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# The creation and publication of educational video tutorials via school web sites

Václav Nádvorník

South Bohemian University, The Czech Republic

*Abstract - Teaching pupils via videotutorials is way to boost e-learning and blended learning applications. It merges advantages of full time and part time education, when various forms of information reproduction are used, like visual and auditory, and yet the basic option is preserved – repetition of given information. The goal of this article is to think in whole of the use of educational videotutorials via school web sites. There is mentioned step by step manual how easily can ordinary teacher produce a usefull videotutorial. It aims at theoretical aspects of instructional videos as well as practical use and experience while creating them.*

**Key words** - videotutorials, education, school, methods

## I. THE FUNCTION OF EDUCATIONAL VIDEO RECORD

A. Nelešovská in her book of Pedagogical communication in theory and praxis [1] divides educational video records accordingly to their functions:

### A. *Motivation and Inspiration Function*

Video recording aims at the goal to motivate and inspire to search for progressive pedagogical procedures. *That can be achieved by thoughtful organization and proper presentation of short footage of otherwise broad video recordings.*

### B. *Illustrational Function*

Video recording has function of explanation illustration.

### C. *Documentation Function*

Video recording serves to documentation and storage of genuine and irrepeatable pedagogical phenomenons and processes.

### D. *Instructional, Demonstrational, and Imitation Function*

Video recording serves as part of instruction during demonstration and exercise of certain didactical activity, while creating skills etc. Simulated or acted teasers are used.

### E. *Stimulating Function*

Video recording creates visions, influences viewpoints and attitudes. It appears that this function merges with motivation function, but in this case we judge by examples of didactical methods of teachers related to concrete pedagogical phenomenon.

### F. *Integration, Synthetical, and General Function*

Video recording in this case unites, generalizes views, opinions, and attitudes. It contributes to systematical understanding of followed phenomenon and judging its value or irrelevance.

### G. *Differenciation Function*

Video recording respects, allows, and provides differenciation aspect in transmitted info on users part.

### H. *Evaluation Function*

Video recording presents required examples, attitudes, processes and therefore fills the evaluation function, because it presents ‚the way it should be‘ and challenges comparissons.

### I. *Analytic Function*

Video recording follows analytzc approach to reality, it orients to selected phenomenons and processes, that it diagnozes, phases, slow down or speed up etc.



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### *J. Aim Function*

Video recording is strictly oriented to reach its goal.

## **II. VIDEOTUTORIALS AND ITS USE IN EDUCATION**

A great pioneer of video recording and the whole concept of reversed classroom is so called Khan school. The inventor of this idea is Mr. Salman Khan who started to create video manuals in maths. His pupils studied these beforehand. Then the teacher had the advantage to ,build' on certain knowledge. With the time the method became popular and nowadays there are tens of thousands of such videos filmed. „The process of each student development can be monitored by stats and evaluations. The students are also motivated by collecting all kinds of badges during the process. Some of which they reach easily, and some that require higher striving.“ [2]

### *A. Author's view of videotutorials*

The author started to publish educational videos on school web sites in 2009. These videos are intended to his students and reflect the actual content of study. Since the author teaches Math and Sciences, these videos aim to explain typical math problems and basic principles of physics. In five years of working on these video manuals 27 instructional videos mapping the grammar school maths were published. The vids were viewed 83 thousand times and the channel [www.youtube.com/adlif57](http://www.youtube.com/adlif57) is followed by 480 subscribers.

### *B. Steps to create a video manual*

#### *1) Designation of proper theme*

Not all themes are proper for video recordings. It is important to select problems that are hard to solve or understand. Such problems benefit of the option to stop and review in time the most. It is also of use to monitor and record various experiments and practical tasks that are hard to carry out individually at home.

#### *2) Equipment needed*

##### *a) Video or digital camera*

To create a recording, all one nowadays needs is a simple digital camera with the option to record video and audio in required resolution. Sufficient resolution is 800 x 600 pixels and speed of frames 30 per minute. This is completely common in modern time cameras and cellular phones. Full HD is not necessary.

##### *b) Tripod*

It is of the use to find a proper way of stationing the camera. It is necessary to keep both hands ,free' while recording. One can use duct tape or something else of this nature to support the cam. Another option is to ask a colleague to handle the camera, but that results in shaky picture and lowers the recording quality. The investment in tripod isn't that high and will be of use with many more recordings.

##### *c) The computer program to edit video in*

To work with video it is simple to use iMovie by Apple for instance. It's a program that is easy to use and allows direct export to youtube.com channel. This program comes free with all Apple computers and mobile iOS devices. When using Windows, it is possible to use Moviemaker program that is part of all XP or Vista. When using Windows 7 or 8 it is necessary to further install Moviemaker through live.com service. Another option is to use one of many free to download programs on the internet or use software that comes with the camera you use. The choice of the program does not really matter.

#### *3) The recording*

It is useful to stick to a few rules while shooting

##### *a) The technology of recording determination*

For video manuals many methods of recording can be used. Principally, the following methods can be used:

- Video recording of blackboard while the teacher writes on it. Here, it is important to pay attention to the recording quality and the color of highlighters used, since some are hard to be seen.
- Recording of the paper while the teacher writes on it. This is the easiest method where it is important to write legibly and use caps. Using thin black highlighter has proved to work out fine. A slight



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disadvantage is lower comfort while writing.

- Recording with the use of interactive board while teacher writes on board and computer records all actions on screen.
- Recording off screen with the use of tablet – method used mainly at Khan Academy.

Based on trying out all of the above mentioned options and judging from the discussion reactions below the vids, the author prefers the recording with the use of interactive board. The option of using the advantages of computer is preserved and option to write on board is still allowed. This is a natural process for teachers while writing on board is still more common than using a tablet.

***b) The preparation of examples and their beforehand solving***

Since regular teacher is not used to stand and speak in front of a camera it is necessary to count on some level of nervousness. While solving math problems, the teacher needs to concentrate on other things, too. It is good to select proper content and level of tasks. Also preparing an experiment beforehand pays off. If the teacher makes a mistake during shooting, it can be edited, but takes up more time when processing the video.

***c) Working at a quiet place***

It is useful to select a quiet place for work with appropriate surroundings. As proper space can serve teacher's house or even empty classroom between instruction.

***d) Coherence of speech***

It is necessary to use coherent and slow speech while recording a video. Cameras can detect even slight mispronunciations. Coherence guarantees better result – pupils' understanding. Speaking slowly is rather hard, yet important.

***e) Legible handwriting***

For good understanding it is necessary to write legibly. The font of your writing should be larger than usual.

***f) Reading of what is written***

For worse legibility with lower resolution it is good to read the text as you write it. This way more brain centers are activated and the chance of understanding by pupils is higher.

***Internet publishing***

Two procedures are possible to use for internet publishing. The first one is to directly upload file to web site. Students download these vids on their computers and then play back. At the first glimpse this is an easy way but it actually counts on few radical disadvantages. One is codec compatibility. Next is time disadvantage, since the video must be completely downloaded first before viewing. Contrary, there is a guarantee of entire author rights possession. Still, there are more downs to it so therefore the streaming of videos via specialized servers is more common and popular. Worldwide most common is youtube.com server. It allows to upload videos of any size format or time restriction. Users can view the video right off of internet. The youtube.com format does not rely on platform and works equally well on mobiles, tablets, and pc's. In a way, a small disadvantage is the urge to remain connected throughout the viewing, but that can be also solved by a proper program download. Second disadvantage is that by posting on youtube.com you give up portion of your owner rights. Still, this is the most practical solution from my point of view. There are dozens of stream servers working on similar principle. Youtube.com is the most common one. Same principle as with social networks or e-mail applies here, and that is to differentiate between professional and private accounts. Further it is useful to share the video content via school website or within educational system used by the institution.

***g) Time demand***

The entire time demand to create, prepare, shoot, edit and upload educational video materials is roughly 2 hours on the average. That corresponds with about a 10 minute short clip. Based on the reflections of pupils, parents, and even colleagues, I consider this time well worth, not mentioning the actual benefit for pupils.



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### **III. CONCLUSION**

The creation of educational video instructions and manuals is appropriate supplement to pupils' education. It can never substitute actual classroom instruction, but it can help students with home study. There is no real difficulty to the teacher. Videos can be created by regular computer users and those are many among teachers. Limiting factors could be time demand, lack of will, and in some cases, missing materials and conditions at the institution. This method is applicable in case the pupils have home based internet access.

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