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This book is intended for current and future teachers and other students of education who want to find exciting ways to incorporate technology into the classroom. It is aimed at K–12 teachers, but I am sure some of the information will be valuable at the post-secondary level as well. It can be used as a stand-alone book for someone interested in learning how to use the Internet in the classroom, and it can be used as a textbook for an undergraduate or graduate class in educational technology. In fact, I wrote it because I couldn't find a suitable textbook to use for a graduate class that I teach at Loyola University Maryland, Digital Communication in the Classroom. This class is part of a Masters Program in Educational Technology that follows the ISTE standards for Technology Facilitation and is reviewed by ISTE as part of our accreditation process (see NCATE, www.ncate.org).

Nine Broad Topics

This book describes ways that digital communication and the Internet can be used in the classroom. Each chapter's topic really could be an entire book, but the chapters provide enough information to help a current or future teacher develop a firm grasp of the concepts, enough of a grasp to try using these tools in the classroom. The real lessons won't be learned from a book but from actually thinking about the material, trying out some tools, writing some lessons, and using them in the classroom.

Because the topics of the book are centered around a very large theme, you may find that some topics relating to the theme don't appear in the book. I don't, for example, cover uses of newer communication devices, such as cell phones and tablets (even though I love my iPad). Many teachers are doing interesting things with those devices, and I'm sure that books and blogs and wikis are cropping up to give you ideas for using them to enhance your teaching. Those devices will make some types of instruction discussed in this book easier, and they may inspire you to try new projects that aren't covered in this book.

Additionally, some of you will find that some of the chapters don't fit your needs. Most of the chapters stand on their own, so feel free to skip any that don't meet your needs. I wouldn't want someone to slog through, for example, a web page creation chapter and hate me for it. I think a class web page is important, and I explain why in the chapter, but if it's not right for you, skip it. If it's not right for your students, don't assign it to them.

The book consists of nine chapters: Internet basics, critical information literacy, Wikipedia, telecollaborative projects, Web 2.0, strategies for searching the web, copyright and free resources on the web, digital citizenship, and basic web page design.

Chapter One covers the basics of the Internet. Chapter Two focuses on critical information literacy. Critical information literacy is about helping our students to become deep thinkers about what they find on the web: getting beyond accepting what they read at face value and then moving beyond making simplistic yes/no judgments about sites they encounter.

Chapter Three is a short chapter about Wikipedia. Wikipedia is a much-maligned resource. The Wikipedia chapter will help you think about how that resource (and others like it) can and cannot be useful.

Chapter Four is about telecollaborative projects. You will find resources to help you break down the walls of your classroom to communicate with a wide range of people, including students in other classrooms, to widen your students' learning and help them gain perspectives that are not present within any single classroom.

The term Web 2.0 has become one of the hottest terms in schools. Chapter Five defines Web 2.0 and explains many ways Web 2.0 tools can be used to increase communication and collaboration inside and outside your classroom.

The web is full of many resources, but they are not always easy to find. Chapter Six provides a framework for thinking about searching the web for information. Some search tools that take you beyond Google are also introduced.

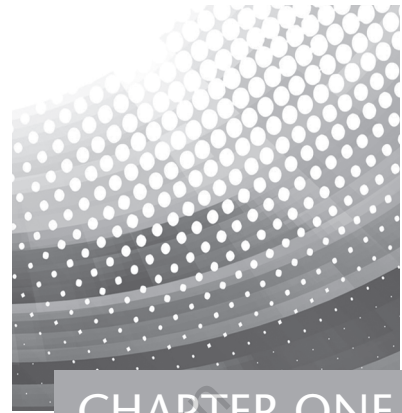
Finding appropriate media, such as pictures and sounds, on the web can be difficult. When copyright is considered, you might find that your ability to use the media that you find is severely limited. Chapter Seven describes tools designed to help you find media that is legal to use and encourages you to join the Creative Commons community that makes that possible.

Many schools and instructors are hesitant to use the Internet to its fullest potential because we all know that the web can be a dangerous place. Chapter Eight puts the dangers into perspective and helps you weigh the risks of using the Internet against the risks of not using it. That chapter discusses how we can teach digital citizenship and how we can appropriately use tools, such as filters and acceptable use policies, to maintain a safe environment without locking our students out from important learning opportunities.

The book concludes with Chapter Nine, a brief introduction to web page design. The web is no longer simply about gathering information. It is also about producing information. Having a firm grasp of the tools required to produce information on the web is important. Chapter Nine gives you an introduction to those tools.

I hope that this book will help you think beyond the walls of your classroom and find new ways to help your students learn. Some of this book is about motivation and meeting your students where they are, but mostly it is about new ways of thinking and collaborating and learning that can't be done (or can't be done easily) without the new tools and opportunities that the web makes possible.

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CHAPTER ONE

Internet Basics

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What does your classroom have, and what is it missing? Are all the resources your students need for learning contained in your classroom or in your school? Are there possibilities beyond the school walls for tools, resources, and collaborators? The Internet brings you a wide range of tools, resources, and collaborators. Though it can't always replace real field trips and face-to-face discussions, sometimes using the Internet's tools can expand what we instructors do in ways that make our students' learning experiences much more powerful than what we and they are capable of doing without it.

History of the Internet

The Internet was started around the 1960s as a project of the Defense Advanced Research Project Agency (DARPA) as a way to connect computers used for scientific research. It is really a network of networks that started with a small number of computers, mostly at universities and government agencies, and has expanded to billions of computers. Aside from the physical connections (the wires that connect machines), the Internet is a set of protocols and standards that allow all the software, computers, and networks to interact.

Nowadays, most people think of the Internet and the World Wide Web (or just the web) as the same thing, but they are not. The web is really an application that runs on the Internet. Your browser has certain ways of communicating with web servers to bring you information from faraway places. Many other applications run on the Internet. Although you might use a browser to read your email (via web access), email is an application that is different from the web and has been around much longer than the web. Your email system communicates with other email addresses through a different set of protocols from those the web uses. Many other applications use the Internet—File Transfer Protocol (FTP), Gopher (a menu-based information system that was the precursor to the web), Network News Transfer Protocol (NNTP), and others—but the web and email are the two main applications that you see. Just think of the Internet as the all-encompassing network itself, with the web and email as applications that use the network to move around information.

Prior to the web, most communication on the Internet was clumsy and technical. Other than email, doing much of anything required a working knowledge of a set of technical commands. The web changed our Internet interactions from those complicated commands into a much easier graphical user interface. Rather than typing a command to find something, you now click on links.

Just like some of the other Internet applications mentioned, the web is really a protocol: Hypertext Transfer Protocol (HTTP). You might recognize the acronym because most URLs (uniform resource locator or web address) start with *http://* followed by the address. The main language of the web is Hypertext Markup Language (HTML). Pages are created in HTML and put on servers. Users who want to read those pages use programs called browsers to get the pages from the servers. The most common browsers include Firefox, Internet Explorer, Opera, Chrome, and Safari. You probably use one or more of these, but there are many others, including browsers that read text to the blind and browsers designed to squeeze web pages down to the size of cell phone screens.

When you open your browser, you can go to any page on the web by typing in its URL. Your browser then uses HTTP to send a signal over the Internet to the server where the page is located. The server sends the page (mostly in the form of HTML) back to your browser. Your browser interprets the HTML and shows the page to you. The server could be in the same room or on the other side of the world. Although the details are a lot more complicated, this is most of what you need to know. The browser and the server (and all points between) take care of the technical details for you.

Browsers

The browser is the main portal into the web. Generally, when you are looking at a web page, you are operating within a browser. Currently, the two most popular browsers are Internet Explorer and Firefox, but there are many other browsers in use. Here is a partial list of popular browsers:

Internet Explorer

<http://windows.microsoft.com/en-US/Internet-explorer/downloads/ie>

This is the browser that comes bundled with Microsoft Windows, and it is only available for computers that use Windows (older versions were once available for Macintosh computers as well).

Firefox

<http://www.mozilla.com/firefox> (or www.mozilla.com/firefox or mozilla.com)

This is an open source browser managed by Mozilla Corporation. It is available for computers that use Windows, Macintosh, and Linux and for Android cell phones.