

SAMPLE CHAPTER

Understanding Online Learning Environments



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Contents

THRIVING AS AN ONLINE K-12 EDUCATOR

Essential Practices from the Field

1. Understanding Online Learning Environments



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*from Thriving as an Online K-12 Educator:
Essential Practices from the Field*



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2

Understanding Online Education Environments

The Landscape, Where We Are,
and Where We Want to Be

Edward Gonzalez

When it comes to online learning, I like to say, “you don’t know what you don’t know.” For this chapter, we’re probably starting at whatever the antecedent of that statement is. Before you learn, explore, or even dip your toe into the online teaching world, you need to know the lay of the land. This chapter is going to give you a survey of the online learning world and many of the tools, the current state of online learning, and a potential scenario for our collective aspirations.

Learning Management Systems and Instructional Content Platforms

When getting ready for a new school year the two things you worry about most are preparing the classroom and your curriculum. In an online setting, these two topics get the mandatory academic name with the accompanying acronym. I’m not going

to drown you with new acronyms but for this chapter, you will need LMS and ICP. If at any point you forget their purpose, just remember that the learning management system (LMS) is the online classroom and instructional content platforms (ICP) are the curriculum replacing your books.

The typical LMS is an online platform that houses all of your digital learning needs. Within an LMS you should be able to enroll students, grade, take attendance, send messages, have discussions, and use a variety of extensions and third-party applications to enrich the learning environment. If you took online classes in college, chances are you have experience with Blackboard or Canvas. In the K-12 level, you may have also used Canvas, Schoology, or Google Classroom (which is pretty close to a full LMS system).

An ICP is almost an entirely closed ecosystem that does not integrate other software programs but may be integrated into an LMS. Wait a second, what? If Google Classroom is meant to be a digital classroom, an ICP would probably provide the content replacing a textbook. Let's consider the following online software such as NewsELA, where students can read current news articles that are leveled by Lexile and which includes quizzes and allows teachers to enroll students in a class. What makes this an ICP is that you absolutely can't import another application into NewsELA or have kids collaborate with each other. Compare this to Google Classroom, where you can import NewsELA into the LMS and keep track of your students from one location. The concepts might still be foggy, but as you see the functions of the tools, their purpose becomes clearer.

Blackboard, Canvas, and Schoology (BCS)

There are plenty of LMS systems available but I'm only going to talk about Blackboard, Canvas, and Schoology (BCS) because they serve well to illustrate the functions of an LMS. I discuss Google Classroom separately because it functions in a different way than the traditional LMS. If you have any experience with BCS, you may remember that awesome and dynamic online educator who brought your course to life! Or you might remember

that totally disconnected feeling where it felt like you were walking along a desert trail with nobody in sight.

When you take a course in BCS, the experience is designed to be primarily independent. You can enroll in the course and proceed down that path at your own pace, which might be why you took an online course in the first place. Consider that many higher education students work, take care of families, etc. In a K-12 setting, you may have been in an online school or your school transitioned to online learning in a once-in-a-lifetime pandemic emergency. BCS allows students to take a course on their own time rather than spending a set time on campus.

Within BCS there are a variety of tools that can facilitate a more dynamic environment. The instructor can show achievements, create blogs, assign groups, proctor exams, and create wikis, among many more features. Notice that most of these tools are *asynchronous*, meaning that students will do the work on their own time and not at a set time.

BCS include robust grade books, technical customization features, and an ability to embed code from third-party software to integrate dynamic content. Within these LMS platforms, you can customize how the pages are presented and formatted. Consider BCS to be like a blank canvas that accepts all types of wet and dry media. You can paint, splatter, and splash with anything you want.

Google Classroom

If Blackboard, Canvas, and Schoology are like a blank canvas open to any tools, Google Classroom only allows you to paint with its brushes and pre-approved paints. The caveat is that while the traditional LMS is designed for asynchronous and independent learning, Google Classroom is designed to augment the classroom experience. As an extension to synchronous classroom learning, Google Classroom tends to do very well in promoting real-time learning within a simple platform.

Google Classroom is very similar to an LMS but is focused on G Suite applications (Google Docs, Google Sheets, Google Slides, etc.). As the platform evolves, Google Classroom is integrating many third-party applications directly into its system. For

example, you can easily integrate NewsELA, Freckle, and Aeries into Google Classroom to make it easier to distribute assignments across different platforms. Consider Google Classroom to be a type of “command center” that can supplement a synchronous experience rather than totally replace it.

While the traditional LMS has multiple areas of navigation, Google Classroom is centered on the classroom “stream” where all assignments, discussions, and content are collected. This is very simple and intuitive for younger students to use, but does not provide the same robust organizational features of the larger LMS platforms.

The main draw of Google Classroom is that it is built for the G Suite ecosystem. This means that all of the G Suite tools easily integrate within Google Classroom at the push of a button, making it easier for the student and the teacher. By using G Suite, the user can access a variety of tools from a single account. What are these “tools” I speak of? Glad you asked, and on to the next section.

Tools

In order to understand how the variety of online tools work, it is important to recognize the majority are in some ways an update or remake of the tools of yesteryear, but now the far majority of these tools can be accessed from a web browser. Anybody who used a computer at some point in their education has worked with digital office tools like documents, spreadsheets, presentation software, and maybe computer-science-based programs for coding. The majority of the new fancy tools available are still fashioned on those same concepts. Within this section, I’m going to break down some of these updated concepts and provide examples of these types of new programs. Every tool mentioned in the following subsections is available on a website browser.

Google Drive and Microsoft Office

The current standard in educational office tools is set by Google and Microsoft. Google Drive and Microsoft Office provide access to documents, spreadsheets, presentation software, and various

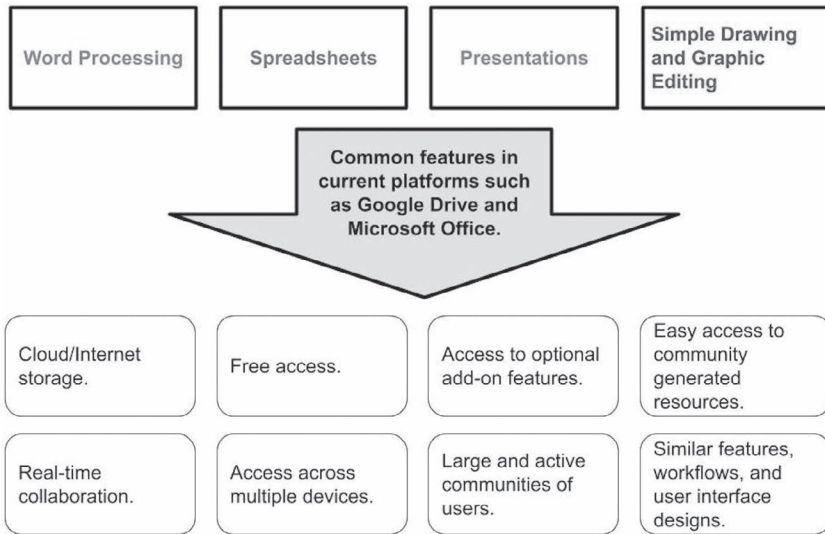


FIGURE 2.1 Updates to traditional office productivity software.

Source: Edward Gonzalez © 2020

other programs from a cloud-based service (Figure 2.1). In this way, you can easily access all of your files from any device with the capability to download their respective apps. For example, if you write a document on a Google Document within your computer browser you can edit that exact same document on your phone. This type of functionality is conducive for collaborating with others because you and your coworkers or students can all be writing and editing the same document from different locations.

Assessment

There are a variety of tools that act like traditional assessments where a student can access the quiz, proceed at their own pace, and then submit the quiz. Within Google Forms, you can design multiple-choice, short response, and Likert-style questions. Most programs also offer features where quizzes can include diverse media such as video, drawings, and images.

Synchronous quizzes can be facilitated in real-time by teachers. Online websites like Quizizz, Kahoot!, and Socrative have varying levels of free features that can be tailored for the specific

needs of a learning environment. Kids typically rant and rave about the engagement of a program like Kahoot! where students compete within an assessment. The website Quizizz offers the same engagement features but takes the organizational aspect to another level by giving teachers the opportunity to save the scores with handy spreadsheets. The website Socrative takes on a much more academic feeling than Quizizz while allowing teachers to create assessments with a variety of delivery modes.

Presentation Software

Gone are the days of clicking away at dull presentations. You can still share presentations to be viewed asynchronously, but the interactive features for synchronous lessons provide different tools for student engagement. Many of the presentation programs also grant access to a vast library of user-generated presentations that users can remix for their own purposes. The diverse features available on presentation software platforms give educators the ability to embed video, incorporate animation, check for understanding in real-time, and collaborate with the viewers (Figure 2.2).

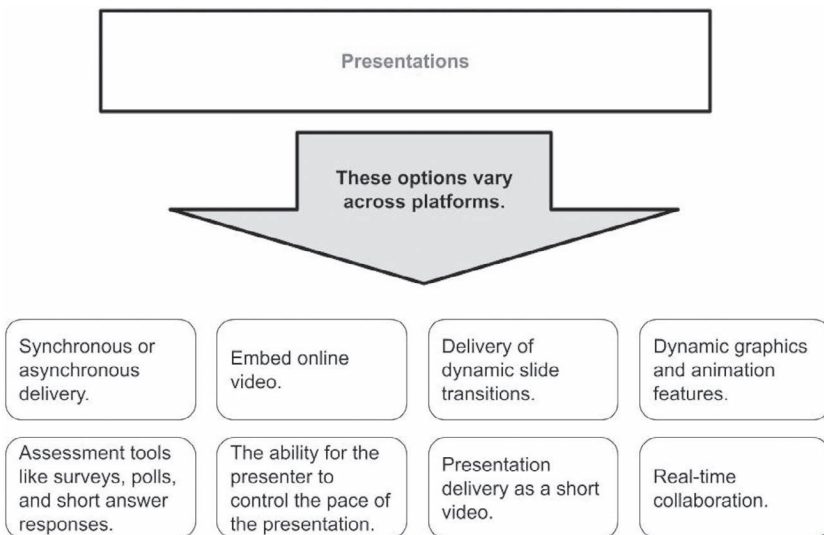


FIGURE 2.2 Updated features of modern presentation software and websites.

Source: Edward Gonzalez © 2020

Dynamic Visuals

Some presentation software simply jazz-up the traditional slide-show format. For example, websites like Prezi create a dynamic presentation that functions exactly like a PowerPoint, but uses unique transitions to whisk away the viewers. This type of software delivers on the “wow” factor but does not add functional differences or improvements.

Synchronous Engagement

Websites like Nearpod and Pear Deck break up the traditional lecture format by adding interactive features that can be facilitated and controlled by the presenter. Consider that within a traditional presentation, the user can proceed at will and on their own time. With software such as Nearpod and Pear Deck, the presenter has total control of the lecture just as they would in a traditional classroom.

Interactive presentation tools break up traditional presentations with features such as polls, surveys, and questions. This helps the presenter check for understanding in real time. Depending on the platform you can include 3D content, audio, video, and custom animations.

Video Presentations

The emergence of video as a medium for presentations has happened rapidly and broken open the possibility for sharing information in unique ways. Furthermore, access to these tools has rapidly evolved to the point where you can easily shoot and create high-quality video from your phone. Over the past few years, I have seen students take advantage of these applications to create unique project submissions. Another area of innovation within the realm of video production is animation-presentation websites. Programs such as Powtoon allow the user to create high-quality animations using a very simple interface. The added benefit is that videos can be shared on YouTube or social media and give students an audience they would not reach with a traditional pencil and paper.

Computer Science and Design Platforms

Perhaps the most innovative developments in the online learning environment are taking place within the realm of computer science (CS) and design tools. K-12 students now have a wide array of tools to begin learning CS and develop original content that can be shared on the internet. In previous generations, CS and design tools were more commonly found in elective courses for older students or special learning environments for younger students. Today, CS and design software tools have branched out to include such features as child-friendly block coding, 3D modeling tools, and VR development (Figure 2.3).

One of the older CS online platforms is Scratch, where the user can learn the foundational aspects of programming through visual programming. Other established CS platforms include Code.org and Khan Academy, which go further by providing tutorials and peer-based assessment on computer science languages like HTML, CSS, and SQL.

3D modeling within a web browser has evolved to the point where even young elementary students can design models with

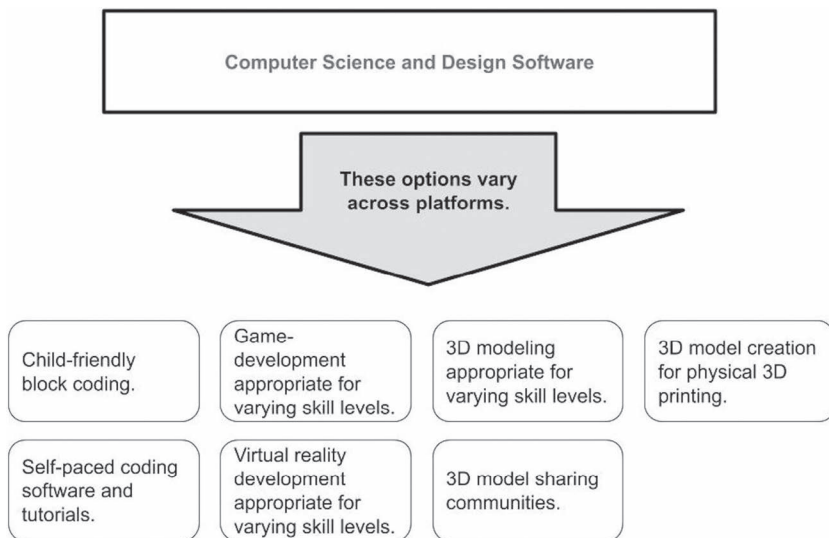


FIGURE 2.3 Modern computer science and development software.

a relatively low barrier to learning how to manipulate the tools. Online websites such as TinkerCAD give students the opportunity to create their own libraries of 3D models or redesign models from a library of user-created models. More advanced software such as SketchUp includes robust tools to create designs that can be used in creating formal architectural designs. One of the defining features of these 3D modeling platforms is that students can export these designs and print them with 3D.

Where We Are

We've covered the landscape of online learning spaces and in this section, we will now describe the state of digital learning environments (immediately preceding the 2020 pandemic), access to these learning environments, and the potential of online learning. As of the 2020 pandemic, new teacher maxims emerged such as "the pandemic has brought to light equity issues." This phrase can be framed by the equity of access to digital devices, access to high-speed internet, and equity of technology-based instruction.

Access to Devices

It is important to first understand how students were accessing online environments leading up to the 2020 pandemic. In 2014 teens reported being online "almost constantly" at a rate of 24%; by 2018 that number rose to 45% (PEW, 2018a). This access is made possible considering that 95% of teens report having access to a smartphone and 88% claim they have access to a home computer (PEW, 2018a). These numbers vary across economic and demographic populations with white teens reporting access to desktops at a rate of 90%, Black teens at 89%, and Hispanic students at 82%, however, families that make less than \$30,000 per year report 75% access to a home computer, compared to 96% of families that make \$75,000 or more (PEW, 2018a).

The age and type of device also have an impact on whether or not it can be used for instruction. For example, a student may have access to a device but the device might not be able to access a particular educational application. In my own personal experience, the speed and performance of the device will also

have a major impact on a student's and teacher's experience and their ability to work effectively.

Access to High-Speed Internet

Where you live in America has a big impact on your access to the internet. In a 2018 survey, the Pew Research Center reports that 13% of urban residents had a major problem with access to high-speed internet, compared to 24% of rural residents. This translates over to student access, as a survey on teens in 2018 reported that 13% of white students, 25% of Black students, and 17% of Hispanic students were "unable to complete homework because of lack of a reliable computer or internet connection" (PEW, 2018b). Socioeconomic status also exacerbates this divide as the same study showed that only 9% of students in families that make \$75,000 or more report this problem, compared to 24% of students whose families earn less than \$30,000.

Access to Quality Digital Instruction

Apart from access to devices and high-speed internet, underserved students also lack access to equitable instructional experience with digital tools. In a literature review on the use of technology by underserved students, Zielezinski and Darling-Hammond (2016) found that schools with minority students in a low socioeconomic setting consistently used technology to provide facts-based drill and practice learning activities, despite the fact that research shows those same groups of students perform much better when the technology is used to promote higher-order thinking skills. Furthermore, this same study showed that more interactive and critical thinking technology-based lessons also improved the learning outcomes for at-risk students.

Where We Want to Be

My grad students were interviewing high-school-aged students around the world. In almost every case, what we heard was young people had a richer intellectual and

creative life outside of school than inside it, that the things they learned from and the things they cared about were things they did after the school day was over.

Jenkins (2013)

Kids are bringing their own dynamic skills and knowledge to 21st century digital tools, but when they enter a school campus, we are asking them to accept the academic and learning goals of our own system. Part of the reason is that technology has not changed the structures of schooling but merely changed the delivery of the content. The 2020 pandemic has managed to finally change these structures of schooling, but as a field how will we respond to these changes? Will we use the same curriculum and pedagogy but upload it in a digital format?

In a study on technology integration, Cuban (2018) reports that most teachers he interviewed reported technology increased their own productivity and freed them up to deliver better-individualized instruction. There is a need to assess whether we are using technology to make the life of educators easier or to provide new and exciting opportunities of inquiry for children. If you replace a hand-written essay with a digital essay, expect the same achievement gaps you had in the physical learning space. If you replace a ten-problem math quiz with a digital quiz that includes a YouTube video, expect the same achievement gaps you had in the physical learning space. The tools shouldn't only serve to make the teacher more efficient, they should serve the needs and the interests of the students.

So how should students be learning in online environments? You need the right balance of guidance, instruction, and inquiry. Students benefit from digital collaboration, inquiry-based learning, and the opportunity to share their learning in different ways (Zielezinski & Darling-Hammond, 2016). If the assignments and projects you are creating would not be inquiry-based, provide critical thinking opportunities, and promote collaboration in a physical setting, then those same assignments would not recreate those experiences in a digital setting.

Suggested Projects for Online 21st-Century Learning Environments

Wikis

A wiki is a crowdsourced website where multiple users collaborate to create a unified project. You can use a free platform like Google Sites to create a class website and assign students an individual page. Consider the age-old 3rd-grade classic “animal report” where kids create an individual report and share it in front of the class. You can update this project to be a class-wide animal website where each student shares their report along with images and videos.

Documentaries

Give students multiple options for sharing their learning. Rather than creating an essay or presentation, have the students create a script and short video. Middle school teacher Catrice Toles has her students interview adults as part of a project for Black History Month and then shares the video with her school. Within this project, students create the interview questions, select the adults they will interview, and then edit the footage for an authentic audience.

Placed-Based Learning

Give students a task that requires them to solve a local problem. Third-grade teacher Bethany Gonzales has her students design a play structure that they will then promote within a video commercial. The students design, sketch, and then 3D model their project in TinkerCAD before creating a video with Screencastify where they pitch their project to the community.

Problem-Based Learning

Elementary teachers Valerie Perez, Jesus Huerta, and Paul Gordon all use 3D modeling with online software to promote critical thinking and build empathy with students. Valerie and Jesus have students design and create prosthetic models as part of their curriculum. When the 2020 pandemic began, it was these types

of learning experiences that prompted one of Paul's students to begin making mask shields for local first responders.

Portfolios and Blogs

One of the most powerful ways to document learning is with a portfolio or blog. Consider that most assignments are only seen by the teacher and student, but within a portfolio or blog, a student can share their work with approved viewers or come back and revisit their own work later. A portfolio or blog can include artwork, videos, images, and journals. Depending on the website you select, there are always safety features to protect students online and keep students within a safe and private ecosystem. If students are using G Suite, they can use a Google Site as a portfolio and keep the settings restricted to specific users.

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