A Pedagogical Model to Deconstruct Videos in Virtual Learning Environments

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Abstract In times of profound change, and given the breakneck speed at which information and communication technologies (ICTs) are developing, we often feel the need to (re)think the teaching-learning processes in an ever more plural school in which pedagogy has to be versatile and customised. The video is recognized by most teachers as a powerful communications medium which, in combination with other learning resources and instructional strategies, can perform a vital role in modern education. With the intention of renewing and innovating these processes, many teachers have sought to use videos. For pedagogical, technological or training reasons, however, this has not always been an easy task. The purpose of this paper is to reflect on these issues, presenting a pedagogical model to deconstruct videos in order to promote their efficient use in virtual learning environments.

Keywords: *video, virtual learning environment, pedagogical model*

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1. Introduction

There have recently been profound changes in the field of education, with implications for initial teacher training. Many of these changes result from commitments made by the Bologna process Schools and education in general have faced, since the dawn of this new century, a technological scene filled with digital information and virtual realities amidst an outburst of audiovisual communication. Given the breakneck speed at which information and communication technologies (ICTs) are developing, we often feel the need to (re)think and invest in renewing the teaching-learning processes, in an ever more open, flexible, plural, inclusive and digital school [17].

Most schools are aware of this need and have come up with many reforming initiatives, including the introduction of digital technologies and platforms to support the teaching process in their strategic plans. Despite the major investment in ICTs in Portugal, however, the potential of these platforms and interfaces has been underutilised, mostly due to the lack of teacher training and to the fact that intentions and training needs between teachers and training schools do not always tally with one another [14].

Whereas an approach focused on digital literacy was initially proposed as a first step towards drawing teachers to the new online environments that facilitate their job, today, as thoughts about the digital society have matured and been reflected on, it is obvious that this approach is clearly not enough and should be replaced with one that encourages pedagogy and technology to merge. The principal future skills therefore include the ability to develop new ways of using technology to improve the learning environment, seeking, whenever possible, to deconstruct the analysed learning objects [6].

In this equation, audiovisual learning objects, to which we have paid special attention in this paper, can play a decisive role as their use in an online teaching context brings together all aspects of literacy.

Viewed from a certain perspective and with well defined objectives and tasks, videos can actually become much more than a moment of emotion and fun, can turn into a living and interesting experience that helps students broaden concepts, think and face other realities in a critical way.

Not only do videos allow students to 'travel' to different places, they permit travel through time as well. Events of the past or great works of literature can be brought to life when characters, costumes and customs of the times and events are portrayed on the screen.

In this respect, Jacquinot-Delaunay [12] stresses that regardless of the differences that set the school environment apart from the film environment, the aspect that determines the most or least interest of students when seeing a film is the educational context in which the strategy is placed.

At the heart of this attitude is, of course, what the teacher feels about this educational and technological tool, the ability of using it in a timely manner as part of other strategies and educational resources, or the use it draws from it as a method to approach the theme itself. The more

timely and useful the video, the more the students will feel that it gives them the opportunity to better understand the issues being studied, to complete a "puzzle" which would be unfinished had it not been for the video, and the better they will stand by the methodology.

As highlighted by several authors [4,9,15], these audiovisual learning objects offer huge potential as a teaching technology. Amaral, for instance, refers to the digital video as "el medio de comunicación más potente de este siglo, porque él abre las puertas, de un modo muy especial, para la alfabetización audiovisual permanente, posibilita y fomenta en los espectadores la capacidad de producir, analizar y modificar sus propios mensajes" (p.11) [2].

Videos can be used to demonstrate specific manual skills or physical processes, either at normal speed, in slow motion, or speeded up to reveal relationships, principles, or practices. Videos can provide visual access to situations or experiments that would otherwise be too dangerous or expensive for students to experience personally. They can be used to simplify complex ideas, using media-specific techniques such as animation, computer graphics or clay-mation. Videos can reveal "ridde worlds" through photomicrography, astronomical photography, night photography and time-lapse photography [15].

Videos can be used to model positive behaviour and to motivate students. They are particularly useful for introducing a topic, or reviewing material already studied when motivation is a key to student involvement in a learning sequence [13]. The most significant survey finding that supports the value of these multimedia tools is the direct relationship between frequency of use and perceived student achievement and motivation [8,18]. Among frequent users (teachers who report using the video for two or more hours per week), two-thirds find that students learn more when video is used, and close to 70% find that student motivation increases. More than half of frequent users also find that students use new vocabulary as a result of video use [7].

According to a summary of current research and educator surveys, the video reinforces: reading and lecture material; enhances student comprehension and discussion; provides greater accommodation of diverse learning styles; increases student motivation and enthusiasm; promotes teacher effectiveness [7].

Aiming to study these issues on a solid basis and to also help teachers to use this resource in their classes, this paper presents a pedagogical model to deconstruct videos, in order to promote their efficient use in virtual learning environments.

2. The Video in the Classroom

To use the video in virtual classrooms is to adopt educational innovation, as this resource encourages the feeling of integration, interaction, communication, group work and socialization itself [16]

Despite having tremendous educational potential as a means of communication, using the video requires a constant effort by the teacher to look for the most adequate solutions for each situation.

As teacher trainers, we have realised that it has not always been used in its most productive manner in virtual classrooms. It seems that there has often been some sort of "laid-back attitude" by teachers, who either transfer to the video the capacity to convey information, or scale down their role to issues of a purely motivation nature. This situation arises from the lack of, or poor, teacher training in didactic aspects and also from the lack of consistent planning. The integration of these audiovisual resources is often done by improvising, with no fixed plan or predefined strategy, which ultimately strips them of their educational effectiveness. Using a video in a classroom does not necessarily mean that the methodology changes. It is often an occasional resource used to make use of time for which the teacher has no suitable alternative. Using the video out of context can also occur if, for instance, the teacher does not use it in a particular way, taking into account, for example, the contents concerned or the age group [15].

So, in order to properly integrate the video in the learning environment, in a broad perspective consistent with a current use of technologies, it is necessary to take into account not only its technical and expressive dimension, but also, and above all, its educational dimension. It is vital, therefore to develop skills in this area to eliminate practices underpinned by teaching deficiencies.

Modern understandings of the learning process recognize that isolated viewings of videos, no matter how 'good' the video is, fall far short of the video's potential to promote effective learning experiences. Because videos have a huge range of topics, styles, and instructional design qualities, it is inappropriate to suggest a specific formula for classroom viewing. However, a general approach is applicable to most videos. By previewing the video, the teacher can determine how best to modify this general approach, and how to arrange a sequence of learning strategies appropriate to the video [16].

The use of the video by teachers should correspond to an educational need and be part of the methodology used, so that the potential of these resources can by fully developed. The article *Using Instructional Video in the Classroom* presents some of the advantages of using the video in a classroom context, for e.g., being able to embark on expeditions to the natural world, or being able to live unique visual experiences [26].

Some policy documents provided by entities such as the *National Teacher Training Institute*, or KQED *Education*, on the educational use of videos offer a series of practical suggestions with step by step instructions for planning the lessons. As recommended by those documents, a video viewing experience can be seen as a one portion of a threepart approach to instruction. In this model, the video viewing is seen as the 'activity' portion of a sequence: pre-activity / activity / post-activity.

The first phase, prior to the actual viewing, is meant for planning. The teacher should view the video, make sure it is according to the syllabus, and suitable for the purpose(s) of the lesson(s) and its recipients, prepare a script/observation grid, determine the length of viewing time, plan the time for pauses, to test: viewing, understanding, prediction, vocabulary, critical thought …; prepare the equipment and post-viewing activities. The students, in turn, must be made aware by the teacher, who

will encourage them to ask questions, clearly stating the objectives and discussing the main topics/keywords.

In the second phase, during the actual viewing, and as suggested in *Tools and techniques for using Spark in the classroom*, the teacher should provide students with a script to encourage them to view the video with an active attitude; show small extracts and guide them to the learning experience under study; encourage them to also be aware of technical details: camera angles, music, etc. According to the same document, the video can also be viewed with no sound turned on, or with the image covered up (only subtitles, if any), so that students can test their knowledge. Note that during the viewing the teacher should manage the more illustrative moments by introducing planned pauses, giving students the opportunity to think about the meaning of the narrative and its connection with the contents taught in class (this reflection can consist of answers to simple and objective questions). Choosing to see a long video in full, whether fictional or informative, will depend on each educational context. However, in order to be effective they need to be used in an educational sense.

In the third and final phase, after viewing the video there should be a dialogue/discussion of the ideas and emotions triggered by it and a summary of the learning arising there from, encompassing it in the topic under study. This phase is essential to give students the space they need to express their opinion on what they liked or did not understand. The teacher should help students prepare a report, taking into account their experiences and feelings, laying the groundwork for future activities: creative writing, producing their own video, etc. The teacher can also organise games to consolidate learning, according to the students' age group and learning levels.

3. A Pedagogical Model for Deconstructing Videos (MPDV) in Virtual Classrooms

This section contains the model for deconstructing videos, with suggestions of educational procedures inspired by the already mentioned literature, and based mainly on the theory principles of the Cognitive Flexibility Theory [22], which states that to properly understand a complex situation one needs to use multiple perspectives.

The Cognitive Flexibility Theory, a teaching and learning theory developed by Rand Spiro and collaborators [21], to solve the difficulties in transferring knowledge to new situations, is focused on cases analysed or deconstructed according to multiple perspectives or themes, which may also be divided into small units, the mini-cases.

The theory considers two learning processes: the deconstruction process and the thematic criss-crossing process. In respect of the deconstruction process, each mini-case is deconstructed according to various perspectives, whereas the theme criss-cross builds from a theme or combination of themes followed by a selection of mini-cases from different cases related to that same theme.

The *Pedagogical Model for Deconstructing Videos* (MPDV) is based essentially on the deconstruction

process already set out in the Cognitive Flexibility Theory, and also on the need for learning objects to be structured according to the instructional design theories [1,27].
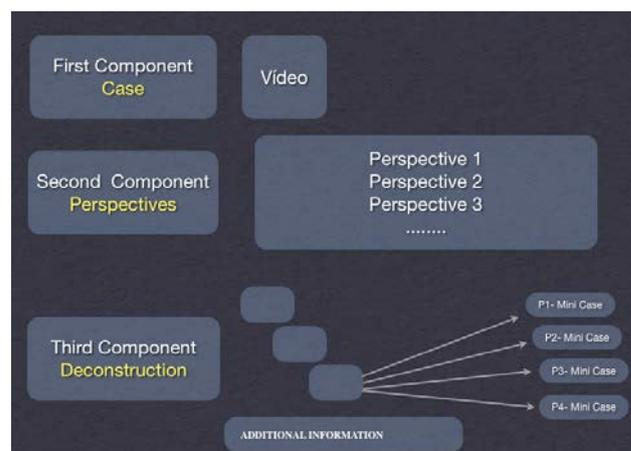

Figure 1. Pedagogical model for deconstructing videos in virtual learning environments (MPDV)

A video learning material structured according to this model thus consists of three components: the case, the different perspectives, and the deconstruction process.

A case may be, for e.g., a film sequence [23], or take the form of a text, image, or audio sequence. The case must be fully available so that the student can understand it before the analysis process begins. The perspectives offer the conceptual framework of the deconstruction analysis. It is vital that students understand the underlying references given to each perspective by the teacher, a perspective understood as intended to mean a theory, a concept that the teacher feels is relevant for deconstructing the case. Deconstruction is the essence of learning. The case is split up into smaller units of analysis, the mini-cases, through the deconstruction process, and for each mini-case there will be an explanation on how this perspective is present in the mini-case. Where necessary, additional information may be given to help understand the mini-case, giving the student a deeper learning. Students may also refer to the bibliographical references related to perspectives. Some of the main advantages of the MPDV model are the use of a learning theory that provides a coherent pedagogical basis, the development of the students' cognitive flexibility, and the incentive to analytical practice. This model requires students to participate actively in the learning process, and provides an in-depth analysis through the deconstruction of the video, which will ensure an increase of the cognitive flexibility through the various examples deconstructed, followed by a series of questions that make students mentally criss-cross the deconstructed mini-cases. This participation obviously requires reflection, maturity of knowledge, and cognitive flexibility.

3.1. Phases of an e-activity Part of the MPDV

In light of the theoretical assumptions of the model presented, we now list the main phases of an e-activity focused on a video to be developed in an online environment. Note that the four phases of this e-activity are used as an example only, and may be adapted according to the environment, space and time available for each e-activity.

The first phase is called *Preparation* or *Planning* and refers to the video preview step. The teacher must first choose and view the video to make sure that it suitable for the purpose(s) of the lesson(s) and its recipients. Then the teacher must prepare the activities to be developed and design the teaching support materials to be used in subsequent phases. These materials must include a reading script for a comprehensive and functional initial understanding of the video, and an observation grid provided to the learners before they view the video in the learning management system.

This grid may be designed according to a specific video (an interview, a documentary, a fiction film, etc.), or be adapted to most videos, with a section for a comprehensive reading (*positive aspects, negative aspects, main ideas*, etc.), another section for a more focused reading (*description of contents and situations; reconstructing the theme, the story*), and a section for functional reading (*keywords*).

Before the second phase begins, the teacher must explain how the students can get hold of the video, that is, they may need to buy it or view it on the learning management system.

The second phase is called *Viewing, Reading and Analysis of the Learning Object* and refers to the actual viewing of the video. In this phase, the teacher must provide students with the educational support materials prepared in the first phase – script and observation grid -, which should encourage them to actively view the video and assess the concepts. As, in principle, each student will view the video by themselves, the teacher may also suggest that they view it more than once: the first time will give them an overview, followed by partial views, pausing at times, for a more focused and detailed analysis. We believe that one week is enough for this second phase.

The third phase is streamlined online by the teacher and is called *Deconstructing the Learning Object, Discussion and Reflection,* inspired by the terminology used by Carvalho [6].This is the phase in which the teacher provides the virtual classroom and presents the theoretical references needed to deconstruct the learning object. Students are called to discuss these references, presenting their thoughts about the video they have seen. This deconstruction and the subsequent discussion are the essence of learning, because they enable the video to be split into smaller units of analysis, the video extracts, which are then discussed according to the knowledge of each student, to the information from their observation grids, and to the bibliography consulted. Whenever the teacher finds it appropriate, he or she can and should give additional information, thus providing students with further knowledge on the theme.

Although we feel that one week is enough for the development of this phase, we could also consider weekly cycles as the deconstruction may trigger new and more refined viewing sequences structured according to the goals defined, and could therefore be extended on a cyclic basis.

The fourth and final phase is called *Conclusion and Verification* and refers to the final summary of the activity, where the teacher can ask the students to use the knowledge acquired in order to be assessed. At this stage, the teacher can suggest additional literature, other videos on the same themes, search sites, or other complementary activities.

4. Conclusions

As pointed out at the beginning of the paper, the 21st century has brought with it a technological scene filled with digital information amidst an outburst of audiovisual communication, the digital video being a reference as one of the most effective and powerful means of communication against this backdrop [9].

Video is an educational media with a foremost place in current and future education, even in the context of growing interest in 'interactive multimedia'. Through thoughtful planning, video instruction can be used to promote 'interactive' learning. Videos can be used to help promote student curiosity, speculation and intellectual engagement. They can help promote group learning discussions and activities, allowing learners to use knowledge they already have and higher-order cognitive skills required to extend their knowledge [19].

Some studies have in fact found that the use of video in online environments has very positive effects on the academic achievement of higher education students [3,5,10,11,20].

To teach and learn in these new learning environments using the video is, without any doubt, a very attractive challenge, but at the same time very demanding. To maximise its teaching and educational use, we feel that students need to try it, assess and try it again, and constantly question it.

Some teachers have become aware of this reality and need, and have sought to change their practices accordingly by innovating. For pedagogical, technological or training reasons, however, this has not always been an easy task. So we felt it was important that our approach should point to some possibilities of exploring and incorporating these video resources in a virtual classroom context.

The fact that we work in schools that encourage the use of these different environments has contributed to a consistent reflection on how these learning tools can be put to use in education. So with a view to learning more about it, and also to help other teachers use these resources, we have used this chapter to point out some of the strategies and offer a methodological suggestion to explore the audiovisual learning objects in order to promote their effective use in face-to-face and online learning environments.

Regardless of how effective these strategies or the proposed model are, we believe that it is always worth looking for new routes to integration: the human and technological factor; the face-to-face and the virtual factor...

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