Scenario

Gretchen is one of 300 students registered for Dr. Gordon's virology course. Before the first class session, she reviewed three short videos of Dr. Gordon describing virus structures and explaining virus replication. As he made his first point in these microlectures, a drawing appeared in the display, illustrating the structure of a virus. Gretchen always studies with a notebook at hand, but when she started to copy the illustration, she considered that the videos will be accessible all semester. With these microlectures, she can listen without distractions and can later check the drawings and hear Dr. Gordon's explanations of them whenever she likes.

As the semester progresses, Gretchen notices differences between Dr. Gordon's microlectures and his classroom presentations. In class, he adjusts the direction and pace of the lessons based on questions from students and often includes hands-on activities. By contrast, the microlectures are sharply focused on foundational concepts.

Students can view the microlectures anytime during the semester. Gretchen likes viewing them immediately before class discussions of the topic. She often watches on her tablet device, but enjoys the portability that allows her to view or listen on her phone when she is on a treadmill at the rec center or on a bus to campus. Dr. Gordon's lectures—in either video or audio format—direct students to a URL where they can submit questions or other responses. Before each class session, he checks for questions that relate to the current topic and initiates class discussion by addressing those issues.

Three weeks before the semester's end, Dr. Gordon posts an audio lecture called "Final Exam: What to Expect." Gretchen listens to the summary of what will be covered in the exam and realizes she can use the microlectures for much of her review for the test. As she watches and listens to these presentations again, she replays key points to make sure she has them right and practices drawing many of the sketches that Dr. Gordon uses to illustrate his points. They are much easier to see on her tablet than they were on a distant whiteboard in the lecture class.

At the end of the week, she arrives for her final exam feeling confident she knows the material. Better yet, she leaves the final three hours later feeling just as confident.

1 What is it?

A microlecture is a short recorded audio or video presentation on a single, tightly defined topic. Used as a component of online, blended, or face-to-face teaching, these brief lectures can be interspersed with learning activities that reinforce lecture topics. In addition, microlectures provide a self-help resource for students, either at the time of the lesson or later for review, explaining key concepts or demonstrating techniques that might be difficult to master. The abbreviated format of these lectures can be highly effective by focusing students' attention on a single topic for a short time, limiting the opportunities for distraction. Because students control the playback, they can refer to the instructor's presentation as often as needed.

2 How does it work?

Microlectures are typically produced by an instructor, who might begin by drafting a rough script—containing just an introduction, a list of key points to cover, and a conclusion—perhaps with help from instructional technologists. The lecture is then recorded, often with a webcam but possibly with only a microphone. Video content may feature the instructor as a talking head or may display other types of visual information to accompany a voiceover: a slide presentation, a screencast, or perhaps an animation. The result is uploaded to the LMS, a dedicated media server, or a public site like YouTube, Vimeo, or iTunes U, depending on campus infrastructure options. The title of each microlecture can be specific to the concepts discussed to ensure students are able to locate the lectures they need, and keywords and metatags can also be added.

3 Who's doing it?

Public microlecture sites such as Khan Academy and TED-Ed have made the microlecture format a familiar staple of informal learning, and colleges and universities are also integrating the microlecture into formal coursework. In 2009, an early example emerged at San Juan College in Farmington, New Mexico, where brief recorded lectures, each with an introduction, a few key points, and a conclusion, were developed for a new online degree program in occupational safety. While the microlecture is still seen primarily as a tool for online learning, it is also seeing application in hands-on activities in the classroom and lab. At the University of Illinois at Urbana-Champaign, students in Animal Science learn the appropriate technique for milking cows. Previously, the professor taught this skill by lecturing as he demonstrated the procedure, but as class size grew, some students had to stand on tiptoe to see over the heads of their colleagues. A microlecture and demo, delivered

via iPad, provided novices at the dairy barn with effective one-on-one, on-location, just-in-time training. On the same University of Illinois campus, faculty at the College of Business use microlectures in graduate and undergraduate studies for courses taught online, blended, or face-to-face. Most of these lectures are recorded informally by faculty using their desktops or tablets. Surveys have indicated that particularly in large-enrollment courses, students appreciate the flexibility of microlectures, which allow them to revisit material as needed to reinforce learning.

4 Why is it significant?

These short lectures encourage a self-directed model of learning, allowing students to select lessons to watch and to move through them at their own pace, stopping and replaying a recording as needed to ensure understanding of the content. At the same time, the format encourages instructors to be concise in their presentations. A microlecture can focus on a single important point, providing a self-study opportunity for foundational concepts and those that are difficult to understand. Microlectures can be used with any pedagogical approach to explain basic concepts and thus free some portion of classroom time for problem solving and application. In this way, they provide particular support for the flipped class model, where online lectures are viewed outside of class and in-class time is reserved for review and activities so that instructors are available to assist when necessary. The perception of one-on-one interaction that microlectures provide to viewers can create a sense of instructor presence, as if he or she is speaking directly to the student—something that may otherwise be limited in large lecture halls, crowded classrooms, or online courses.

5 What are the downsides?

Microlectures require a certain kind of performance that not all instructors are comfortable with—speaking in front of a camera or even creating a scripted audio recording. While simple microlectures can be produced without much preparation and with no more complex equipment than a smartphone, highly produced lectures with complex visuals and animation take much longer to prepare and might require additional campus resources. While the microlecture is useful for reinforcing classroom discussions, instructors employing it must adjust to a new dynamic. While this dynamic offers opportunities to use in-class time for application and in-depth discussion, the transition isn't necessarily an easy one. Because by definition the microlecture is short, it does not offer much scope for depth or complexity, and because it is recorded, it does not allow for ad hoc questions.

6 Where is it going?

The microlecture is an appealing option for mobile learning, which lends it a foothold in the educational landscape. Instructors seeking to involve their students in authoring class materials could assign microlectures as class assignments, and students could use almost any mobile device to create them. These individual or collaborative student projects might even serve as responses to questions posed in class. Animation may become a more common element of the microlecture format as users experiment with cartoon-style visuals added to a lecture. Finally, the microlecture might become a standard element of online programs that award digital badges to recognize achievement or online certificates to validate completion of specified work.

7 What are the implications for teaching and learning?

Microlectures are easy to integrate into the curriculum because they can be used in a variety of ways and are short enough to fit almost anywhere. They can be posted as a trailer in a course site to be viewed by students before the course begins. Prior to class, they might introduce a topic, raise awareness, or pique curiosity. Afterward, they might cover points only touched on in the session lecture, going beyond the facts to explore implications. Activities or written follow-up assignments can easily be embedded in a microlecture to ensure that students understand the material presented. The brevity of the form gives instructors the ability to make quick fixes, tweaking or updating course content as needed. In some instances, particularly where they cover basic concepts, these brief lectures can be a reusable resource, available in more than one course or to more than one instructor. Where the content covers difficult concepts, students can view these lectures multiple times in a course, wherever iteration is useful to learning. For institutions or individual faculty members looking to move beyond traditional lecture format, microlectures offer a new instructional approach.