# How to Approach Online Learning

*6 steps to consider when taking your course online*

möbius

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Just like Rome, a truly effective online course cannot be built in a day. Elements of a course can be put online quickly and satisfy the need to provide information or testing, but to create a compelling and engaging course takes time. You need to plan, adapt material and objectives to fit an online format, understand the features and functionality of the online platform and consider the environment of your students.

Above all, you need to communicate with your students and ensure they know the course expectations, how to connect and use the online platforms, and how they can contact you, including when they can expect responses. Finally, analyzing both the student results and how students use the material will enable you to continually improve your course.

## 1. Planning

When moving a course online, especially one that is based on a face-to-face course, one of the first steps is to take a critical look at the course outline, the learning objectives, and the grading plan. These may need to be adapted to fit an online environment where students may be taking the course from a distance or asynchronously.

As you plan what material and how to put your material online, it's important to remember that you have a limited amount of time to create your course. You need to be very clear about the **learning outcomes** that you expect and what pieces of content support those outcomes. Those are the pieces that you want to spend the most time converting and for which you want to create supporting questions or interactives. Review the other material that you have and determine if it is needed for your course, provides remediation or enrichment, is reference material, or is a distraction from the core concepts. These categories will help you decide what to include and where to spend your time when you are working on your online course.

**It's important to remember that you have a limited amount of time to create your course; spend more time converting your most important content.**

### Tips For Creating Learning Outcomes

When creating learning outcomes, first determine the type of engagement the student will be aiming for, then pick an action verb that aligns with it. The following cognitive processes are defined as Bloom's Taxonomy:

- **Remember** (define, list, memorize, state)
- **Understand** (classify, describe, discuss, explain)
- **Apply** (execute, solve, use, operate, sketch)
- **Analyze** (differentiate, compare, experiment)
- **Evaluate** (judge, defend, support, critique)
- **Create** (design, assemble, develop, formulate)

First year students may only be expected to recall information and work towards applying it. Students in higher years would likely be asked to evaluate and create.

Even better than starting from an empty shell, there are online platforms that not only provide full course material and a variety of assessment tools but offer an authoring environment that allows you to customize the material for your course. With such a platform, you can start with a lot of the base material already in place and then have more time to spend configuring and enhancing your course using your personal knowledge and experience of what works for your students. The goal, after all, is not necessarily for you to create everything yourself, but for your students to have an online course that improves their learning experience.

**Full course material included  +  Assessment tools  +  Authoring environment for customization**

Finally, you need to determine how students will demonstrate their understanding and knowledge, and how their grade will be calculated. Online, automatically graded assessments are one piece of the evaluation process. You can also include manually graded written responses and opinions. In some courses, discussions and participation are key to what the students are learning and demonstrating, so you will want to include those elements in your online course. Planning for these ahead of time enables you to not only structure your course and ensure you have all the necessary components, but also to clearly communicate the expectations to your students.

Automatically graded assessments
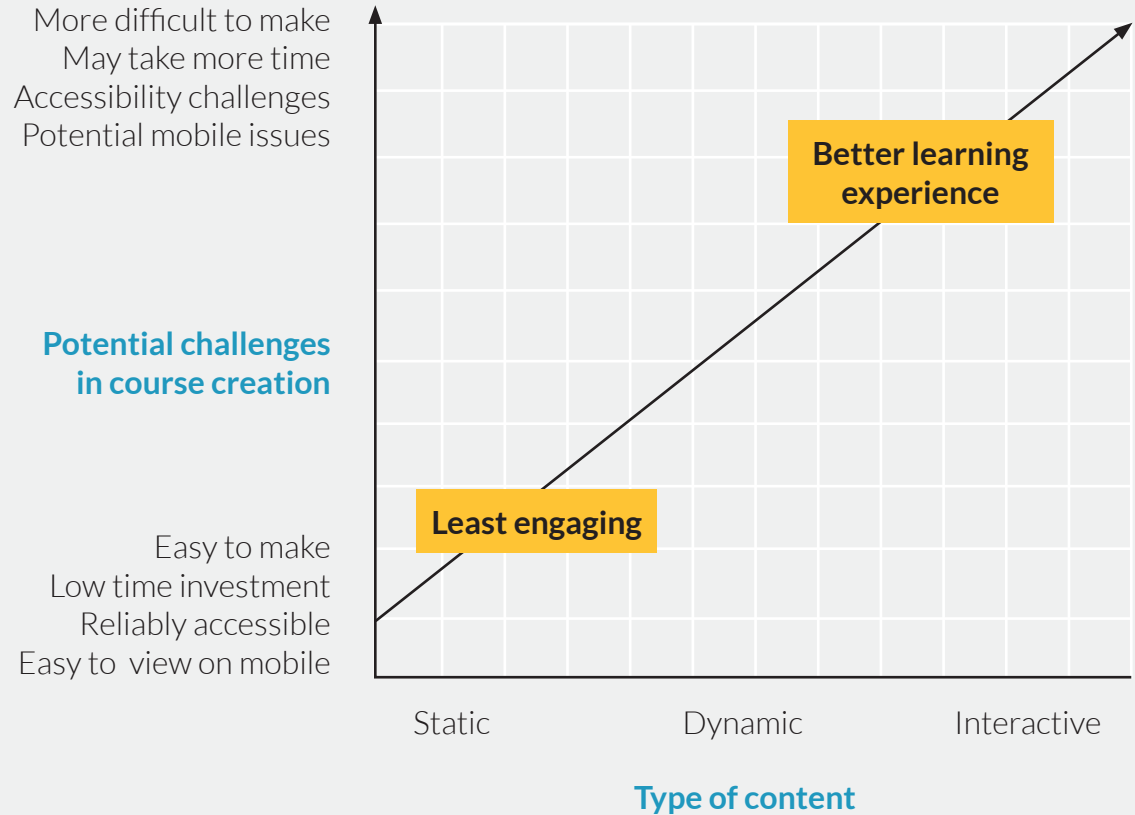
Manually graded written responses

Discussions and participation

## 2. Content

There are multiple types of content that you can use in an online setting. Static content, such as printed text and images; dynamic content, like videos and animations; and interactive content, like exercises and simulations. These three types of content vary in creation time, student engagement and, potentially, accessibility. On one extreme, static content is the easiest and least time consuming to create and make accessible, but also the least engaging for students. On the other extreme, interactive content takes much longer to design and create. It can provide a much better learning experience, but additional work is required to provide alternatives to meet accessibility requirements. Dynamic content falls in between these two. A good online course uses all of these elements in varying degrees depending on the context.

Taking the printed material from a face-to-face course and putting it online or simply providing videos of your lectures will not make an effective online course. Both of these items provide information for your students, but do not engage your students in the learning process. To fully take advantage of the online learning experience, you need to adapt your material and there are even some small changes that can make a big difference.

**Benefits and Challenges of Online Content Styles**

More difficult to make
May take more time
Accessibility challenges
Potential mobile issues

**Better learning experience**

**Potential challenges in course creation**

**Least engaging**

Easy to make
Low time investment
Reliably accessible
Easy to view on mobile

Static          Dynamic          Interactive
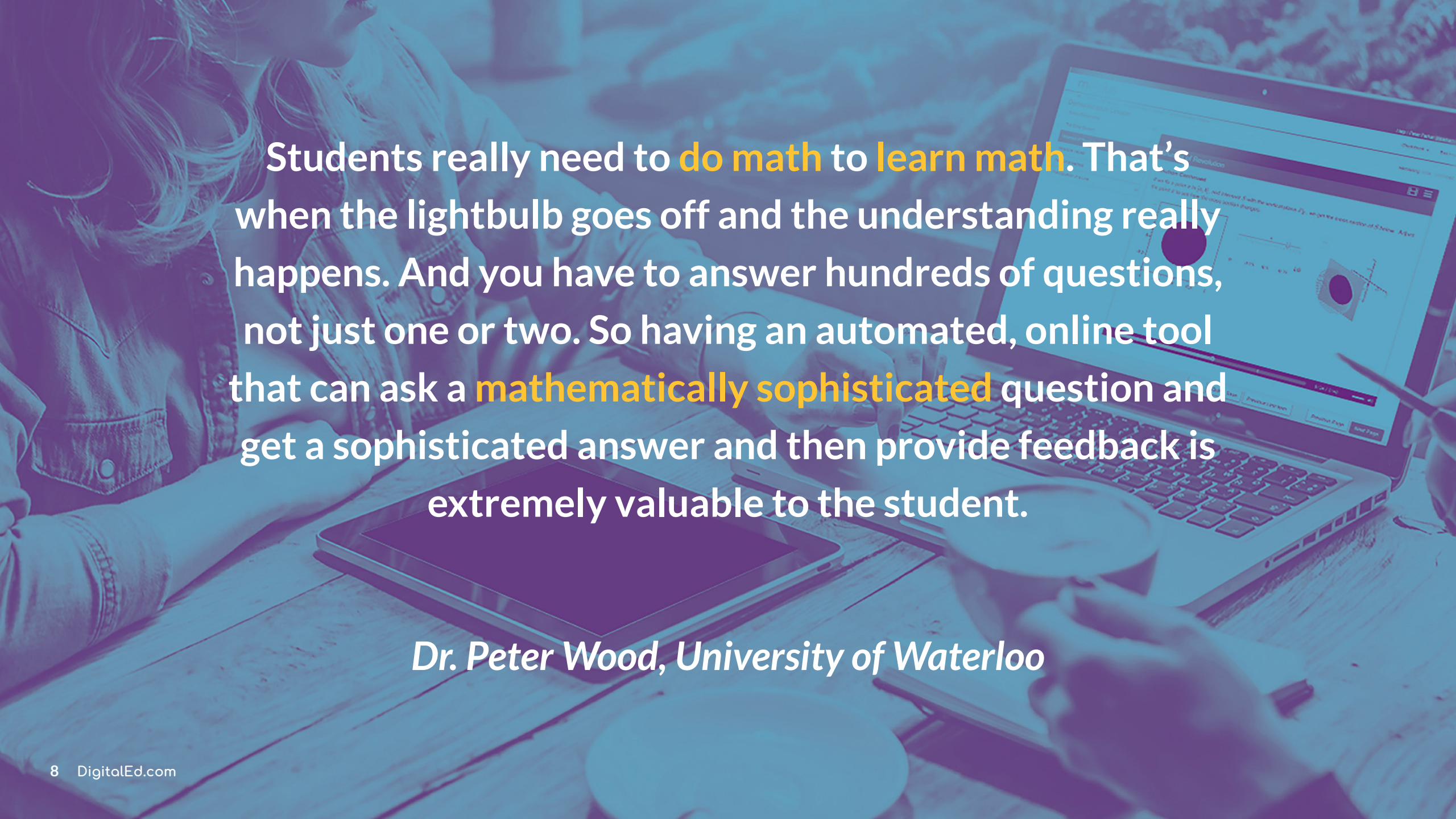
**Type of content**

Students learn by doing and, in doing, retain more. In the STEM disciplines especially, practice is key for students learning and retaining the material. In your online course, it is important to provide those learning opportunities for your students. This can be done with interactive elements, by incorporating self-assessment questions into your lessons or by providing small assignments or quizzes at more regular intervals. A good online platform will support randomized questions, automatic grading and immediate feedback so that your workload is not increased, but you are able to provide additional learning opportunities for your students.
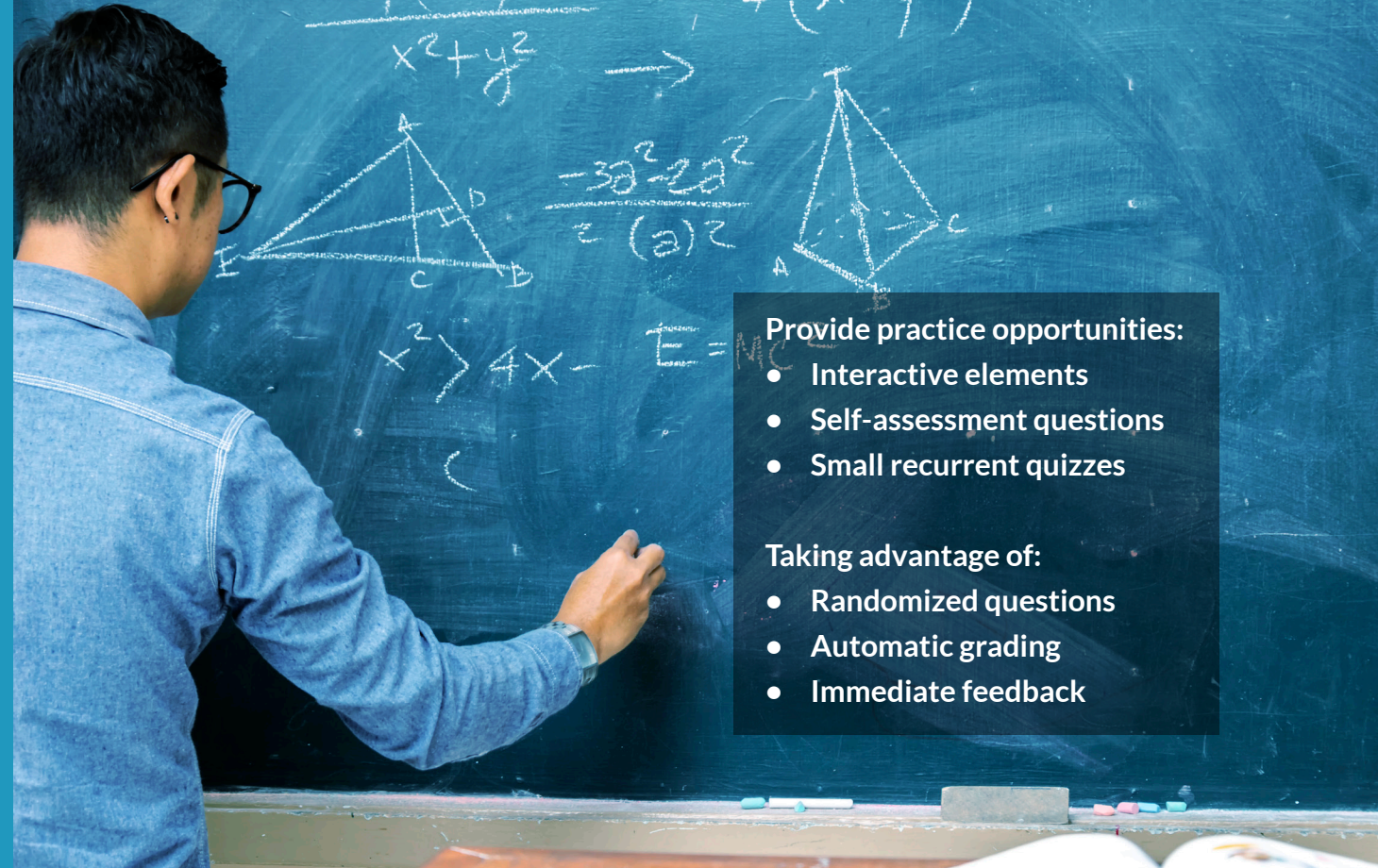
**Provide practice opportunities:**
- **Interactive elements**
- **Self-assessment questions**
- **Small recurrent quizzes**

**Taking advantage of:**
- **Randomized questions**
- **Automatic grading**
- **Immediate feedback**

Besides not being as engaging for students, providing the entire course in videos may actually interfere with your students' ability to consume the material. Videos take more bandwidth than text and students who do not have access to or have to pay for their internet use may have to limit the time they spend watching videos. In addition, to make the videos follow accessibility guidelines, you need to spend the time to either transcribe the video or caption it. In the end, the best approach is to provide material in multiple different formats and use short videos for those particular areas that students need a more in-depth explanation.
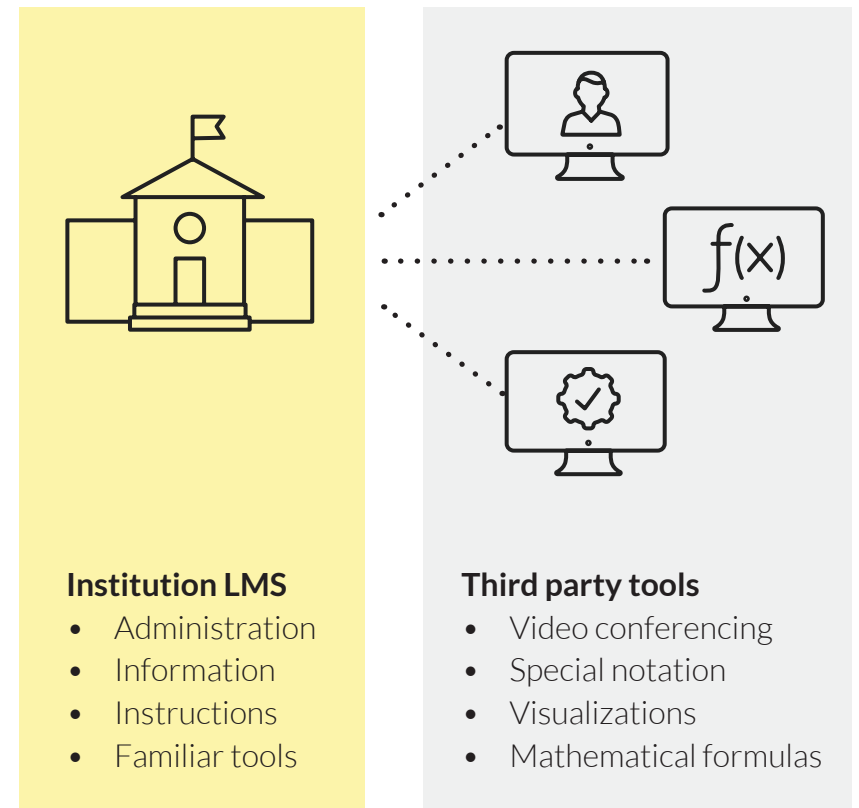
Students really need to do math to learn math. That's when the lightbulb goes off and the understanding really happens. And you have to answer hundreds of questions, not just one or two. So having an automated, online tool that can ask a mathematically sophisticated question and get a sophisticated answer and then provide feedback is extremely valuable to the student.

*Dr. Peter Wood, University of Waterloo*

## 3. Platform

Now that you have reflected on the course, the content and the grading scheme, you have to decide what platform or combination of platforms to use. Often the easiest way to start is the simplest. Most institutions have implemented a Learning Management System (LMS) across the school ecosystem. An LMS can be used to handle the administrative aspects of your course and is a good place to provide instructions and important information. The LMS may also have discussion/communication tools that the students are already familiar with.

But, you may need to implement a third-party tool to get all the features and functionality that you need for your course. For example, if your course relies on video conferencing for watching students give speeches, you may need to use a specific tool to give you that capability. Similarly, for technical subjects that often have specialized notation and visualizations, you may need to incorporate a tool that enables that. In addition, the grading of questions in technical subjects often relies on advanced mathematical formulas that goes beyond the functionality of the LMS.

**Institution LMS**
- Administration
- Information
- Instructions
- Familiar tools

**Third party tools**
- Video conferencing
- Special notation
- Visualizations
- Mathematical formulas

To truly test the understanding of your students, you need to be able to ask questions similar to those that you would put on a written assignment or test. Integrating a platform with these features into your LMS enables you to keep the overall structure of your class within the university ecosystem but, at the same time, provide the best learning experience for your students.

The key is to find platforms that work together. Much of today's education technology uses something called Learning Tool Interoperability (LTI) to enable communication between the different pieces of technology. When working with an LMS, the end result is that a student can log into their LMS and access material from another system without leaving the LMS. This gives you the power and functionality that you need as an educator, but within the known environment of the LMS so that it's easy for students to access. And, when these systems use something called "deep linking", grades from the third-party tool will be pushed to the gradebook of the LMS so that all your grades can be in one place.

**Deep Linking: A feature in some third-party tools that allows grades to be automatically uploaded to the LMS.**
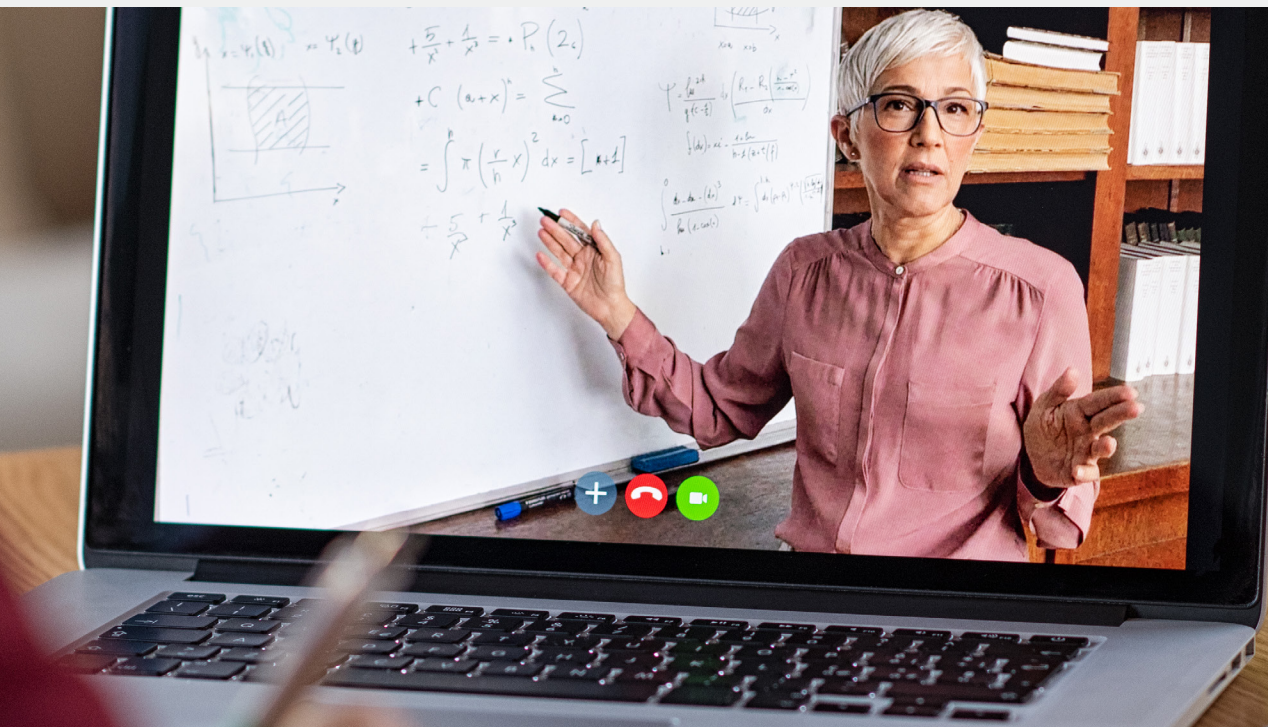
# 4. Administration

When delivering an online course, the administrative side and communication is extremely important. Students do not see you face-to-face and do not have the same opportunity to get to know you or ask you questions. You need to communicate your expectations, anticipate questions and issues, and provide documents that students can use for reference. Planning your course ahead of time will enable you to think about your course holistically and provide necessary information to your students.

As a starting point, you need to make sure that all the introductory material that students need for your course is available. This would include things like the syllabus, course outline, due dates and grading scheme. In addition, you need to include other information when teaching online. How do students interact with you? Will you have virtual office hours? If they send an email, when can they expect a response? If there are certain times that you will not be available, think about including that information in your introductory material. Everything you can do to help students understand the boundaries of your online course and your availability will make a difference to how smoothly your course will run.

## Checklist for online class administrative information

- ☐ Expectations
- ☐ Frequently asked questions
- ☐ Syllabus
- ☐ Course outline
- ☐ Due dates
- ☐ Grading scheme
- ☐ Virtual office hours
- ☐ Virtual call instructions
- ☐ Email response times
- ☐ Any extra information about availability and boundaries

## 5. Analysis

When you use an online platform for your course, you can get a lot of data about how students are doing in your course, as well as how they are interacting with the material. This often gives you, as the instructor, more information than you have in a traditional face-to-face class. Most systems automatically grade assignments and collect information on the amount of time taken and the actual answers entered. You can then review the answers, modify the grades and grade any questions that cannot be automatically graded like essays, for example.

But, some systems track more data than that and you can access it to get even more insights. You can see when students are logging in, how much time students are spending in lesson material and how many times they watched a particular video. If you include inline exercises, you can tell whether they answered them and checked their answers. You can see how the class as a whole is doing and look at individual items to see what effect they are having. All of these extra insights are available because you are doing an online course and the system is gathering the data that you can then view.
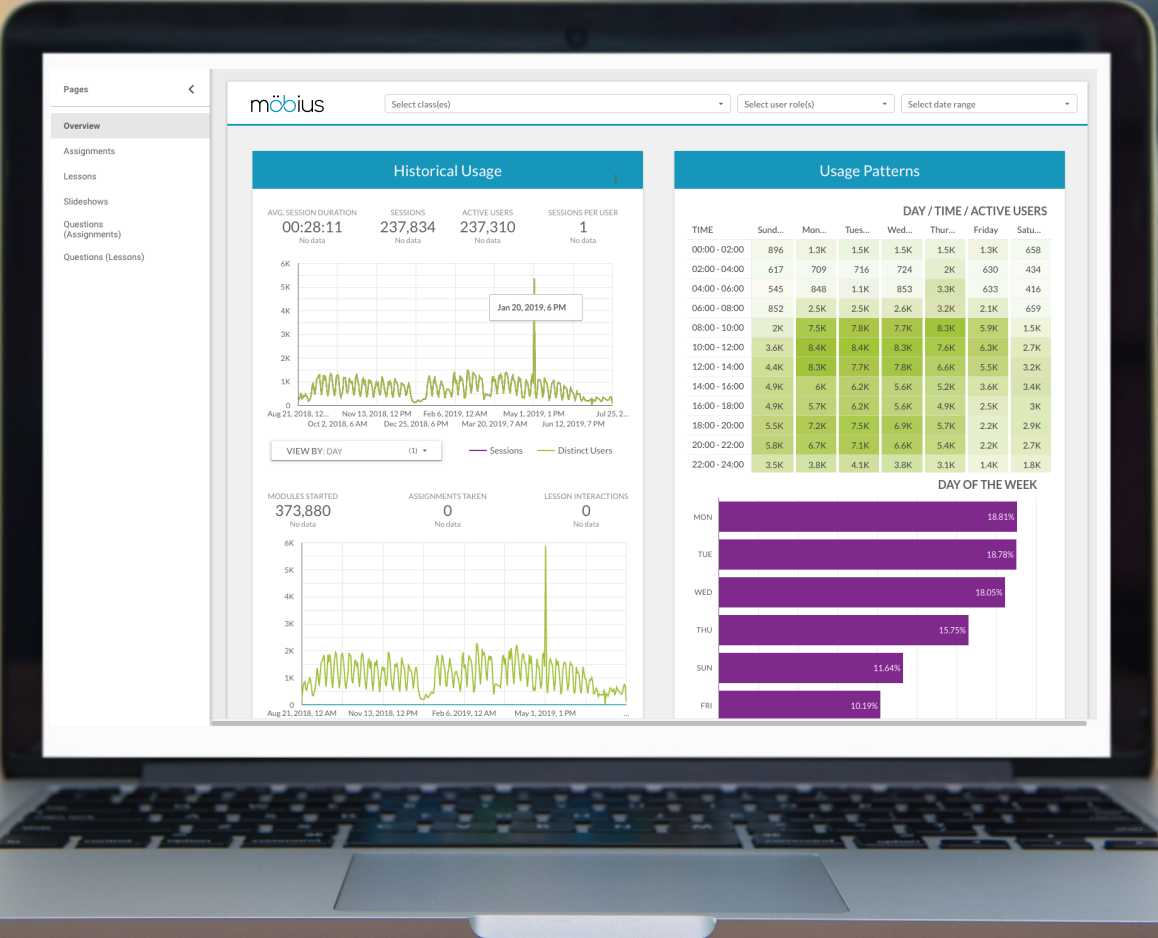
## 6. Improvement

Just like any face-to-face class, you can choose to use the same material that you have used before. But, one of the major advantages of online learning is that you can easily make updates to your material, modify the order of lessons, and provide additional material to assist your students in their learning journey. Using the information gleaned from the analytics available in online platforms, you can improve your course year on year.

Again, you can start with something simple like making a list of Frequently Asked Questions and posting it as a live document. Add to it during your course and include questions that you have received, as well as things that you've had to clarify. Doing this will help you remember what issues students had and you can then add to your instructions for future versions of your course. That way, you can answer questions before they even appear and reduce the amount of overhead required at the beginning of the semester.

**One of the major advantages of online learning is that you can easily make updates to your material – starting simple and building incrementally year over year.**

In terms of the content of your course, look at the analytics that you have access to. If there is some piece of content that isn't being used, you could potentially remove it. Are there certain questions that students always get wrong? If so, think about the structure of your course. Maybe that question is being asked too early in the course and students haven't learned everything they need. Perhaps it's an important concept, but you've only covered it once in the material and it would be good to repeat somewhere. Or, it is possible that you have set it up so that students will have "desirable difficulties" so that they struggle a bit, but learn something from that. Reviewing the data can help you make small adjustments that will improve the outcomes of your course.

## Summary

Creating an engaging and effective online course takes time and effort, but can be made easier with proper planning and the use of appropriate platforms. Trying to create the best course the first time you are teaching an online course can be a large undertaking. If you, like most people, have a limited amount of time to spend, it is better to start simple and gradually implement different elements of your course. Look at your course critically and pick out the essential elements to move online first. Then add more content, interactive elements, videos and assessments. Finally, make sure you take advantage of the platforms and the data they can collect to continually improve your course over time.
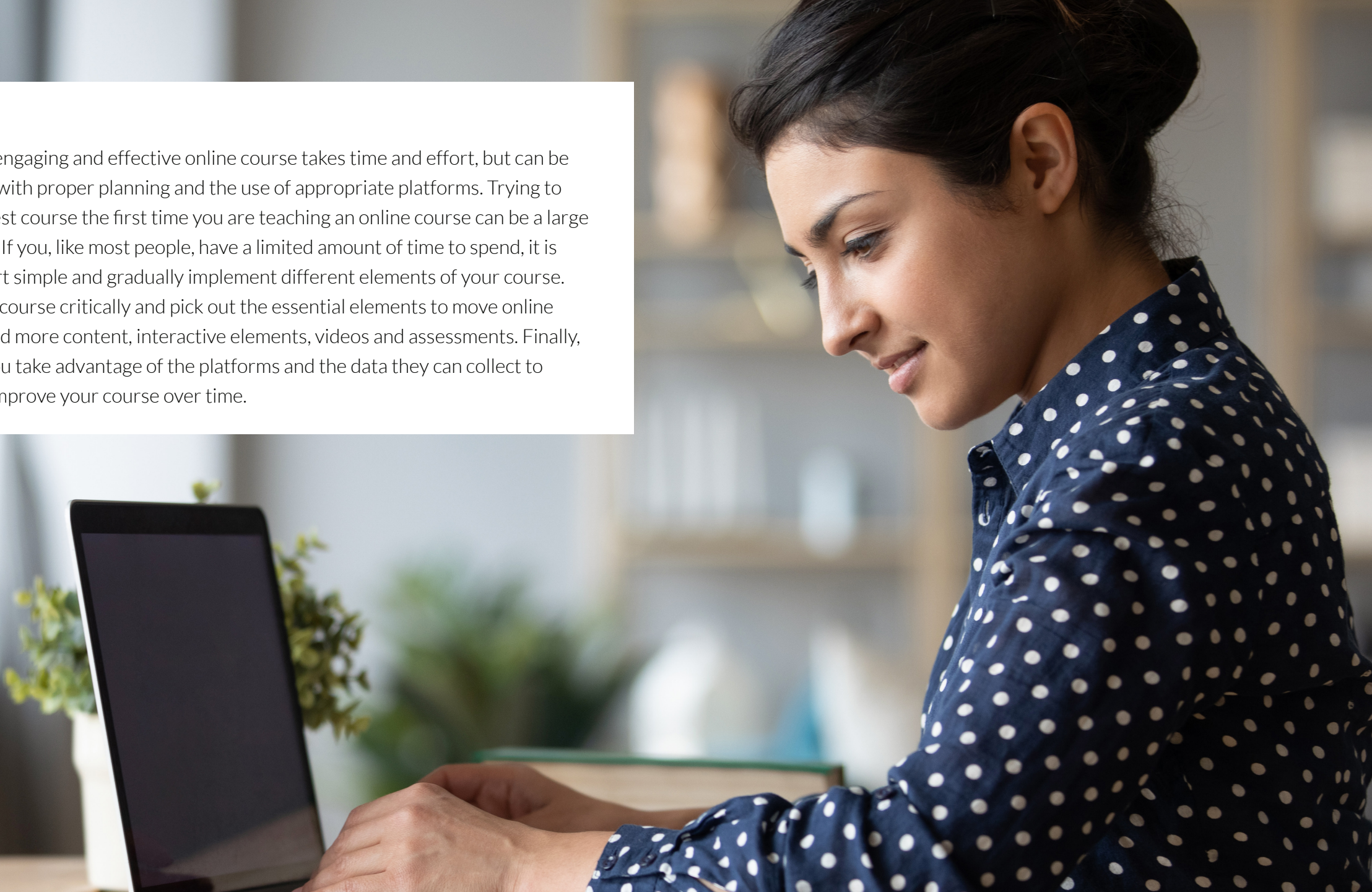
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