Busting multimedia myths

An evidence-based approach to quality instructional media

2018 QM Connect Conference

Steven Crawford, EdD
District Director
Maricopa Center for Learning and Innovation
Maricopa Community Colleges

steven.crawford@domail.maricopa.edu
@DrSRCrawford

MARICOPA
COMMUNITY COLLEGES

Session objectives

After this session, you will be able to…

- define the various categories and types of instructional multimedia
- appraise the research that informs our practice in developing multimedia for online presentations
- discuss how faculty and instructional designers can apply these emerging best practices when developing online presentations


Defining types of multimedia

Audio Presentations

Podcast
Course introduction
Personal introduction
Module introduction
"Lecture"
Student feedback
Course announcements
Interview
Event/lecture capture
Role play
Case study/Scenario/Vignette

Voiceover Presentations

Course introduction
Personal introduction
Module introduction
"Lecture"
Case study/ Scenario/Vignette

Screencasting Presentations

Course introduction
Module introduction
Student feedback
Demo of application/process

Video Presentations


What can we learn from the research?

Does including video in my course make a difference for my students?

Yes

* Findings from this study indicate that instructor-generated video content can have a positive and moderate influence on student satisfaction with and engagement in asynchronous online courses.
* 92% believe video increases student satisfaction with their learning experience. Other areas in which video is thought to have a positive impact include increasing student achievements (84%), increasing teacher satisfaction (83%), increasing educator collaboration and professional development (83%), and making the on-boarding process of new students more smooth (80%).
* Many students also commented that they no longer even viewed the inserted PowerPoint presentations and that the instructor-generated video content had replaced that aspect of the course. This was somewhat surprising as the instructor-generated video content was originally designed to supplement the PowerPoint presentations.

BUT!

* the fraction of students accessing lecture-oriented videos decreased to less than 40% toward the end of the semester, and students were more likely to not access the whole video when these lecture-oriented video becomes longer.
* little in class time was spent describing or working on laboratory activities, and all instructions required for laboratory activities were delivered through lab videos (especially the lab-specific ones). Students not only accessed the laboratory videos a lot, but also were more likely to access these videos completely without skipping sections in it when the video length increases.
* little correlation between student engagement with video lectures and student performance in the course.

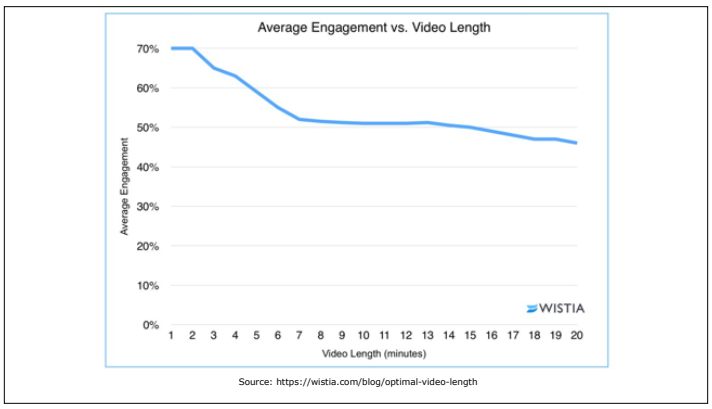
References

Draus, P. J., Curran, M. J., and Trempus, M. S. (2014). The Influence of instructor-generated video content on student satisfaction with and engagement in asynchronous online classes. MERLOT Journal of Online Learning and Teaching, 10(2).

Kaltura (2018). State of video in education. Retrieved from https://corp.kaltura.com/resources/the-state-of-video-in-education-2018/

Lin, S., Aiken, J. M., Seaton, D. T., Douglas, S. S., Greco, E. F., Thoms, B.D., and Schatz, M. F. (2017). Exploring university students' engagement with online video lectures in a blended introductory mechanics course. Physical Review Physics Education Research, 13(2). DOI: 10.1103/PhysRevPhysEducRes.13.020138

How long is too long?



Source: https://wistia.com/blog/optimal-video-length

* Chunk into 6 minute segments
* in-person students indicated a preference for shorter videos at 1.5 to 3 minutes (48.1%) while the online students indicated a preference for longer videos at 3-7 minutes in length (55.6%)
* video length impacts their viewing decision
* The mean maximum time for college-age participants' willingness to watch was about four and a half minutes. The median was approximately three minutes. In general, shorter appears better: three to four minutes is around the maximum length that most eighteen to twenty-nine year olds are willing to watch.

6 minutes or less

* Chunk into 6 minute segments
* in-person students indicated a preference for shorter videos at 1.5 to 3 minutes (48.1%) while the online students indicated a preference for longer videos at 3-7 minutes in length (55.6%)
* video length impacts their viewing decision
* The mean maximum time for college-age participants' willingness to watch was about four and a half minutes. The median was approximately three minutes. In general, shorter appears better: three to four minutes is around the maximum length that most eighteen to twenty-nine year olds are willing to watch.
* About 70 percent of participants indicated that they are either more likely to watch a video with a timestamp or will rarely watch unless the time is indicated
* Even high quality pre-recorded classroom lectures are not as engaging when chopped up for a MOOC.

References

Berg, R., Brand, A., Grant, J., Kirk, J. S., Zimmerman, T. (2014) Leveraging recorded mini-lectures to increase student learning. Online Classroom, 120. Retrieved from: https://www.magnapubs.com/newsletter/online-classroom/120/leveraging_recorded_mini_lectures_to_increase_student_learning-10076-1.html

Brame, C.J. (2015). Effective educational videos. Retrieved from http://cft.vanderbilt.edu/guides-sub-pages/effective-educational-videos/

Buzzetto-More, N. A. (2014). An examination of undergraduate student's perceptions and predilections of the use of YouTube in the teaching and learning process. Interdisciplinary Journal of E-Learning and Learning Objects, 10, 17-32. Retrieved from http://www.ijello.org/Volume10/IJELLOv10p017-032Buzzetto0437.pdf

Clossen, A. S. (2018). Trope or trap? Role-playing narratives and length in instructional video. Information Technology and Libraries, 37(1). DOI:10.6017/ital.v37i1.10046

Fishman, E. (2016). How long should your next video be? Retrieved from https://wistia.com/learn/marketing/optimal-video-length

Guo, P. J., Kim, J., and Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. Proceedings of the first ACM conference on Learning @ scale conference (L@S '14). DOI:10.1145/2556325.2566239

Ljubojevic, M., Vaskovic, V., Stankovic, S., and Vaskovic, J. (2014). Using supplementary video in multimedia instruction as a teaching tool to increase efficiency of learning and quality of experience. The International Review of Research in Open and Distance Learning, 15(3). DOI:10.19173/irrodl.v15i3.1825

Do students want to see me talk?

Not Really

* Videos that intersperse an instructor’s talking head with slides are more engaging than slides alone
* results showed that significantly less attention was devoted to the task when the instructor was present in the modeling example as compared to when he was not present, because students looked a substantial amount of time at the instructor's face (ca. 30% on average), even though the instructor's face occupied a rather small area of the video (i.e., 4.8%).
* These findings suggest that the model’s face might not be a distractor in social instructional situations in which the model is engaging in a demonstration while explaining what s/he is doing.
* we indeed found that participants who saw the instructor's face paid less attention to the task area than participants who did not see the face. seeing the instructor's face had neither beneficial nor detrimental effects on learning in the present study.
* While this consideration is important for managing cognitive load, it is also relevant to promoting student engagement. When telling a story, it can be very effective to show the storyteller’s face or to show an animation of the story. When solving a problem, Khan academy-style videos are particularly helpful, showing students step-by-step with narration how to work through the problem (Guo et al., 2014). When teaching about an invisible phenomenon, it can be helpful to provide an illustration. In each case, providing visual elements that add to the lesson can not only promote student understanding but also engagement with the lesson.

References

Guo, P. J., Kim, J., and Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. Proceedings of the first ACM conference on Learning @ scale conference (L@S '14). DOI: 10.1145/2556325.2566239

Pierson, A. (2017). The effect of seeing an instructor's face within an instructional video on connectedness, attention, and satisfaction. (Doctoral Dissertation) ERIC Number: ED577621

van Wermeskerken, M., Ravensbergen, S., and van Gog, T. (2018). Effects of instructor presence in video modeling examples on attention and learning. Computers in Human Behavior, 89. DOI:10.1016/j.chb.2017.11.038

van Wermeskerken, M. and van Gog, T. (2017). Seeing the instructor's face and gaze in demonstration video examples affects attention allocation but not learning. Computers and Education, 113. DOI: 10.1016/j.compedu.2017.05.013

If I am not onscreen, then what do students want to see?

Demonstrations

* Khan-style tablet drawing tutorials are more engaging than PowerPoint slides or code screencasts
* Khan-style tutorial that provides symbolic sketches to illustrate the verbal explanation uses both channels to give complementary information.
* When solving a problem, Khan academy-style videos are particularly helpful, showing students step-by-step with narration how to work through the problem (Guo et al., 2014). When teaching about an invisible phenomenon, it can be helpful to provide an illustration. In each case, providing visual elements that add to the lesson can not only promote student understanding but also engagement with the lesson.
* For brief how-to videos, there is a small preference for screencast instructional videos over a narrative roleplay scenario. The results of the survey indicate that roleplay videos should be well- produced, brief, and high quality. However, what constitutes high quality is not very well established.

Highlighting of key information

* By highlighting the key information, it helps direct learner attention, thus targeting particular elements of the video for processing in the working memory. This can reduce extraneous load by helping novice learners with the task of determining which elements within a complex tool are important, and it can also increase germane load by emphasizing the organization of and connections within the information.
* For brief how-to videos, there is a small preference for screencast instructional videos over a narrative roleplay scenario. The results of the survey indicate that roleplay videos should be well- produced, brief, and high quality.

References

Brame, C.J. (2015). Effective educational videos. Retrieved from http://cft.vanderbilt.edu/guides-sub-pages/effective-educational-videos/

Clossen, A. S. (2018). Trope or trap? Role-playing narratives and length in instructional video. Information Technology and Libraries, 37(1). DOI:10.6017/ital.v37i1.10046

Guo, P. J., Kim, J., and Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. Proceedings of the first ACM conference on Learning @ scale conference (L@S '14). DOI:10.1145/2556325.2566239

Should I include video of me tutoring students?

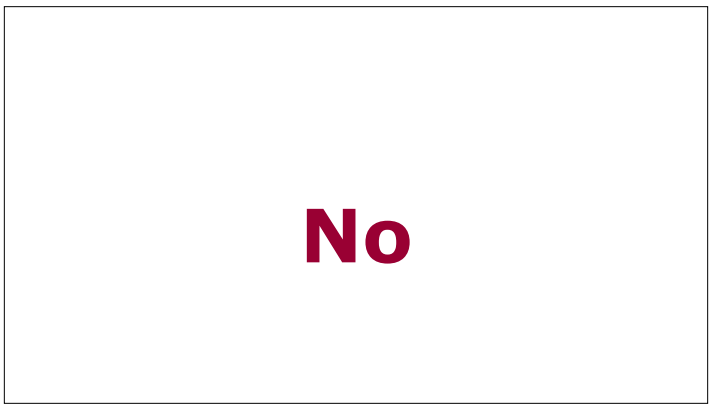
Maybe?

* The first explanation is that tutees can serve as a model of learning. This is supported by our finding showing that the observing students seem to imitate tutees' constructive behaviors, such as generating substantive comments and asking questions, which are important constructive learning skills.
* we speculate that seeing conflict episodes might encourage and motivate students to try harder. Such motivation could be triggered by a sense of empathy or a fear of failing so that the observers want to try harder.

References

Chi, M. T. H., Kang, S., and Yaghmourian, D. L. (2017). Why students learn more from dialogue- than monologue-videos: Analyses of peer interactions, Journal of the Learning Sciences, 26(1). DOI: 10.1080/10508406.2016.1204546

Do I need to have a studio setup with high quality video?



* Videos produced with a more personal feel could be more engaging than high-fidelity studio recordings. – Try filming in an informal setting; it might not be necessary to invest in big-budget studio productions
* Videos where instructors speak fairly fast and with high enthusiasm are more engaging. – Coach instructors to bring out their enthusiasm and reassure that they do not need to purposely slow down.
* Weeding is the elimination of interesting but extraneous information from the video, that is, information that does not contribute to the learning goal. For example, music, complex backgrounds, or extra features within an animation require the learner to judge whether he should be paying attention to them, which increases extraneous load and can reduce learning.
* it's important that the instructor consider her learners when weeding educational videos, including information that is necessary for their processing but eliminating information that they don't need to reach the learning goal and that may overload their working memory. Ibrahim (2012) has shown that this treatment can improve retention and transfer of new information from video.

BUT! Audio matters

* Voice quality in narration matters. Although preference in type of voice inevitably varies, the actor’s voice is noticed over production value. It is important that the narrator speaks evenly and clearly.

References

Brame, C.J. (2015). Effective educational videos. Retrieved from http://cft.vanderbilt.edu/guides-sub-pages/effective-educational-videos/

Buzzetto-More, N. A. (2014). An examination of undergraduate student's perceptions and predilections of the use of YouTube in the teaching and learning process. Interdisciplinary Journal of E-Learning and Learning Objects, 10, 17-32. Retrieved from http://www.ijello.org/Volume10/IJELLOv10p017-032Buzzetto0437.pdf

Clossen, A. S. (2018). Trope or trap? Role-playing narratives and length in instructional video. Information Technology and Libraries, 37(1). DOI:10.6017/ital.v37i1.10046

Guo, P. J., Kim, J., and Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. Proceedings of the first ACM conference on Learning @ scale conference (L@S '14). DOI:10.1145/2556325.2566239

Hansch, A., Newman, C., Hillers, L., Schildhauer, T., McConachie, K., Schmidt, P. (2015). Video and online learning: Critical reflections and findings from the field (March 13, 2015). HIIG Discussion Paper Series No. 2015-02. DOI:10.2139/ssrn.2577882

If I do not have any students that are deaf/hard of hearing, do I really need to have captions?

* Closed captions help with comprehension of dialogue that is spoken very quickly, with accents, mumbling, or background noise.
* Video that mentions full names, brand names, or technical terminology provides clarity for the viewer.
* Closed captions help maintain concentration, which can provide a better experience for viewers with learning disabilities, attention deficits, or autism.
* Viewers who know English as a second language benefit from closed captions, because they make it easier to follow along with the speech.
* Captions allow viewers to watch videos in sound-sensitive environments, like offices and libraries.
* Closed captions has reached a tipping point, with 52% of respondents reporting that they are currently using the technology, and only 9% believing it not to be useful.

References

Bowe, F. G. and Kaufman, A. (2002). Captioned media: Teacher perceptions of potential value for students with no hearing impairments. Retrieved from: https://dcmp.org/learn/51-captioned-media-teacher-perceptions-of-potential-value-for-students-with-no-hearing-impairments

Griffin, E. (2018). Who uses closed captions? Not just the deaf or hard of hearing. Retrieved from: https://www.3playmedia.com/2015/08/28/who-uses-closed-captions-not-just-the-deaf-or-hard-of-hearing/

Kaltura (2018). State of video in education. Retrieved from https://corp.kaltura.com/resources/the-state-of-video-in-education-2018/

Kent, M., Ellis, K., Latter, N., and Peaty, G. (2018). The case for captioned lectures in Australian higher education. TechTrends, 62. DOI:10.1007/s11528-017-0225-x

What does the future hold?

Interactive videos

* 97% think that interactive videos (in which content changes depending on viewer behavior) is going to be important to education in the future.

Lecture Capture

* While most use cases showed steady usage or slight increases, lecture capture usage has increased by 21% in the last two years.
* Over the past two years, there were two big gains in which video use cases higher education institutions employ. (Note: to compare against previous years, we are isolating for just higher education.) Lecture capture is the biggest gain, leaping up by 21% since 2016. Clearly lecture capture has gained steam over the last two years.
  Interestingly, "Internal organization usage (e.g., internal collaboration, training employees, IT support and FAQs, etc.)" also showed an increase by 20%. Apparently more institutions are using video to help their staff stay organized and informed.
  Flipped classrooms is less dramatic, but has shown slow and steady gains since we first started the survey in 2014, progressing from 51% to 60% in 2018.

References

Kaltura (2018). State of video in education. Retrieved from https://corp.kaltura.com/resources/the-state-of-video-in-education-2018/


Final reflection


Busting multimedia myths
An evidence-based approach to quality instructional media
Steven Crawford, EdD
District Director
Maricopa Center for Learning and Innovation
steven.crawford@domail.maricopa.edu
@DrSRCrawford
MARICOPA
COMMUNITY COLLEGES
2018 QM Connect Conference