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VIDEO IN HIGHER EDUCATION: EXAMINING GOOD PRACTICES

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Summary

Currently Maastricht University is at the conclusive phase of a video project, aimed at creating an institution wide video support service. One of the deliverables is collecting and sharing good practices on the use of video in education. Good practices were collected by interviewing support staff members at Dutch higher education institutes. Additional information was obtained from academic publications, SURF events and special national interest groups on media in higher education (SURF is the collaborative ICT organisation for Dutch education and research – https://www.surf.nl/en/about-surf). A collection of these good practices are presented in this paper.

As Maastricht University is a face to face university that uses a problem based learning (PBL) methodology, the section on didactics focuses on PBL in a face-to-face setting. Nevertheless, the collection of good practices presented, may be of interest to teaching and support staff members involved in the use of video in at any higher education institute.

Before addressing good practices of video in education, the paper defines and categorises video. Then a collection of good practices, is presented, divided into in four domains: (a) education, (b) layout (c) support, and (d) production. The section on education deals with flipping the classroom and other forms of blended learning. The practices presented in layout, support and production are applicable to most higher education institutes, both face to face and online. The goal of the paper is to inspire and inform higher education teachers, support staff and managers.

Introduction

Over the last decades, video is playing a more prominent role in higher education. To provide better support to teachers who wish to embed video into their education, Maastricht University has started a video project aimed at creating an institution wide video service, a project that is now in its conclusive phase. One of the project deliverables is a collection of best practices on the use of video in higher education to be shared with stakeholders and presented on the video web portal that is under construction at the time of this paper.

Good practices were collected from interviews with twenty-seven teaching and support staff members of fourteen higher education institutes, as well as twenty-six staff members of Maastricht University. In addition, members of the video project team gathered information

from academic publications, SURF events and special interest groups (SIG's) on media in higher education.

The findings, good practices in terms of education, video lay-out, production and support, are presented in this paper. The goal is to inspire and inform higher education teach and support staff and managers who intend to embed video into their education and or who are searching for better ways to support the use of video within their higher education institute, faculty or department.

Defining video

Video can be roughly divided into three categories: live stream; lecture registration and knowledge/skills clips.

- *Live stream* – refers to broadcasting the video as it happens, e.g. a lecture held in a lecture hall or a studio, with or without or without a live audience, with different levels of interaction (live chat, the use of voting tools and conferencing tools).
- *Lecture registration* – refers to recording an entire lecture and making it available to students at a later stage. In general, it involves few didactical changes.
- *Knowledge clips and skills clips* – and other clips made by teaching staff or students (student generated clips) are short videos that focus on one or a few topics. Generally, the goal is to remove one-way transmission of knowledge from the classroom and/or to promote interaction and activate students.

Classification of video according to format

Hansch et al. (2015; p.21) came up with a typology of videos according to their production formats, e.g. animations, animated slides, webcam captures and pen casts. Each format requires different tools and forms of support.

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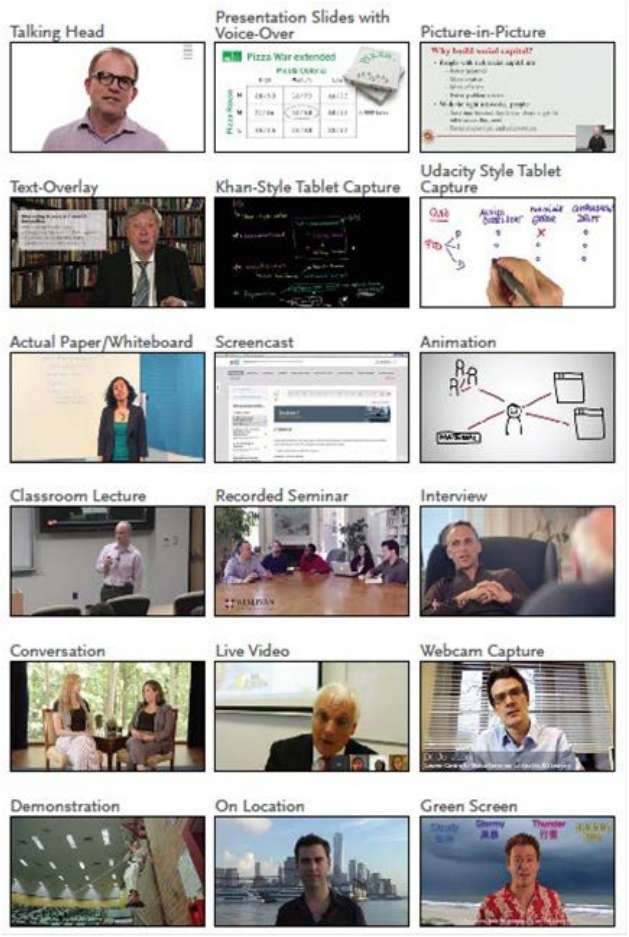

Figure 1. Typology of video production formats (Hansch et al., 2015; p.21)

Classification of videos according to learning goals

Many of the interviewees use video to remove transmission of knowledge (one-way communication) from their lecture hall or classroom, and enhance interactivity during contact time. In this context, the term *flipping the classroom* is often used. Various best practices on education in this report, will deal with these learning goals in more depth.

A taxonomy of videos according to their learning goal (this list is not all inclusive):

1. Introduction of a study or course (PR), faculty or course for potential students.
2. Introduction of a course or assignment replaces introductory lesson and partly replaces the syllabus.
3. Skills clip, show how to perform a skill for instance, before going into a skills lab; saves costly lab time.
4. Mini-lecture (10-30 minutes). The original lecture is chopped up into smaller lectures.
5. Knowledge clip (2-5 minutes) on a basic concept or on a difficult part of theory or on a step by step process (e.g. a complicated formula or sum). Often recorded by a tutor, teacher or an expert in the field.

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6. Feedback clip. A teacher shares a recorded clip to provide students with feedback on their assignments, in class contributions or exam questions.
7. Interview with an expert. A (series of) interview(s) with an expert in the field.
8. Student generated clip. Replaces or enriches a written assignment or facilitates a students' demonstration of an acquired theory or skill.
9. Experiential video (Koumi, 2006) – Brings fieldwork or real life experience into the classroom.
10. Fictional clip or film a film that shows a fictional story in order to personalise concepts and ideas.

Good Practices

Answers provided by the interviewed teaching staff and support staff, reveal that the good practices can be divided into different categories, namely: education, video design, production and support.

Good practices in education

Virtually each interviewee indicated that embedding videos into a course is only successful when carefully aligned with learning goals and activities. Zac Woolfitt (InHolland) provides a few examples of students activities that may be coupled with watching videos: an (online) assessment, group discussions; creating mind maps; explaining the content to one another; and design a quiz questions for a video.

Figure 2.

Flipping the classroom

Flipping the classroom is reversing the roles, meaning that teachers become students and students become teachers, or, students do at home what they use to do in class and vice versa. The goal is to activate students and promote higher order learning skills. Video is an excellent tool to support flipping; lectures are recorded or transformed into short clips so that face-to-face time can be used for Q&A, collaboratively doing assignments or (PBL) discussions. A great number of the interviewed teachers uses video as a tool to flip the classroom and/or activate students and promote higher order learning skills.

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Many interviewees indicated that flipping the classroom is a very time consuming process as it involves redesigning the entire course. Most added that their efforts were well rewarded by the positive impact on face-to-face sessions: students become more engaged and activated and many reported better results. Alexandra Montague and Luisa Arrivilaga (Zuyd) spent an entire summer on the preparation of flipping their Spanish course. Their efforts were rewarded with a drop of 30% to 15% failure rate and with students who changed from passive listeners into active participants (March 15, 2016).

Using existing video for flipping

Some interviewees use open learning materials (creative commons license); others use sites with educational videos for pay (Ilonka Hebels, April 8, 2016 and Luisa Arrivilaga, March 15, 2016). Carijn Beumer (Maastricht University) also uses existing video in her flipped PBL classes in her Global Dynamics on sustainability course. As literature on sustainability tends to have a pessimistic outlook, she searched for videos with a more positive message, and found Ted Talks and a number of documentaries. Moreover, images better convey difficult concepts. She coupled her videos with a discussion or an assessment (Carijn Beumer, May 25, 2016).

Expert guest lecture on video

Teacher and course coordinator Nynke de Jong, at Maastricht University Faculty of Health, Life Sciences and Medicine, has flipped her entire course. In the old situation, the guest lecturers delivered the introductory lecture and left. Students would do their group assignment and presentation at the end of the course with their own teacher present. The potential level contribution from the expert was not optimised, as he was available to the students at a time they had not yet started on the course material. The teacher resolved to fly to England to record a small number of interviews with the guest lecturer, to replace the opening guest lecture with. In the new situation, they attend the last session instead of the first one. By doing so, he can attend all student presentations, provide expert feedback and participate in the post-discussion.

Introduction and feedback clips to replace pre- and post-discussion

At Maastricht University Law Faculty, Bram Akkermans, Catalina Goanta and Sjoerd Claessens make introduction clips to replace pre-discussion sessions and feedback clips replace post-discussion sessions. The videos replace either an introduction of a new course or topic, providing theory or instruction. Other clips provide feedback on students' work, or on their PBL contributions. Usually the tutor makes the clip, but in some occasions they ask a (former) student or an expert. The feedback video is often used to deal with difficulties that emerge during the tutor sessions or mistakes students make in their assignments. These video can be of various formats and are usually less time consuming to produce than a knowledge clip. Formats used are pen-casts, vlogs designed as news programs.

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Student generated clips

A student generated clip can be used to replace a written assignment. Teacher Giselle Bosse, at Maastricht University of Arts and Social Sciences, asks students in her Civil Society and European Integration course to make a BBC style documentary in which they analyse an EU instrument. The video assignment includes conventional learning goals, such as knowledge acquisition and application, well-argued empirical analyses, knowledge dissemination, team work and problem solving skills. In addition, students improve their ICT, new media and presentation skills. This assignment truly motivates the students and is now one of the assignments they spend most time and energy on.

Another example of a student generated clip is one where a student demonstrates a skill or practices a patient conversation with a simulation patient played by another student or professional actor. This format is often used at medicine and psychology courses. Afterwards the students watch themselves and each other and provide and receive peer and teacher feedback attached to the video fragments (Sandra Mulkens, 2015).

Experiential video

An experiential video can bring the outside world into the classroom. Roy Erkens, who teaches tropical ecology at Maastricht University, brings his fieldwork in the jungle of Cameroon back to his. Doing so enables him to share an experience a book could not convey; students get a better impression of certain aspects of a professional career and at the same time he can demonstrate skills such as the collection and preparation of tropical flowers. He uses his i-phone, a selfie stick, and a small tripod. It is not a professional production, but the sound is good and it allows him to capture interesting moments as they occur.

Fictional clip or film

Some of the interviewees used a fictional story to introduce a new topic. For instance, Lorenzo Squintani and his colleagues (Groningen University) acted out sketches to illustrate the effects of a European law on everyday life. They chose to act out the roles themselves, as they felt a content expert would be better at conveying the message. Bas Haring, of Leiden University made a series of professionally produced short films for a course on ethics, called: *On being a scientist* (van Ginkel, 2016). Each episode presented a different issue that formed the bases for the face-to-face session. The objective is to make theory personal and/or tangible. The videos are a replacement of short novels. He argues professional actors are crucial for a convincing video.

Good practices in video design

Utrecht University uses a viewing guide, by Liesbeth Kester (2013), for assessing educational video on design and content. Her guide is based on the cognitive load theory by Richard Mayer (1998). The guide explains that video is of high educational value when it captures the attention and enables to select information and process it in our working memory, and when it activates relevant existing knowledge. According to media principles relating to sensory receptors and memory work load, a video is most effective when learning goals are defined in

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the beginning, the video is short, 2 to 5 minutes, covers 1 topic, and uses images and sound rather than long texts.

Effective multimedia design principles for video design:

1. *Multiple representations* – use both text and images;
2. *Contiguity* – present text and images simultaneously and next to each other;
3. *Coherence* – only use related material;
4. *Modality* – use audio rather than written texts;
5. *Redundancy* – spoken text does not need to be repeated in writing;
6. *Segmentation* – cut information into meaningful segments.

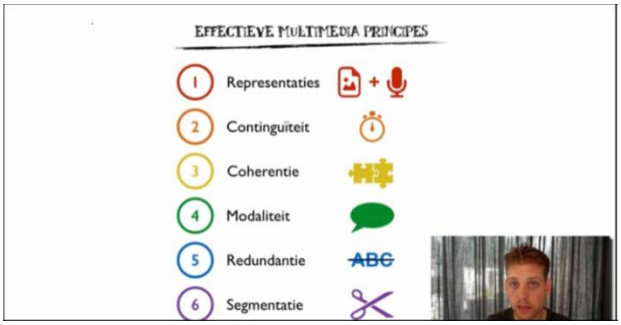

Figure 3. Still Don Zuiderman (2014) media principles

Learning materials that follow these principles respect the affordances and limitations of the working memory; hence it will be processed more efficiently and stored in the long term memory (Zuiderman, 2014).

Good practices in production

Pre- and post-production

Minimizing expensive post-production by maximizing pre-production was typically done by universities that have a high video production output, and therefore more to gain from a maximization of the production efficiency (i.e. Delft, Erasmus and Wageningen).

Scripting

To reduce studio time, a number of universities only grant teachers studio access after receiving a script or slides (if used). Moreover, they have a specialized eLearning or Videoteam that "cleans" the slides (e.g. Wageningen, Erasmus, Delft). Han Smolenaars (June 13, 2016) of Wageningen University adds that linking a script to a video facilitates content search of video fragments.

Pre-produced formats

To speed up and simplify production, a few universities use pre-produced formats. The studio technicians at Erasmus use a standard layout for all knowledge clips (Pieter van Baarle, June 2, 2016). The Universidad Politécnica de Valencia features three studios each set up distinctly to

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produce a certain format. Teachers walk into the studio with the format they need. This save time and money and lowers the threshold for teachers.

DIY studios

A number of Dutch institutes have *do-it-yourself* (DIY) studios to increase accessibility for less tech savvy teachers, at relatively low cost. The cost of a DIY studio varies from €4.000 (Zuyd University) to €10.000 (Utrecht University). A typical DIY studio features a computer, a camera and a desk with a green screen and/or white board and ideally a form of AV-support in the vicinity. Teachers can reserve, walk into, record and walk out of the studio. Interviewees that DIY studios effectively lower the threshold for teachers.

Production quality

There are significant differences in terms of video production process, format and quality. Where Delft University has a team of about seven people involved in their professional video productions (Danika Marquis, April 6, 2016), others use do-it-yourself studios (e.g. UU, HSZuyd, Erasmus), webcams or smart phone. According to many interviewees, high production is not a prerequisite for success. High-quality audio, however, is considered crucial. Students happily watch webcasts or films made with a smart phone, if the content is strong. In addition, students appreciate authenticity (Danika Marquis, April 6, 2016).

Copyright and image right

The decision to show videos online impacts copyright rules and regulations differently. Particularly institutes that offer open and online video content, such as Delft, Wageningen, and Zuyd University, have a protocol for addressing copyright in place. At Zuyd University, librarians scan videos for copyrights (Els Koelewijn, February 4, 2016) and at Delft University, the media centre does the same (Danika Marquis, April 6, 2016). Delft University has a policy: *use creative commons unless*. Hanze University of Applied Sciences, provides its staff with copyright guidelines and information.

Good practices in support

Support staff and teachers that were interviewed, stress that the importance of relieving teaching staff from supportive tasks so they can focus on teaching. At Erasmus University Rotterdam support is provided by a centralised AV-support team and by faculty level eLearning teams. At Wageningen, Hanze, Zuyd, InHolland, KULeuven the eLearning teams and didactical support is also centralized.

In the design phase, multimedia design staff can help design a video, choose the right format and align the video(s) with learning goals.

- In the *production phase,* AV staff, editing staff, and copy right specialists can be of support.
- In the *publication phase,* a so-called key user can assist in uploading to the platform, organizing folders, granting access, linking to the learning management system.

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Training

Providing training for teaching staff can be viewed as a form of support. At Wageningen University, teachers are asked to follow training before using of the studio.

- *Presentation skills.* Presenting in front of a camera is quite different from lecturing face-to-face. Most interviewees say that even reluctant teachers are convinced of the added value of a presentation training once they have taking it. As an added bonus, it helps improve the "traditional" lectures.
- *Multimedia course design.* This stimulates teachers to rethink their existing course content and teaching methods. Some universities offer even a more focused training. For instance, Utrecht University offers a knowledge clip workshop.
- *Editing and other technical skills.* These training sessions that are aimed at a hands on teaching of an editing tool often offer components of multimedia course design and video design as in many cases the participant is inexperienced in the entire process of making a clip.
- *A tailor made mix of training and support*. At Groningen University a teacher who wants to use video receives 20 hours (usually five sessions of four hours) of support of a pedagogical expert specialized in multimedia curriculum design. Together with the teacher learning goals are determined and course and videos are designed. The teacher is rewarded with a University Teaching Qualification.
- *Best practices events and social media groups.* Interviewee Koos Winnips (Groningen University) runs a LinkedIn interest group for teachers from both Hanze University of Applied Sciences and Groningen University to share experiences and best practices with video and flipping the classroom. In addition, he organizes events to exchange practices.
- *Teacher feedback.* Some universities try to promote peer support among teachers by developing online training tools that allow teachers to share their clips and provide feedback.

Conclusion

Video can be a great tool for moving toward a blended learning model. The most important take away in terms of didactics, is that video is only successful if aligned with learning goals and activities. However, it is important to realise that video is a costly and time consuming process. Institutes, who choose to promote the use of videos among their teaching staff, are more likely to succeed if carefully plan how spend their investments of time and money. They may lower the threshold for teachers wanting to embed video by relieving teachers from supportive tasks by providing sufficient and effective support. The practices presented in this paper are aimed at inspiring teachers and curriculum designers and at providing input for the discussion on the development of video support facilities that best fit the needs of the institute, its' students and staff.

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Appendix

List of interviewees per institute

Erasmus University (problem based at 4 faculties, including LAW; thematic learning at medical faculty; traditional lectures at RSM)

- Bas Giesbers, information management- e-learning team, Rotterdam School of Management (RSM) (April 1, 2016)
- Farshida Zafar, teacher and member learning team, Erasmus School of Law (ELS) (April 4, 2016) PBL
- Sorosh Shams, functioneel beheerder at Erasmus School of Law (ELS) (June 2, 2016)
- Mary Dankbaar, Program manager e-learning at Erasmus Medical Centre (April 8, 2016)
- Pieter van Baarle, studio and media support center (June 2, 2016)

Hanze Hogeschool (thematic learning)

- Ilonka Hebels, teacher (Communications Media and IT) (April 8, 2016)

Zuyd University of applies Sciences (problem based, project based, cased based and other collaborative learning models)

- Alexandra Montague and Luisa Arrivillaga, teachers (Spanish/Portuguese) (March 3, 2016)
- Els Koelewijn, project leader blended learning program (February 4, 2016)
- Frans Roovers, teacher Social Work and student career counsellor (February 17, 2016)
- Inge van Putten, teacher Chemical Technology (February 29, 2016)
- Pieter Dekker, instructional media developer (February 17, 2016)

Hogeschool Utrecht

- Don Zuyderman, knowledge clip on video design (YouTube posted on January 23, 2015)

InHolland (project based learning)

- Zac Woolfitt, Teacher Tourism department CROHO and member of Research group teaching and technology (April 4, 2016)
- Jos Fransen, Lector Teaching, Learning and Technology (presentation at preconference Media and Learning (March 17, 2016)

Catholic University of Leuven (social constructivist learning – no single centralised method)

- Mariet Vriens, (April 14, 2016)
- René Hermens, Educational Technologist- Education Research and Support (March 29, 2016)

Groningen University (no single centralised method)

- Koos Winnips, Educational Support and Innovation & BKO (March 3, 2016)
- Dr. Lorenzo Squintani, Teacher Faculty of Law (April 5 and 7, 2016)

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Delft University (traditional, lecturers have great autonomy, blended learning models, online learning in extension school)

- Danika Marquis, eLearning and Video Support (April 6, 2016)

University Leiden (no single centralised method)

- Bas Haring, Associate Professor Leiden University- Leiden Institute of Advanced Computer Science (LIAC) – Presentation Sneak Preview "The Scientist" at SURF (March 11, 2016)

Tilburg University (lectures and collaborative group work)

- Esther Breuker, Academic Support Teacher development & Project manager Media & (E)-learning (April 4, 2016)

Utrecht University (activating collaborative methods)

- Liesbeth van de Grint, Educational Advisor and Training – Centre for education and Learning faculty of Social Sciences (February 1, 2016)

UvA (no single centralised method)

- Werner Degger, AV support (March 1, 2016)

Wageningen University (lectures in combination with collaborative work forms, was PBL in the nineties)

- Dennis Anneveldt, media Specialist (June 13, 2016)
- Han Smolenaars, Educational Staff Development (June 13, 2016)

University of Maryland (lectures combined with collaborative work forms)

- Mary Lynn McPherson, PharmD, MA, BCPS Professor and Vice Chair – Department of Pharmacy Practice and Science mmcphers@rx.umaryland.edu (November 10, 2015)

Maastricht University

Faculty of Arts and Social Sciences – FASoS

- Emilie Sitzia, (May 24, 2016)
- Carine Germond, (June 3, 2016)
- Giselle Bosse, (May 12, 2016)
- Marjolein van Asselt, (June 20, 2016)
- Saeed Parto, (May 11, 2016)

Faculty of Health Medicine and Life Sciences – FHML

- Nynke de Jong, (February 5, 2016)
- Danielle Verstegen, (May 19, 2016)
- Lianne Loosveld, (February 22, 2016)
- Monique Kenstra, (June 28, 2016)
- Carijn Beumer, (May 25, 2016)

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Faculty of Humanities and Sciences – FHS

FHS – Science Programme

- Roy Erkens, (June 12, 2016)

FHS – University College Maastricht

- Mark Stout, Kai Heidemann and Jeroen Moes, (April 21, 2016)

Faculty of Law – LAW

- Bram Akkermans and Catalina Goanta, (May 30, 2016)
- Aalt-Willem Heringa, (May 24, 2016)
- Sander Jansen, (May 31, 2016)
- Sjoerd Claessens, (April 8, 2016)

Faculty of Psychology and Neuroscience – FPN

- Margje van de Wiel and Herco Fonteijn, (March 10, 2016, workshop BKO PBL course design)
- Michael Capalbo, (February 22, 2016)
- Sandra Mulkens, (April 7, 2016)

School of Business and Economics – SBE

- Jaap Bos, (February 22, 2016)
- Sjoke Merk, (April 1, 2016)

Maastricht University Office – MUO

- Annabel Reker, (May 15, 2016)

Science Vision

- Ger van Wunnik, (March 16, 2016)

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