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Using Interactive Video to Boost Engagement in Online Courses, MOOCs, and More

"Tell me and I forget, teach me and I may remember, involve me and I learn."
—Benjamin Franklin (or Confucius, depending on who you ask)

In 2022, I was asked by Burapha University, in Thailand, to create a MOOC (Massive Open Online Course) for English language learners (ELLs) at the A2/B1 level who were preparing to enter an English-speaking work environment. I was told that it should be a video-based, self-directed course that students could complete at their own pace. While I had plenty of experience designing and facilitating synchronous online courses with asynchronous elements, this was the first time I had to design a completely asynchronous, self-directed course for ELLs.

I was excited by this new challenge, but I also found it a little daunting. As a teacher, I knew how important ongoing feedback and assessment are in informing both student learning and my own teaching. I couldn't help but wonder how providing useful feedback would be possible in a one-way learning environment like that of a MOOC. I also wondered what effect it would have on students' engagement. Would they actually do the exercises and activities they were prompted to do in the video, or would they just fast-forward to the next part? Then I discovered an invaluable tool that revolutionized the way I thought about asynchronous online learning: interactive video.

Interactive video is a multimedia tool that allows the viewer to actively engage with the content in the video by making choices and inputting data. While the teacher may present material via video just as they would in an in-person class, with interactive video they can also involve the students who are watching by asking them to interact with given exercises or tasks. In an English language online lesson or course, this interaction might involve clicking on the correct picture which corresponds to a vocabulary item, completing a conversation onscreen, or answering comprehension questions about a role play or presentation the student has just watched. Lessons can even be designed to permit students to make choices about the content they will experience, which allows for personalized, multilevel learning. The best part is that it is all done within one streamlined video

experience that keeps students engaged while informing them of their progress.

In this article, I will describe the potential benefits of interactive video, describe how this technology works and how to get started with it, give suggestions for how to apply it to a variety of teaching contexts, and even provide a sample lesson plan that shows some of the ways interactive video can be used to support student learning.

WHAT DOES THE RESEARCH SAY ABOUT THE ABILITY OF INTERACTIVE VIDEO TO INCREASE STUDENT ENGAGEMENT?

While the effects of using conventional (static) video content as an online learning tool have been extensively researched (e.g., Guo, Kim, and Rubin 2014; Sablić, Mirosavljević, and Škugor 2020; Yousef, Chatti, and Schroeder 2014), studies surrounding the effects of using interactive video content specifically are not as plentiful, as this technology is relatively new and has not yet become mainstream. However, research done up to this point indicates that interactive technology has a positive effect on learners. In a study by Longmuir (2014), the traditional lecture presentation approach was replaced with an interactive computer-assisted instructional method in a course at the University of California, Irvine. According to an anonymous survey, students indicated a strong preference for the interactive content, noting they absorbed the subject matter faster than they would have in a traditional lecture format.

In a study of a hybrid university course on sustainability science for pre-service teachers at Arizona State University (Shelton, Warren, and Archambault 2016), the effects of interactive video storytelling were explored and compared with those of conventional video storytelling. Over 61 percent of students surveyed after the course indicated that they were more focused and attentive while watching the interactive videos because they knew that questions could appear at any time. The study showed that other perceived positive effects included providing scaffolding and contributing to higher learning gains overall. As interactive video technology continues to advance and becomes a mainstay in the world of education, it will be interesting to see what future research indicates.

HOW DOES INTERACTIVE VIDEO WORK?

If you would like to create an interactive video lesson, the first thing you will need to do is choose a learning management system (LMS) that supports the creation and implementation of interactive videos. Some of the most popular LMSs are Canvas, Moodle, and Blackboard, all of which support interactive video through their H5P feature. It is becoming common for universities and schools to have subscriptions to an LMS that teachers can access for free; however, if your institution doesn't subscribe to one of these tools, you may still be able to access a free version online. For example, Moodle is an open-source platform that allows you to download, create, and host your own Moodle site for free. If your current LMS doesn't have an H5P/interactive video option, platforms like PlayPosit and Edpuzzle are excellent options. They allow individual teachers to create basic accounts for free and can be integrated into most LMSs, including free ones like Google Classroom.

After you have chosen a platform for creating your interactive video, you will upload the conventional video you would like to add interactions to. The options for these interactions vary by platform, but multiple-choice questions, drag-and-drop activities, image-choice items, and hotspots are a few types of common interactions you will find. When you are done creating the interactions, you can post the interactive video to your LMS for your students. As they watch the video and complete the interactive activities within it, they will receive feedback in the moment, and their responses will be stored within the LMS. Teachers can access this information through analytical data reports, which allow them to receive feedback about student activity and progress in order to make well-informed decisions for future classes.

HOW CAN I USE INTERACTIVE VIDEO IN MY TEACHING CONTEXT?

Interactive video can be used in a wide variety of teaching situations. As I mentioned, I used them to create an asynchronous MOOC that students complete at their own pace, without direct contact with an instructor. However, there are many other contexts in which interactive videos could be applied. They can be used for hybrid/blended courses in which students complete part of the coursework online and part of the coursework in class. As for completely in-person classes, interactive video can be used for homework assignments, as a review for tests and exams, or as a flipped-classroom activity in which students build background knowledge of a new skill or topic independently before applying it in the classroom.

If students do not have access to the internet or other necessary technology at home, interactive videos can be included in an in-person group lesson in which students work in teams or pairs to answer questions via a school-provided tablet or computer. With so many possibilities, the sky is the limit when it comes to implementing interactive video in the English language classroom.

WHAT DOES AN INTERACTIVE VIDEO LESSON LOOK LIKE, AND WHAT KINDS OF ACTIVITIES/INTERACTIONS CAN I INCLUDE?

Interactive video can allow the instructor/curriculum designer to get creative in the lessons and courses they design. However, before you begin, it is important to explore the platform you will be using to create the video so that you get a clear picture of what will—and will not—be possible, according to the features available.

With the H5P feature, which is used to create interactive content in popular LMSs like Moodle, there are 16 types of interactions available. Some of my favorites for the language-learning classroom include the "image choice" for picture-based vocabulary practice, the "single choice set" to check for listening or reading comprehension, "drag the words" to complete dictation exercises, and "mark the words" for grammar practice. For a bit more of a challenge, the "fill in the blank" interaction requires students to input answers of their own, without choosing from a set of options. Keep in mind that these types of answers may be case-sensitive or may need to be spelled correctly in order to be graded as correct, depending on the options you choose in behavioral settings. (See Figure 1 for examples of "image choice," "mark the words," and "fill in the blank" items.)

Other useful features include the ability to add a clickable link and to add a branching feature called "crossroads." Branching is a technique that allows students to make choices about the content they will experience in the video, based on their wants and needs. It is an excellent way to include student voice and choice, particularly in a multilevel classroom, and to make instruction more individualized. For example, if students learned new vocabulary during your lesson and practiced using a new piece of grammar, at the end of the lesson, you could include a "crossroads" interaction in which students could choose which one (vocabulary or grammar) they would like more practice with. Upon making their choice, they would be taken to that review within the video.

Technology can be an abstract thing to consider, so in order to paint a clearer picture of what an interactive video lesson could look like, I have included one from the MOOC I created called "English at Work." This was a course designed for A2/B1 English speakers preparing to enter an English-speaking work environment. This video lesson is about 16 minutes long, not including student work time on the interactive questions and exercises. Please keep in mind that this is just *one* example of an interactive video lesson and that there are *many* possibilities when creating interactive videos.

English at Work

Unit 4: Customer Service

In this unit, students will be able to:

- Apply their understanding of new vocabulary to complete given sentences.
- Identify the main idea and important details of a heard conversation between a customer and a customer-service representative.
- Analyze and evaluate the appropriate usage of customer-service phrases to complete a read conversation.

Interactive Video Outline

Unit Introduction

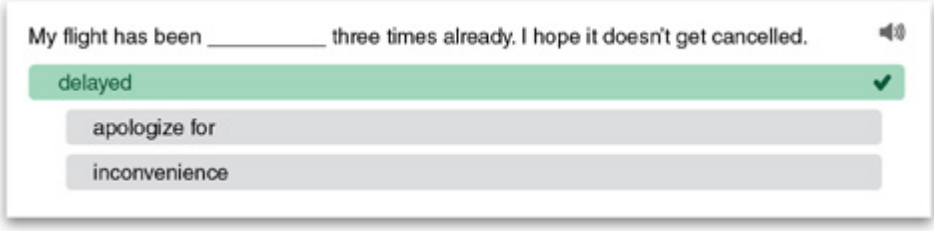
Part 1: Vocabulary

- Vocabulary introduction:

The instructor will introduce the new vocabulary that will be used in the following listening exercise. Each word will be introduced with a picture and an explanation. Students will be prompted to repeat the pronunciation.

- Vocabulary practice:

Students will complete each sentence with the correct word in a multiple-choice style interaction called "single choice set."



Part 2: Listening

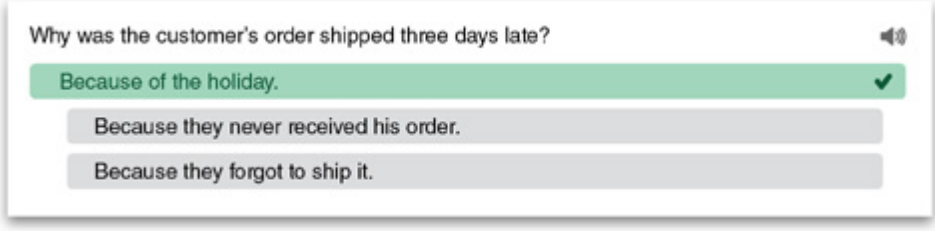
- First listen:

Students will listen to a conversation between a customer and a customer-service representative. The instructor will introduce the conversation and ask two basic questions about it. Students will answer the two basic questions via a "single choice set" interaction.

- Second listen:

The instructor will introduce a more detailed set of questions about the conversation; then students will listen to it again.

Students will answer the listening-comprehension questions via a "single choice set" interaction.



Part 3: "A Closer Look: Customer-Service Language"

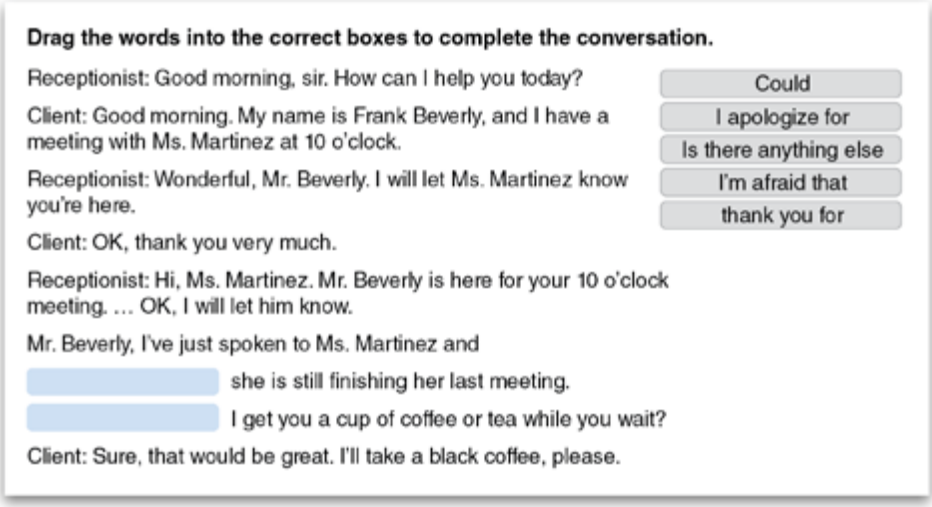
- Customer-service language introduction:

The script from the previous listening exercise will be displayed on the screen. The instructor will review it by highlighting important phrases for customer service and explaining their uses.

- Customer-service language practice:

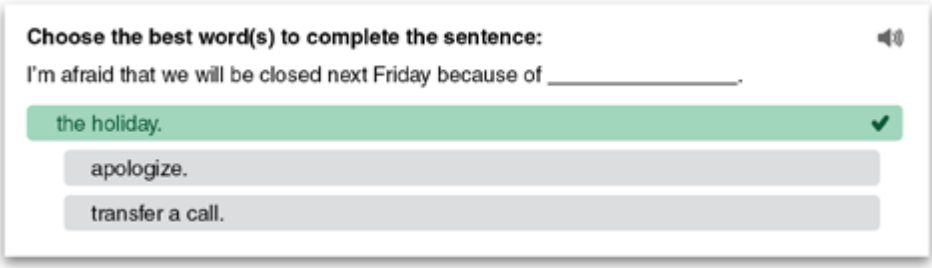
Students will see a new conversation that they must complete by using the phrases that they just learned. They will complete the conversation via a "drag and drop" interaction.

When they have completed the exercise, they will hear the completed conversation.



Part 4: Final Review

- Students will review both the vocabulary items and customer-service phrases they learned in the unit by completing sentences and short conversations via a "single choice set" interaction.



Unit Closing

WHAT ABOUT ASSESSMENT AND FEEDBACK?

Perhaps one of the biggest concerns students have with asynchronous learning is, "How will I know if I'm learning if I don't have access to a teacher?" Fortunately, with interactive video this is not an issue, as formative assessments that provide instant results and feedback can be built directly into the videos. This allows students to stay informed of their progress even without direct contact with an instructor.

These assessments, which come in the form of question-based interactions in your video, have a variety of helpful features. For example, after answering questions, students will be able to see their results immediately via a green check for correct answers or a red *x* for incorrect answers. In the case that students answer incorrectly, there are "retry" buttons that allow students to attempt to answer the question again before moving on. There are also buttons that allow students to rewatch certain parts of the video so that they can review the material before moving forward. All of these features are customizable, so the ones you choose depend on you and your goals for your students.

With customized feedback, students can benefit from the guiding, encouraging hand of a teacher even when the teacher isn't physically present.

In addition to question results, there are options to include custom-designed feedback in a variety of ways. In a vocabulary exercise, you might program that students who receive a score of 90 to 100 percent on the exercise receive a message at the end that says, "Wow! You're a vocabulary master!" Or perhaps those achieving a 60 to 70 percent score receive a message saying, "You're getting there! Try reviewing the words again." In addition to these simple pieces of feedback, you could include content-specific feedback in order to review concepts or information for English for specific purposes (ESP) or English as a medium of instruction (EMI) courses. For example, if you are teaching a history course, and a student misses a question about what started the industrial revolution, you could customize the feedback to include key factors that started it; that way, students see the relevant content right after answering the question. With customized feedback, students can benefit from the guiding, encouraging hand of a teacher even when the teacher isn't physically present.

HOW WILL I KNOW IF STUDENTS ARE ENGAGING WITH THE ACTIVITIES?

Creating beautiful videos and engaging interactive activities that you *think* will be effective is one thing, but the reality of how students are actually responding to the material you design can be quite another. If you are thinking about using interactive video to create an asynchronous learning experience, you may be worried about how you will know whether the material you're designing is actually effective, as you won't be physically present to observe student behavior and performance. Thankfully, there is no need for concern, as the available analytical tools will allow you to track both student performance and behavior-based data.

Here is an example of how this might work. When you are using the H5P feature that is common to many popular LMSs, you will be able to access this informative data via the "attempts report." This report will provide the date of completion, the score received, and the number of attempts for each student and for each video. What is considered an "attempt" is up to you as the designer and can be defined under "activity completion" in the settings. Here, you can establish the parameters for completion tracking by setting conditions that will define an attempt. These conditions range from simply viewing the video, to receiving any grade, to receiving a passing grade after completing the video. While all of these conditions have their place, depending on the context and goals for the interactive learning experience, choosing to give a grade of some type is usually the best way to ensure that students will actually work through all of the activities within the video.

While the general data provided by H5P is certainly useful, other interactive video platforms such as Edpuzzle provide even more detailed information. In addition to information regarding scores, the analytical tools on Edpuzzle provide data regarding the percentage of the video students watched, how many times students watched each section of a video, and how much time was spent with the video overall. Such information can be useful in letting teachers know which topics students find most challenging as well as interactions that may need to be adjusted to increase effectiveness.

YOU CAN DO IT!

The world of educational technology (EdTech) is always evolving, and at times this evolution can feel like it is happening at a breakneck pace. When the pandemic hit, there was an

extremely rapid and vast shift in the way students learned and teachers taught. Many of the methods and practices we had come to rely on wouldn't work in an online environment, so we had to completely adapt our approach in just a matter of days. It was a massive challenge, but somehow, we made it through. Since then, the world of education has found a new normal, and with new online courses and degree programs appearing almost every day, as well as educational apps and artificial intelligence (commonly known as AI) gaining in advancement and popularity, it is clear that educational technology is here to stay.

So this is an ideal time to embrace the moment and try something new. By stepping out of our comfort zones and confronting challenges, we not only grow as educators, but we open up new learning opportunities for our students. Interactive video is an excellent tool to add to your EdTech toolbox, so I encourage you to consider the advantages, explore ways to add it to your lessons, and give it a try!

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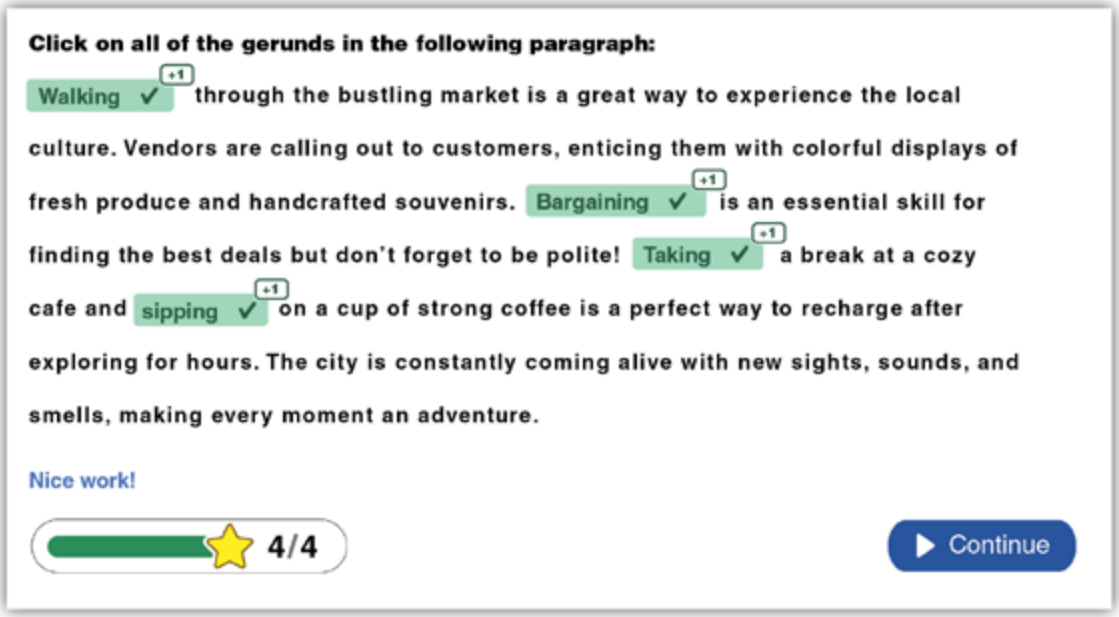
Example of an "image choice" interaction:

Images from Pixabay: laurentmarx (elephant); FriedeDia (puppy)

Example of a "mark the words" interaction:



Example of a "fill in the blank" interaction:

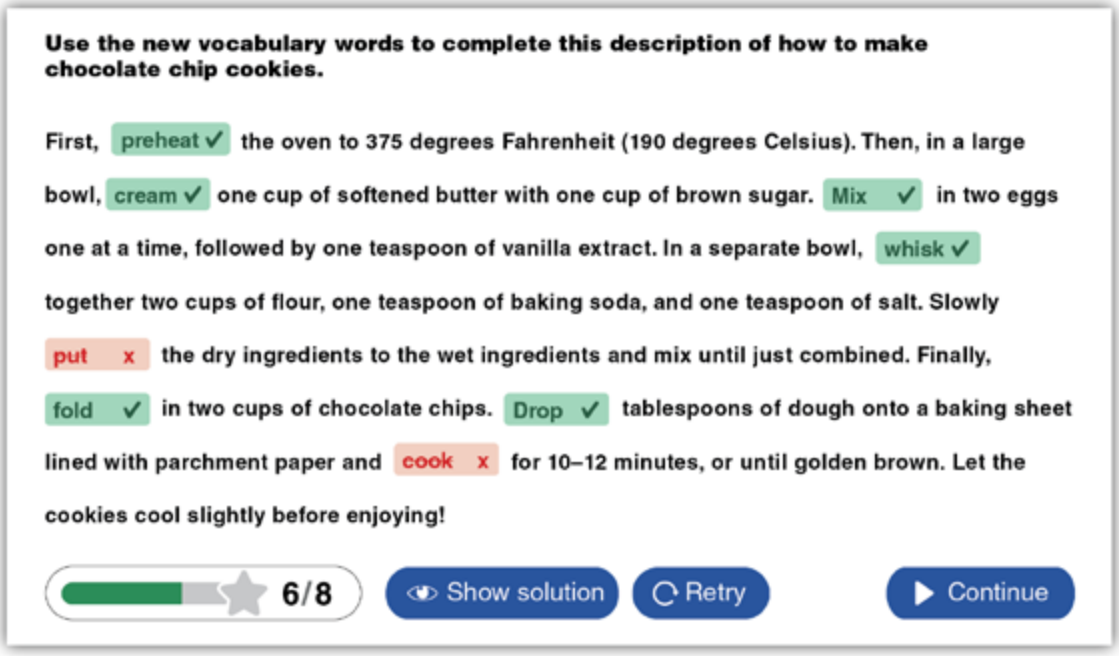


Figure 1. Examples of three types of interactive items