Creation and using of educational videos in informatics teacher education

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Using video in education

- increasing interest of students in video resources,

- more active manner of using – a way of personal expression, for recording events, experiments, for publishing own videos on optical discs or on the Internet,

- many ways of using video in education:

  - during various stages of teaching process (motivation, exposition, fixation, and diagnostics),

  - at school (during or after classes), at home (self study),

  - we can use our own videos or pre-prepared ones,

  - optical discs or on the Internet (http://teachertube.com/).

Benefits of an educational video

- Benefits for students:

    - increasing students' motivation and enthusiasm for learning,

    - improving students' comprehensibility,

    - improving students' critical thinking etc.

- Benefits for teachers:

    - another information resource for self study,

    - sparing time (efficiency of teaching),

    - improve teacher competencies.

Survey on creation and using educational video

- In 2009, 66 informatics teachers from East Slovakia

- Results:

  - using edu video – 9% very often, 77% rarely, 14% none,

  - main sources of videos are hard discs and optical discs (71%), the Internet (51%), videotapes (5%),

  - teachers use videos mainly for motivation (72%),

  - 88% of respondents would like to use edu video in their teaching, 62% of respondents would welcome using videos especially on Principles of operation of ICT,

  - 12% of respondents reported that they created their own edu videos.

Creation of educational video

- Generally the video production has 3 main phases:

  - **pre-production** (defining the proposal, writing the script and planning the production),

  - **production** (video recording),

  - **post-production** (the image and sound modification and preparing final version of video for distribution).

Creation of educational video

- Typical failures in the video production are:

  - no or thoughtless script,

  - no survey of filming location,

  - very quick camera movement, very quick zooming,

  - no tripod, shaky hand camera,

  - bad lighting, bad sound, no or switched-out microphones,

  - no or bad cutting, too many transitions in the final video.

Creation of educational video

- We focused on the following types of videos:

  - **Documentary video**

    - e.g. video presenting a course of programming competition
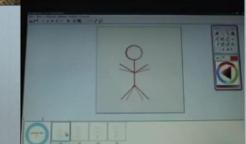
  - **Instructional video**

    - e.g. video presenting managing of the particular computer program

  - **Demonstrational video**

    - e.g. video presenting process of ordering of objects according to chosen criterion

Creation of educational video

- **Recording video**

  - e.g. video presenting functionality of a programmed robot model in action

- **Video capturing students' microteaching**

  - e. g. using heuristic discussion in teaching about principles of the Internet (student's performance and its analysis by teacher of didactics of informatics)

Video capturing students' microteaching

- The students work up and presents a short exhibition for a part of the class with the particular topic and particular teaching method(s).

- Some ways of student's performance analysis.

  - verbal analysis by the teacher (point out on pros and cons in the student's performance), then discussion, teacher can watch the video later using a recording sheet ,

  - student watches his/her own video and then he/she will repeat his/her performance in order to avoid the errors observed, the repeated performances are considerably better.

- => improving teaching competencies of students

Scripts of educational videos for informatics teaching

- the scriptwriting is very important part of educational video production life cycle

- creative teacher should be able to create resourceful script and in collaboration with cameramen and post-producers they create quality and engaging educational video

Scripts of educational videos for informatics teaching

- **main parts of educational video's script:**

  - **title-page** includes name of the script, author, corporate author, author's contact information,

  - **first page** – the name of edu video, target group, topic of school informatics, duration of video, performers, scenes as a list of numbers, names and short annotations of the scenes,

    - heading – term Script of edu video and page number,

    - foot – copyright information, year, the name of institution, author,

Scripts of educational videos for informatics teaching

- **other pages** – the name of educational video, number and name of scene, author, corporate author, scene heading (info about the place and the part of day), perfor-mers, properties, detailed scene specification in 2 columns:

  - left – shot name, specification what is in the shot, transitions between shots or scenes,

  - right – dialogs and sound effects of the shot on the left,

- **last page** – educational possibilities of using the video (when, how and in which phases of the class to use the educational video).

- Sample of script
  (Sending information through the Internet)

Some examples of educational videos for informatics

- various sorting algorithms (Bubble sort, Selection sort, Merge sort, Quicksort),

- sending information through the Internet,

- the principle of check sum that is shown as the magic with magnets, the principle of decimal to binary conversion,

- the principle of ternary searching that is shown as the magic with cards etc.

  http://di.ics.upjs.sk/prace/2010/magisterske/dihenescikova/

Recommendations to the production of edu video for informatics teaching

- **General recommendations to the production of videos:**

  - script writing – choice of appropriate time, location of capturing the video, performers, securing technology (camera, tripod, appropriate lighting, microphones, etc.), securing program for arrangement of footage, one's acquaintance familiarizing with the program,

  - during video capturing – talk continuously, not too fast,, when we distort some words, we could be quiet for the 4 seconds and then repeat the whole sentence, don't switch in and switch out the camera constantly, using tripod and check the sound and lighting, etc.

Recommendations to the production of edu video for informatics teaching

- Recommendations to the particular types of video:

  - **Documentary video** – emphasize emotions, eliminate subjective elements and views, but offer facts.

  - **Instructional video** – talk about 25% slower than normal, imagine that the video teaches one, not a lot of persons, choose appropriate size of shots.

  - **Demonstrational video** – emphasize clearness and understandability of the content of video, choose appropriate size of shots.

  - **Recording video** – when the video includes presentation of some model, it could contain process of making the model and presentation of its functionality.

Conclusion

- Not only using pre-prepared video but also creating educational videos – some of them we can use in classes (motivation, demonstration, repetition, etc.) and also for teacher training (microteaching).

- Very important for creating a video is know-how, sufficient time, as best as possible SW and HW.

- Our future plans:

  - to continue with recording microteaching in DI, focusing on using motivating and encouraging teaching methods,

  - to produce scripts and educational videos in MCP in collaboration with in-service informatics teachers.

Acknowledgement

Thanks for your attention

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