturer is forced, in most cases, to redo the material from scratch, which is not the case with a manual where can modify, remove or add certain chapters. This process is resource intensive and can be seen as too much effort on the part of teachers. The topics covered by the reviewed tutorials are stable and current at the moment. Whether we are talking about how equipment is used such as: a video camera, a tripod or a video editing program, these topics remain of interest because a beginner will have to go through all the stages of video production to learn how the whole ecosystem works. Even though certain aspects are changing (new cameras appear, new versions of video editors, etc.) the basic elements still remain the same.

The number of subscribers influences the total number of views for each channel. The large number of subscribers is obtained through various techniques and does not take into account only the quality of the materials, the promotion of the channel and other procedures for growth on the platform must also be taken into account. From the analysis of the dataset it was found that there are both channels with a small number of materials and channels with a lot of productions that get very high total views (over 100 million). This is due to the large number of subscribers these channels already have. Tutorials that have a simpler approach that everyone can understand get much better results . Users prefer materials that are easier to understand and remember, and if they include entertainment elements, they will get better results. Materials that only follow the classic definition of a tutorial without introducing new elements are less likely to get a large number of views. Even though users come primarily for information, the entertainment aspect of videos plays a very important role in user behavior.

Quality materials can promote the entire channel . Not all videos need to follow all the steps recommended by the literature to achieve good results. During the research, some materials that do not fall into the video tutorial genre were analyzed, but they got a lot of views. Whether it's your own productions or vlogs , these materials have the role of bringing users to the channel,

getting likes or encouraging the audience to interact (with each other or with the producers), which will ultimately lead to an increase in popularity YouTube channel. We can say that these materials that deviate from the general rule of the channel can be seen as promotional materials, novelty elements that will get views that will be beneficial for the other (educational) materials on the channel.

Experience in the field helps with the credibility of manufacturers. This is either about the experience gained over time, by producing many video materials, or about the feedback obtained from user comments, or about the experience gained outside the YouTube channel from professional activity (award-winning films, commercials, experience in own video production companies etc.). The experience that video content producers have is constantly evolving, and this means that their productions will also get better in the future, leading to better and better generations of video content producers.

The audience is interested in all stages of video production. If at the beginning of the analysis it was started from the premise that video production involves the production part (everything related to filming) and the basic post-production part (video and audio editing), the results showed a great interest related to materials involving post -advanced production (animation, visual effects, motion graphics). One can see, therefore, the interest in all aspects of video production and that animation and visual effects have become staples in contemporary video production.

The video tutorials in the analysis have a complex structure. Although all the videos analyzed at this stage belong to the video tutorial class, we can see that the production techniques used are mostly mixed (interface + voice, interface + voice and talking head). This shows that these productions are complex, combining several techniques, which appeals to the production and details of these videos. In the same context, it is observed that the tutorials dealing with the post-production part (software) have a simpler structure, have fewer elements and are closer in model to the theoretical model described by the specialized literature. In these materials, an instructor can be seen transmitting the information through text, voice-over or animated elements, superimposed on a screenshot of the analyzed software .

Introduction	1
I. Basic concepts	4
1. The expository text	4
2. Media literacy	5
3. Visual literacy	6
4. Tutorial	10
4.1 Definitions	12
4.2 Advantages	14
4.3 Disadvantages	15
4.4 Characteristics of the tutorial	17
II. YouTube and user-generated content	21
1. YouTube platform: history, specific, features	22
1.1 Participatory culture	24
1.2 Remix and mashup	25
1.3 User-generated content	27
1.4 YouTube Content Classification	28
2. YouTube as an educational tool	30
2.1 Types of educational videos on YouTube	31
2.2 How-to Vs. tutorial	33
III. Video-based education	34
1. Types of education - E-learning, m-learning, e-learning	34
1.1 E-learning	35
1.2 M-learning	37
1.3 D-learning	37
1.4 Smart learning	38
1.5 Interactive video	39
2. Educational video content	42
2.1 Personal computer and the Internet	44
2.2. The process of learning through entertainment	44
2.3. Video as a resource in education	45
2.4. Multimedia in the educational environment	49
2.5. MOOC (Massive Online Open Classes)	52

- 2.6. Video lecture 54
- IV. Video production 56
 - 1. History of video production 56
 - 1.1. The emergence of film and cinematography 56
 - 1.2. The silent film 56
 - 1.3. Color film 57
 - 2. Video production in the digital age 58
 - 2.1. Aspect ratio, aspect ratio in the image 58
 - 2.2. Room movements 60
 - 3. Video editing 61
 - 3.1. Traditional assembly techniques. Types of cuts - in progress 65
 - 4. Special effects 69
 - 4.1. Digital special effects. The best known visual effects used in digital video productions 71
 - 4.2. Motion graphics 74
 - 4.3. Visual and audio effects on TikTok 74
- V. Research design 77

14

- 1. Introduction, purpose and objectives 77
- 2. Research questions 79
- 3. Methodology 79
 - 3.1. Methods of analysis 79
 - 3.2. Sampling 80
 - 3.3. Analysis grids 86
 - 3.4. Data collection and data sets 91
 - 3.5. Preparing the data set for quantitative analysis on text 93
- VI. Analysis and discussions 95
 - 1. YouTube channels that address tutorial content 95
 - 2. Videos posted on YouTube 100 channels
 - 3. Video titles from the last decade (2012-2021) 109
 - 4. Top 10 videos per channel 114
 - 5. Analysis of software tutorials 122
 - 5.1 Elements of appearance and structure 123

4.4. Presence of the instructor 127

4.5. Observations, exceptions 135

Results 141

Conclusions 149

Annex 173

1. Annex 1. List of analyzed channels 173

2. Appendix 2. Figure 5 from which the video "Vad Tyst Det Blev ..." was excluded.
174

3. Appendix 3. Chapters of World & # 39; s Most Advanced Video Editing Tutorial
(Premiere Pro) - Editing LTT from start to finish 174