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The design of free digital resources: Typology of DIY videos made by students for online tutoring: Case of a license in Hassan II University

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ABSTRACT

This article presents an exploratory and descriptive study. Whose purpose is to define the typology of video capsules made by students for online tutoring.

It also tries to find out the tools used by students and the difficulties of the conception process. In this study, students (n=130) developed instructional DIY videos based on studied anatomy and physiology courses. A laboratory, and both physiology and anatomy equipment were available to students. 61 capsules were presented. And a questionnaire was administrated. The typology of Hanch *et al.* (2015) [1] was used to define the style and characteristics of those productions. The findings go up that the videos developed were in the form of a compilation of two or more styles. Some prescriptions about the training for video conception and orientations for researches are given at the end of this work.

Key words: Free educational resources, Student's Videos, Style, typology.

1. INTRODUCTION

Video capsules or video casts are learning tools exponentially used in parallel with the expansion of use of online learning platforms (MOOC, SPOC, xMOOC, etc.). Many researches attest the additive value and the singularity of the contribution of videos compared to written texts and images. Koumi J. (2006) [2]. It assists learning and training skills. It gives experiences and nurturing. Videos can be presented in different forms: it can be a recorded course in classroom, or a talking head as a television speaker… they are used as a principal or secondary tool in courses. The video capsule offers a particular dispositive of annunciation, in French, « un dispositif d'énonciation télévisuel » Adams *et al.* (2014), Boullier(2015), Depover (2014) [3], and establish a contract between the capsule and the user. Charlier B. [4]. Many researchers found that the impact of the video and their impact is up to the style in which it is made and to their technical characteristics. Those studies were focused on the videos of the most prestigious universities and the most used ones. Some universities relies the videos conception to professional laboratories or institutes of "Educational entertainment" or "Edutainment". C and Lobe, (2016) [5]. This way of production remains very expansive for many universities and requires time.

In the other cases, the videos are made in a less standardized way. The capsules are created by teachers in specific studios, as it is the case in Hassan II university of Casablanca, or in other less conventional places. When we read the ideas of Hanch *et al.* [1] about using DIY videos (Do it yourself), that means that the videos are made by yourself with your own material, and about their contribution in the educational goals achievement with less time and cost, We tried to highlight this subject. « In many cases, opting for a lightweight or DIY production process is a great way to achieve pedagogical objectives, while at the same time reducing cost… Most smart phones and Web cams nowadays are able to record in high definition, and there are many free online resources that makes the processes of filming and editing accessible to non-professionals » [1] p 12,13.

The DIY videos are the most of time free and open resources, they are always available and accessible. They can be tutorials, demonstration a thematic speech… They are used all the time by everyone. We choose to work on student's videos – those students are future teachers- to use them to support the course in the next year. The main idea is to involve students in the conception of the course, so as they can develop their skills of "digital natives" Rheingold H. [6]. In the other hand we target to make every one of them active in

the process of learning and to make them know how to make resources by "doing" without any material assistance.

We note that in Morocco, as it is the case of many other African countries Alhadi Al Ghawail E. (2019) [7] the use of ICT in education is not sufficiently subsidized. Exception with some prestigious universities, the conception of digital resources is the business of teachers who are committed to innovation. Generally, students are not concerned by the conception of educational resources. There are few experiences around the world. In Cambridge University, a similar experiment was conducted, but in the opposite of the current research, students received a technical assistance. Hubbard K. E. *et al.* (2017). [8]

2. STUDY

2.1 Observation

The higher Normal school (ENS) of Casablanca offers training in teaching. The curriculum   prepares students to this job but doesn't offer authentic situations for distance teaching, tutoring and preparing digital resources. In fact, in the most of time practical courses are focused on the content conception, on class management and assessment but the use of ICT in teaching is not very developed in courses, except in informatics and some few courses. The main of studies are face to face. This does not improve students' skills in using ICT in learning and teaching. Learning platforms remain underexploited for many students.

To improve the learners to use ICT in education, and make them learn by "doing", we enroll them in a project: Students had to present a video capsule at the end of a biology and anatomy course. This video must present a part of the course. Chosen videocasts will be used to teach the following student the next year. Students were free in the design of their product the only prescription is the lent of the video. It must be under eight minutes, so as we can share the sequences online quickly and easily.

2.2. Purpose

The aim of this work is to define the styles in which students' videos will be made. We also want to know if students will perform in the task of preparing videos without any technical or material assistance. The study is also a pedagogical engineering. We try to find out the skills that those students, qualified as "digital natives", will show in the use of technology and the difficulties they will find in the task.

Questions:

- What styles of video will be presented in the final work?
- What tools and material will students use to record their videos?
- What skills will they develop in the task of designing a DIY videos?
- What difficulties will they find?
- The response of those questions will highlight the way do students imagine online teaching. To make hypotheses we will make deductions from literature because of the novelty of this thematic.

Assumptions:

- The styles depicted in videos are those that do not require high-performance technical material and software or advanced skills. Students are digital natives that are "tremendously creative" Palfrey J. (2008) [6], but may not have enough technical skills to learn and share online.
- Smartphones and personal computer are the most used tools for recording videos because they are in the propriety of many Moroccan students. According to the report of ANRT 2017, [9], 73% of Moroccan people over five years have smartphones. 83% of them are aged from 5 to 39 years. For computers 60% of homes and equipped by computers.
- Students have technical and material difficulties to present videos. They need technical assistance and training. Fucher and Yun (2016) [10], Palfrey

2.3 Literature review

The typology is a way for grouping several characteristics in an organized ensemble: a macro category with sense. Sauvé (1992) in Legendre (1993) [11]. Those grouped elements are not dependent each to other. The educational video or capsule or video cast are names of a part of digital resources. According to Bibeau R. cited in Baron G. L. *et al.*(2010) [12] ,the digital resource is all of online services, management, publishing and communication software (portals, software tools, training platforms, search engines, educational applications, portfolios) added to all   information about the use of ICT.

Video offers content and process. It means that in addition of learning the user can control the play of the sequence. They are made by professionals or by common people: teachers, students…Baron *et al.* [12]. In second option they are called DIY videos. Several researches treated video from different angles. Their integration in education, Peltier C. (2014) [13], Kay (2012) [14], their impact on learning, motivation and commitment. Nataatmadja and Dyson (2009), Bennet and Glover (2008), Dupagne, Millette and Grinfeder (2009), Hill and Nelson (2011), O'Bannon, Lubke, Barbe and Britt (2011) Boster, Meyer, Roberto, Inge and Strom (2006), and Pianta, Mashburn, Downer, Hamre and Justice (2008) cited in Roland N. *et al.* (2015) [15].

Another studies were focused on educational videos' characteristics to find out the haw they are designed. Koumi J. [3], Charlier B *et al.* [4]. Peltier [13]. Guo P. G. *et al.* (2014) [12], Guedes Da Silva *et al.,* Guo et al., Hansch *et al.* Cited in Peraya D. [3] tried to define connections between videos design, technical characteristics and their attraction. Some researchers investigated the characteristics of those resources and tried to present typologies by choosing one indicator or more. Peltier C. [13] in his literature review presented different typologies using different criteria. The first one is a classification using the nature of the course presented in the video. Videos presenting courses traces and complements are listed in this category. Dennen and Meyers, (2010). There are also videos who prepare for courses type flipped classroom. O'Bannon, Lubke, Beard and Britt (2010). The second one is the typology of Carvahlo, Aguiar and Maciel (2009). It includes informative podcasts, videos delivering feedbacks and comments, videos giving instructions and steps to follow, and finally podcasts based on authentic material or primary resources like shows, speeches etc. The third one is Kay's one (2012). This typology presents four types: the "lecture based" or recorded course, the "enhanced" who contains slide show with comments, the "supplementary" which is a course complement and the "worked examples" where problems are solved.

In the same work, other typologies are mentioned. They are made according to video's technical characteristics. Too types are ranked in this category. For the first one the "medium" is the criteria. Peltier C. make difference between audio, video or both audio and video documents. The other typology is a function of the lent of the video. We can find in this category: short video who's lent is taking from one to five minutes, medium videos with lent under fifteen minutes and long videos taking over fifteen minutes. The last typology is based on the segmentation of the video: in those categories we can find entire courses or fragmented ones. Other typologies are made considering the author of the video. It defines if videos are made by a teacher or a student or another people or if they are free resources. The style of the video is another criteria: it gives too types: Academic videos and informal ones. DIY videos are listed as informal resources. Many other typologies were developed in the Anglo-Saxon context. We can cite Harris and Park (2008), Mellor, Kotterand Oosthoek (2012). The typology used in this work is the typology of Hanch *et al.* [1]. It is based on a MOOCS' videos study. The authors have considered the style of video to define the types. By style, they mean: « the main method of visual organization that is employed to realize a video's goals and achieve specific results when the video is viewed. ». Eighteen types are listed (Table 2). This typology has been used in several researches, example of the work of Guo *et al.* [16]. In this study, the authors have used three typologies using the lent of MOOCs videos, their type and their style, respectively. They compared

the impact of different videos on the commitment of students. The researches considering videos made by students are very few and remain not referenced. In fact, educational resources are commonly regarded as the work of education institutes and teachers, students aren't always involved in such projects. One of these few researches is done by Hubberd R. *et al.* [7]. In the University of Cambridge, students developed videos in partnership with their teachers. The final capsules were used to teach students of the next year class. The authors have obtained positive results on students' achievements. They noted an added value in learning, a good understanding of courses, a better consideration of student expectations and an availability of educational resources. The characteristics of these videos are not defined in this work.In general, DIY videos are very available on the net, but remain poorly studied and referenced. Those made by students are very few and their characteristics or typologies are unknown.

2.4 Methodology

Study protocol

The students of the first year of a license in teaching have to present at the end of the semester one or two video capsule which contains a teaching sequence. The work will be done in affinity groups (4 to 6 people). The deliverable must be presented at the end of a biology and anatomy course. The choice of its subject is up to the group members. There is no recommendation for the design of the video. The only indication is about the lent of the video (from 3 to 5minutes). The lent can exceed 5mn with a limit of 3mn. This condition is necessary to have quick share and download of the videos and because of the efficiency of short videos. Kay (2012) [14]. We told the students that the objective of the work is to present a learning tool, and that the best videos will be integrate in the course of the following class of the next year. A biology and anatomy' laboratory was made available to students. Students didn't have any assistance in order to make them face the difficulties of the task, and to prove their skills of "digital natives". Furthermore, DIY video must be done with available tools.

The sample

A random mixed sample formed by students from the first level of a professional license in teaching.

Table 1: The sample of the study

| Groups	Number of groups	Women	Men
1 person	31	8	23
2 people	12	9	15
3 people	12	5	13
4 people	6	7	14
5 people	6	0	20
6 people	1	0	6
Total		29	101

Data collection

The variable considered in the analysis of the videos is the style. So, to define in what style (or styles) the capsule is made, we watched the 61 presented videos. The styles of Hanch and al. (2015) [1] were used. All the types are presented in the table 2. While watching video, we checked the style or the styles that appears in the video. Two people were in the task. The sequence can be watched again together if the two researchers are in disagreement. The list of types mentioned a box named: other style. This box is a guarantee of the completeness of the used list. We have also noted the lent of the video, the means of recording and the environment where they have been recorded.

Table 2: Video styles of Hanch *et al.* [1]

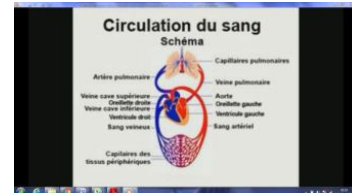| Style	Description	Style	Description
Talking head	A head talking in the way of a television speaker.	Interview	An interview record
Presentation slide with voice over	Slides with voice over	Conversation	Discussion between teachers and a guest
Picture in picture	Two pictures one in another	Webcam capture	A recorded sequence with webcam
Udacity style tablet capture	Tablet record	Demonstration	A demonstration of steps to follow
Actual paper or whiteboard	A presentation using a whiteboard	On location	Presentation in a specific place
Screen cast	When the screen of the PC is shown	Description	An out-door speech
Animation	Animated pictures or drawings	Online video	Video online type: conference
Classroom lecture	A recorded classroom.	Animations	Recorded drawings on tablet
Recorded seminar	Recorded seminar	Text overlay	A scrolling text with a talking head

3. RESULTS

The results show that the most represented styles in students DIY videos are: "Screen cast", "actual paper or whiteboard", "presentation slide with voice over", "Webcam capture" and "talking head" (see figure 1 and 2).
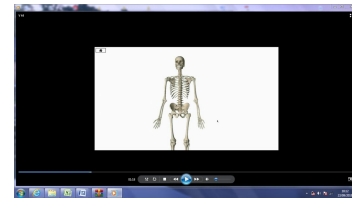
Style 1 - Screen cast

Style 2 - Actual paper or whiteboard

Style 3 - Presentation slide with voice over

Style 4 - Webcam capture

Style 5 - Talking head

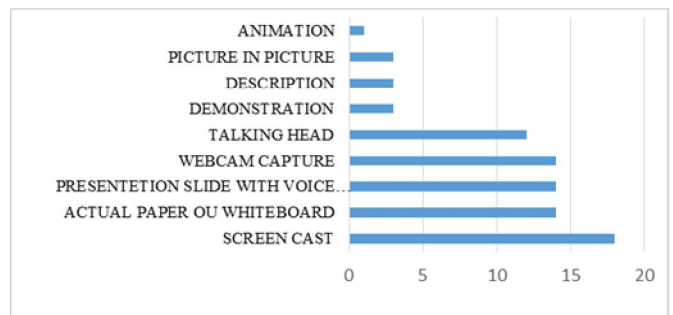**Figure 1:** Illustration of the five most represented video styles

Figure 2: The number of videos per style

"Demonstration", "description", "picture in picture" and animation are poorly represented. Each one is presented in

three videos or less. The types of videos : "classroom lecture", "conversation", "interview", "recorded seminar", "on location", "Udacity style tablet capture", "online video", and "text overlay" are not presented at all. The videos with more than one style: some of the videos contains more than style (figure 3). The authors of these sequences change from a style to another for example: the video 31 in the beginning we watch the student explaining in front of a whiteboard, after we can see a "webcam capture". We call those videos: "multi-styles" videos.

The videos with "other style(s)" (figure 4): some videos' styles are not listed in the typology of Hanch. [1], we can cite:

- Drawing on paper with voice over. This style appears in two videos, the person recorded is drawing and explaining at the same time.

- Videos who used free resources or videos from internet. Some videos completely imported from internet but the original voice was changed by student's voice. Those videos were spread apart because they don't respect the copyrights.
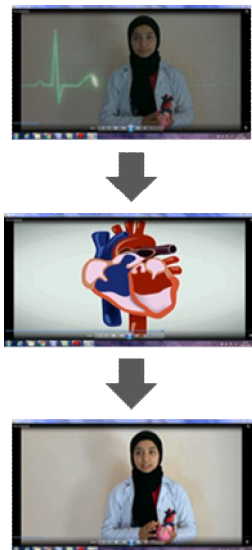

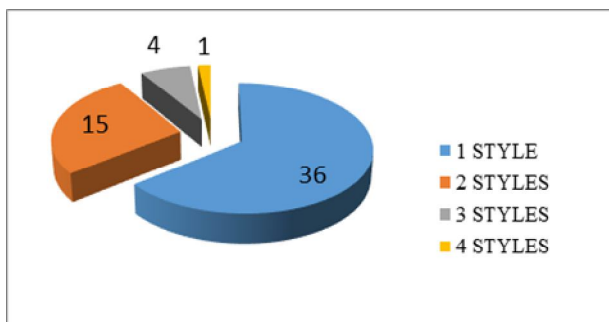**Figure 3:** Illustration of a multi-styles video .

Figure 4 The number of videos per number of styles.

Other video characteristics (Table 3):

- The lent of the video: the "long" videos are less represented than the "medium" and "short" ones. The sequences between 3 and 8mn are the most represented.

- The means used in the conception of the DIY videos are: the smart phones and personal computers. The groups who used software for recording video are few: one group.

- The location of the conception: Only 6 groups have used the laboratory. The most of students recorded their presentation at home.

Table 3: Videos characteristics

Characteristic	Answers	Number	Percent
Time of the video	1 to 3mn	19	31,66
	3 to 8mn	30	50
	over 8mn	11	18,33
Location of recording	Coffee-shop	1	
	Home	40	
	Garden	1	
	Laboratory	6	
	out door	1	
	Several places	1	
	Classroom	10	
Means of recording	PC and smart phone	1	0,93
	Camera	7	4,63
	PC	3	1,85
	PC and specific software	1	0,93
	Smart phone	49	91,67

4. DISCUSSION

In this research, we have taken as research hypotheses:

4.1 The first hypothesis

The styles represented will be appropriate styles for the rudimentary material available to students. Videos that require advanced cinematic skills and sophisticated equipment are rare, is verified. Indeed, following the results obtained, we found that the videos were made with rudimentary means: using a mobile phone camera, or webcam. The use of special effects software or video like documentary was rare. As a result, the types of capsules that were strongly represented were those that required a minimum of video-making material and knowledge. These include: "screen cast": the videos were designed with a PC screen and a mobile phone camera, and in the best cases, specific software was used. The "Talking head": Here also a minimum of material is used. The students presented the content in the manner of the usual lectures, where they stand in front of others to exhibit. By doing so, they have found a practice that is familiar to them to manage a new situation.

The same reasoning can be done for the types: "slides with voice over", "Actual paper" or "whiteboard" since the ingredients of the usual presentation are there. For both types "Demonstration" and "description", the fact that they are so poorly represented despite being easy to achieve may be due to the need to present the content that deals with descriptive physiology and anatomy. Let us recall here that the content dealt with descriptive physiology and anatomy. Note that here these "digital natives" have not turned to tutorials, very abundant on the net, to achieve their project. Only one group used software. Styles that are not represented are of three types: those that are difficult to achieve for students: "animation", "text overlay", "khan academy" style. Those are made from specific software and need knowledge and mastery in the field. The second type is the set of accessible styles that have not been used, such as "the seminar, the interview". The type "online video" could not be presented. Videos with more than one style range from two styles to four styles. The most numerous are those which present two styles followed by those which present 3 then 4.

These videos are not numerous, and the change in the styles is due: either to the change of the person who appears on the video, for the passage of another comrade, or to introduce another support. For example: show a slide showing a diagram after presenting the sequence.

This diversity may also reflect a need for media diversity within the same resource to avoid the monotony of remaining exposed to the camera for a long time. The results of the analysis show that the supports were quite varied, and this for the same video: PPT, animation, diagrams…We draw attention to the fact that some prodigious and unexpected achievements have been made by some students, showing a good mastery of video creation.

4.2 The second hypothesis

Smart phones are the most used in recordings. Some creations are creative and show a real mastery of the tools of video production. The first part of this assumption is checked for 49 videos among the 61 capsules. Mobile phones are the most mastered tool in designing videos. Which is legitimate since we know their significant use during the day. A small minority verifies the second part of the hypothesis2: only two videos are professionally produced and singular and they use a professional camera and a design software. The first has developed documentary content, with several styles, including the "picture in picture" style. And the second also presented the picture-in-picture style. The fact that the videos are not very creative can be understood by analyzing the elements of the third hypothesis.

4.3 The third hypothesis

"Digital natives" are more comfortable communicating with a camera and recording videos, and lack of audio-visual materials and training are the main problems faced by students. The first part of this statement is true, as 60% appear in the videos and 79.6% agree to put their work online. However, those who mention problems of communication with the camera are 34.9%, of those who do not appear on the videos which are 39.8% of all respondents. Shyness, refusal to be seen and stress are the main causes. The main difficulties encountered in the realization of this video type DIY are mostly technical and about material. Which reminds us the lack of supervision and material contribution, wanted in this experiment.

5. CONCLUSION

Addressing the problem of mass integration and ICT in education is a strategic response to the flow of big data. This answer will not be effective if it does not prepare proactively, and if it does not rely on collective intelligence. Involving students, here future teachers, in designing their own digital resources was indeed part of that measurement. We proposed a project and in return we had 61 digital resources of which 12, considered valid, will be used as a support for the future study promotion. We found that styles were represented and others not, because of lack of material, context or even technical skills. We also noted that some students had assets and prerequisites that could be used and developed for the benefit of a learning community, but they must be amplified through audio-visual and communication training with public and in front of the camera. Presentations in the form of videos would be one way out among others, to establish this habit.

The conclusions of this research lead us to say that the lack of teacher training in ICT and the lack of equipment and technical assistance, is an obstacle to the use of these in training, the evidence is that DIY type video is not as well done as those of the biggest universities. It is also less convincing. The step to follow in this research is to put these capsules at the disposal of the peers to know their true value. It will also show how these videos are used by students and when, in the progress of the courses. This study will be redone the following year to see the evolution of video type DIY with practice. Research in the field of instructional video is in its infancy even if its use dates back to the time of distance education. Several axes are to be explored, such as the effective role of each type of video on learning, the technical and pedagogical requirements of an efficient video. And the impact of videos on the learners with different learning styles and strategies Abdelaziz Ali N.*et al.* (2019) [17] .

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