

Bringing Videos to Life with H5P: Expanding Experiential Learning Online

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Abstract

How can students simulate the experience of working in the field or applying their knowledge in a hands-on manner online? In August 2018, the Teaching and Learning Centre and Online Learning at the Mount incorporated H5P into the learning management system, allowing faculty to easily create engaging online learning experiences that offer students the opportunity to explore real-life examples and situations. In this report, we showcase H5P features that allow you to augment video to emphasize active learning. We focus on the pedagogical considerations of designing interactive video using H5P. We also briefly reflect on how we have used it effectively for online course development.

Keywords: interactive video; pedagogy; experiential learning; cognitive load

Engagement and experiential learning are always particular challenges in an online context (Salter, 2006). How can students simulate the experience of working in the field or applying their knowledge online? How much room is there for experiential learning in an online class? In August 2018, the Teaching and Learning Centre and Online Learning at the Mount incorporated H5P, a free learning technology to answer these questions in a fun and functional way. H5P allows faculty to easily create engaging online learning experiences that offer students the opportunity to explore real-life examples and situations. Best of all, it can be incorporated into the Mount's learning management system (LMS), which is Moodle. In our session, we showcased H5P interactive video features that allow faculty to augment existing media and create new activities that emphasize active learning. We demonstrated how learning theory and evidence-based teaching practices can be applied to transform videos into interactive meaningful real-world learning experiences. In this report, we will offer up some of this analysis and describe how this open technology can work to transform existing videos into an experiential learning opportunity. We focus on the pedagogical considerations of designing interactive video using H5P. We also briefly reflect on how we have used it effectively for online course development.

Pedagogical and Technical Challenges of Video in Online Courses

In our context, we were presented with two significant problems: one pedagogical and one technical. First, pedagogically, we have found the move toward multimedia-rich online courses sometimes encourages passive forms of learning (Salter, 2004; Wachtler, et al., 2016). Even though video can be attention getting, in reality, it is a delivery format that engages learners' eyes but may not engage their

minds or bodies. The last thing we want to do is directly replace lectures with lecture-captured videos. We want to ensure that experiential learning remains at the core of our learner-centred programming, which means that all elements of online courses, including video, need to be hands-on and engaging.

Second, technically, we needed to find an online solution that would be easy to use and easy to integrate into our current platform. Since our courses are primarily designed by faculty who are subject-matter experts but are often not technical experts, we need technology that would be familiar and accessible. If we keep the learning curve somewhat low, then it is much easier to encourage faculty to try out new things. Furthermore, we wanted to invest in technology that was robust and that could allow us to create a wide range of learning activities that would be suitable for multiple pedagogical purposes.

Overview of H5P Interactive Video

Our solution to both of these issues was to pilot the use of H5P interactive video in some of our online classes. H5P is a free, open-source tool that allows users to create interactive content using HTML5 (H5P, 2019). It is available as a plug-in for WordPress, Drupal, and Moodle. You can also create content on the H5P website itself, though users will need to host their own content or pay for H5P to host. If you use other LMS platforms like Brightspace or Canvas, you may need to determine with your IT team if H5P will integrate at your institution. Since we use Moodle as our learning management system at the Mount, we selected H5P because of its compatibility with our existing system and its excellent price tag (free!). We also selected it because it has been well-vetted by the larger user community. As of January 2019, the Moodle plugin has been downloaded over 11,000 times and is used on 8,442 sites (Moodle, 2019). This means that there is a large community of users to draw on at every stage of implementation.

H5P includes dozens of interactive content types, including various games, multimedia and social media applications. One of its most heavily featured content types is interactive video. The H5P interactive video builder allows you to add quizzing, text, links and drag-and-drop activities into videos. You can create and upload your own videos or you can add interaction to existing videos from sources like YouTube and Vimeo. As Berntsen, Ellingston and Flakk (2015) succinctly describe, H5P “reduces the ceremony needed to get going” (p.15) when you are developing online content. The H5P Moodle plugin has built-in examples and tutorials. This makes it relatively unique because it allows for just-in-time training and support for any faculty who wants to try it. Without leaving the plugin, they have access to resources and support that will help them as they design.

Since the H5P plugin was well supported on the technical side, we decided to report on how to support a pedagogically-sound use of the tool. As faculty development professionals, we want to ensure that teaching is at the centre of all of our technological solutions.

Pedagogical Considerations for Creating Interactive Video

Consideration 1: Always start with a clear purpose.

The first thing to consider when designing an interactive video is the pedagogical purpose. Why are you using a video? What do you want students to learn from this video? There are a number of different reasons to use video in online teaching. Though many people associate videos with content delivery, a video can also be effectively used to: provide a summary, scaffold material, illustrate a concept, provide a real-life example, apply knowledge, demonstrate a skill, model a behaviour, display aspects of a culture or tell a story (Bates, 2012). The kind of video you make, and the kinds of interactions that you

might use to frame the video, are dependent on this purpose. Bates (2012) identifies a list of fifteen different pedagogical uses of video that add to our summary, including to substitute for a field visit, to demonstrate experiments and to illustrate principles in three dimensional space, to name a few.

Once you have determined the purpose, you need to align the purpose with the type of video that you create or select. For example, a documentary video would be useful for displaying aspects of a culture but would not be useful for summary. Screencasts are well suited for illustrating a concept and demonstrating a skill, but would not be relevant if the student does not need to recreate a particular behaviour or action on their own screens. To help you find appropriate videos, consider visiting your library. At the Mount, we are lucky to have a Library Guide on finding appropriate videos that identifies our various streaming subscriptions and resources based on various categories of video (MSVU, 2019). Most libraries offer similar guides that can support faculty through finding videos available to them through their institutions.

Consideration 2: Assess your students' cognitive load.

When designing an interactive video, you should consider both the cognitive load of the video and the cognitive load of the interactive learning activity. In terms of video selection, try to find videos that are short and well-aligned with your purpose. Watch the video carefully and look for logical breaks. H5P has tools that allow you to chunk, or segment, video through bookmarking. A feature like bookmarks can go a long way in chunking videos into more manageable sections that will make ideas easier to digest. This might be the first step you take in making an interactive video. If videos are broken into manageable sections, then students' minds will be less likely to wander and they will be more likely to watch the video to completion.

Once you have selected a video, you can start thinking about how and where you would add in interaction. Interactivity can allow for additional context to reduce cognitive load and keep students engaged. However, if too many activities exist or if they are poorly placed, this could lead to the opposite effect and increase the students' cognitive load.

Brame (2016) offers a number of valuable suggestions for supporting students' cognitive load in videos that are applicable to H5P interactive video.¹ First, she suggests that signaling important information reduces extraneous load and that segmenting the video helps to manage intrinsic load (Brame 2016). In H5P you can add images, text blocks or markers throughout a video that can provide additional information. They can be used to signal what is important. You are also able to pause the video or show a button that will pop up more information in order to emphasize a key feature or instruction. Brame (2016) suggests that features that give students control will give students ownership. Pausing and marking video with bookmarks also give students more control over the video. Other ways you might reduce cognitive load include providing a learning outcome at the beginning of the activity, which could be accomplished with a textbox or interaction in H5P, or by activating prior knowledge in a short quiz or series of questions at the outset of the video, which could be accomplished the same way.

Consideration 3: Apply Active Learning Best Practices

¹ Brame (2016) first appeared as a teaching resource on Vanderbilt University's Centre for Teaching and Learning. See Brame (2015) for this free creative commons resource on effective video.

Further, Brame (2016) offers several suggestions on how to encourage active learning with video through questioning; she suggests that there is a need for interactive questions within the video and for guiding questions to frame the video. At the same time, Wachtler, et al. (2016) found that the position of questions within video impacted how well students performed. They determined that questions posed too early had a higher rate of failure.

There are rich opportunities for questions for H5P interactive video. Integrated questions within the video are possible with multiple choice or drag-and-drop style activities. These just-in-time learning interventions allow students to practice or recall information at strategic moments throughout a video. If open-ended questions are offered initially, to frame and contextualize a video within a lesson, then students will know what they should consider as they watch. Then, if questions are asked strategically at logical breaks or as a summative activity at the end of the video, students can integrate what they know more successfully.

H5P Interactive Video in Our Context

We have been using H5P interactive video as a part of our online course development process for the past year. During this time, we have refined our use to ensure that purpose and value guide how much interactivity we incorporate into video and when.

There are several key aspects of H5P video that we make regular use of during our online course development process. In particular, we use the bookmarking feature to help chunk content in long videos to make the videos segmented and easier to navigate through. We find that these bookmarks serve as reference points for students and instructors to demarcate moments of transition and, sometimes, reflection. They help to organize and synthesize material thus reducing the cognitive load. Appropriate chunking can also convey a sense of the purpose and value of the different component parts of the video.

Another simple but powerful feature of the tool we use regularly is labels and posters. Basically, we use H5P to insert didactic cues into video. These cues offer clarifying textual observations. There are options to both stop the video to make time to read and retain the information, or you can set the text to run for pre-set lengths of time as the video plays. Labels or posters allow you to add information that was missing in the original video or they can be used to annotate or point out features within a video. Overall, we find the cueing capabilities of labels and posters to be a valuable way to clarify and extend valuable content within the video itself. We use it to focus and direct student attention to key components within the video itself.

Finally, we use the assessment options with H5P less readily and very strategically. Though these features were what originally drew us to this product, we found that overuse of interaction often created continuity and processing challenges. There are, however, some exceptions. Demonstration videos, for example, lend themselves well to questions after concrete stages in a process. Schwan and Riempp (2004), for example, have found that interactive video works well to assist in developing necessary skills to perform a concrete action, which, in their case, was tying nautical knots. We have found that they work well alongside bookmarks to keep content organized. Active learning, as Brame (2016) notes, must be strategically positioned within the video itself. We found through trial and error that if we use it for the sake of using it we are more likely to undo its value. We have found that the best place for interaction is primarily at the end as a form of summative review. However, pre-assessment or prediction activities may work at the beginning of the video to prepare students for what they are about to watch.

Final Takeaways on Using Interactive Videos

The key to using interactive video tools like H5P is finding an appropriate degree of difficulty that will engage the students without overwhelming them. We have found in our experience testing the H5P tools that too many interruptions of the main video can be distracting and discouraging for students. However, we find that a framing interaction at the beginning of the video, followed by questions only at logical breaks during long videos or at the end for short videos, can make the experience rich without pushing students into cognitive overload. We recommend that you consider carefully what your purpose is for using the video and articulating a clear outcome before you start inserting interaction. If you can articulate what specifically students should be working to get out of the video, it will help you make better decisions about which activity to choose and when to use it. H5P is a wonderful tool to use as long as you keep pedagogy at the forefront of your design.

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