

Chapter 2

The World Wide Web

Abstract The Web has become an integral part of our lives and has revolutionized just about everything we do. In this chapter we present a brief historical overview of the evolution of the Web. After introducing important concepts and terminology, we discuss how we have transitioned from being consumers to also becoming producers of Web available content. We postulate that the Web provides a very rich platform for lifelong learning and offer suggestions of sites that can be used for that purpose. The chapter concludes with practical recommendations on browsers, browser extensions, Internet connection speed tests, and staying safe online.

2.1 Introduction

The Word Wide Web (WWW) has become an integral part of our lives and has impacted just about everything we do. Reading the news, checking the weather, purchasing gifts, consulting movie showtimes at the closest theater, applying for a job, looking for new recipes, paying bills, learning new skills, and much, much more can be done entirely over the Web, with great convenience and substantial savings in time, fuel, and paper.

We all use websites and Web-based apps and services on a regular basis, but we may not know what *exactly* is the World Wide Web and what makes it work the way it does. In this chapter you will learn more about the Web, its underlying technologies, historical evolution, and future trends.

To get us started, let's answer a fundamental question: "What, exactly, is the World Wide Web?" According to the Merrian-Webster dictionary, the World Wide Web (or simply *Web*) is "a part of the Internet accessed through a graphical user interface and containing documents often connected by hyperlinks" [3]. The key aspects of this definition are:

- The Web is *a part of* the Internet. The latter is a the worldwide collection of interconnected computer networks, which has existed (since its beginnings as a US Department of Defense computer network known as ARPANET) for decades before the Web was conceived and implemented.
- Web browsers provide access to the content stored in numerous servers around the world through a *graphical user interface* (GUI). One of the major reasons

for the Web's success resides in its interactive and multimedia aspects: images, videos, audio, games, interactive polls, and much more!

- The Web was originally conceived to connect *documents*, but eventually evolved to become a platform for software development. Parallel to this development, Web pages (and sites) gave rise to Web-based *apps* and the Web became a global marketplace for online shopping (also known as *e-commerce*).

A more technical definition could describe the World Wide Web as “a collection of *documents*, with unique names (*addresses* or *URLs*), stored in specialized computers (*servers*), accessible through *browsers*, and interconnected through *hyperlinks*.”

A common mistake is to confuse the Web with the Internet at large, Google, your browser, or any specific computer or site. It is none of these things.

2.2 Important Concepts

In this section we present the most important technical terms and acronyms associated with the way the World Wide Web (and the Internet, at large) operate.

Client

A computer that accesses (and interacts with) Web-based content.

Server

A computer that stores Web pages and serves the content to a client upon request.

Website (or simply *site*)

A collection of pages and other assets (images, audio and video files, etc.) that belong together and are accessible over the Web.

Browser

A software program that allows accessing and displaying the contents of Web sites. Examples: Google Chrome, Safari, Mozilla Firefox, Opera, Microsoft Edge, and Internet Explorer.

Browser extension (or *add-on*)

A computer program that extends the functionality of a Web browser in some way.

Search engine

A computer program, usually available as a website, which is used to look for information on the Internet. Examples: Google, Bing, and DuckDuckGo.

Protocol

A set of rules governing the exchange or transmission of data between devices.

HTTP (HyperText Transfer Protocol)

The protocol that establishes how data is exchanged between a server and a client on the Web.

HTML (HyperText Markup Language)

A standardized system for tagging text files to achieve font, color, graphic, and hyperlink effects on Web pages. The latest version is HTML 5.

JavaScript

A computer programming language commonly used to create interactive effects within Web pages.

Flash

A platform for producing and displaying animation and video in Web pages.

ISP (Internet Service Provider)

An organization that provides services for accessing, using, or participating in the Internet. Examples: AOL, AT&T, and Comcast.

Domain name

A unique name that identifies an Internet resource such as a website. Examples: `fau.edu`, `yahoo.com`, `whitehouse.gov`, `darpa.mil`.

2.3 Milestones in the History of the Web

The history of the Web begins around 1989, when—in a technical report titled “Information Management: A Proposal” [1]—Tim Berners-Lee (then at the European Organization for Nuclear Research (CERN) in Switzerland) produced the earliest design specifications for a global hypertext system. According to Berners-Lee, the document was “an attempt to persuade CERN management that such a system was in the organization’s best interests” [1]. Figure 2.1 shows a graphical overview of the proposed system and how it would link documents (and the people who produced them) to other documents (and people), regardless of their physical location. The proposed system was originally called “Mesh”; in 1990, Berners-Lee decided to rename it to “World Wide Web”.

During the past 25 years or so, the Web has experienced incredible growth, to the point where we can hardly think of life without it. It has also changed significantly as new browsers, companies, and applications have become available over the years. To give us a sense of perspective on how young some of the Web-based sites and apps that we take for granted actually are and how much has happened during this quarter of century, Table 2.1 summarizes some of the milestones and trends in the history of the Web (see [4] for more).

2.4 Web 2.0: The Shift from Consumer to Producer

One of the most impacting changes in the history of the Web started to happen in the early 2000s: users began to produce content, whereas until that point in time they were primarily consumers of content prepared and posted online by “institutions” (companies, newspapers, universities, etc.). This shift is often referred to as the transition between Web 1.0 to *Web 2.0*, a term popularized by Tim O’Reilly and Dale Dougherty in 2004.

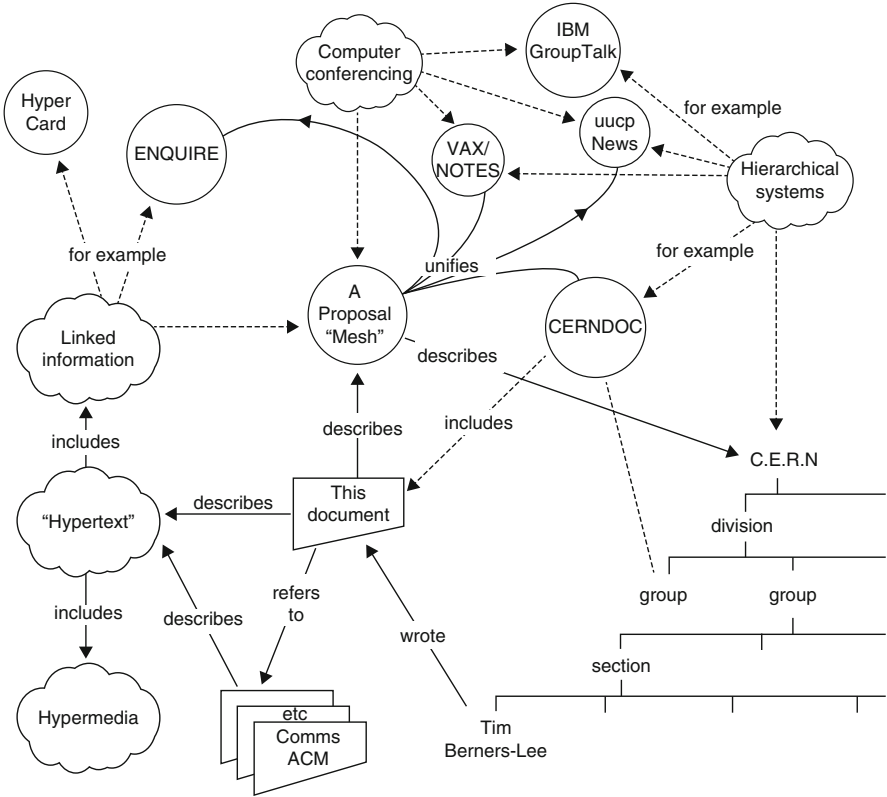


Fig. 2.1 First schematic diagram showing the structure of a proposed “mesh” of hyperlinked documents—which would later become the “World Wide Web” [1]

But what, exactly, makes us producers of content? Every time we *like* a Facebook post, rate a restaurant on Yelp, review a hotel on TripAdvisor or a book on Amazon, upload a picture to Flickr, etc. we become a producer. But to be a true content creator you would need to have a site or, at least, a Tumblr, a personal blog, or Twitter account.

The combination of blog posts, wikis, product reviews, social networks updates, hashtags, tweets, viral videos on YouTube, citizen journalism videos and photos, and a myriad of content production methods has resulted in a type of “collective intelligence” that we have used to rely upon quite frequently.

Table 2.1 Selected milestones in the history of the World Wide Web

Year	Event	Description
1989	Beginnings	Tim Berners-Lee publishes a technical report [1] outlining a system of linked documents which would eventually become the World Wide Web
1989	World's first website	The first website appeared (Fig. 2.2) ^a . It consisted of text (no images!) and included links to several other documents
1993	First browser	Mosaic, the world's first Web browser—originally developed at the at the National Center for Supercomputing Applications (NCSA) at the University of Illinois Urbana-Champaign—is released
1993	Mainstream media attention	The New York Times publishes an article in which Mosaic is described as a “killer app”, which they saw as “an applications program so different and so obviously useful that it can create a new industry from scratch” [2]
1994	White House	The White House establishes its official website
1994	Yahoo!	Yahoo! is founded (by Jerry Yang and David Filo) in Sunnyvale, CA. It was originally a hierarchical directory to the contents of the Web at that time, as suggested by its “backronym” (Yet Another Hierarchically Organized Oracle)
1994	First online purchases	Pizza Hut tests PizzaNet, an “electronic storefront” that allowed ordering pizzas online for home delivery in Santa Cruz, CA (Fig. 2.3)
1995	Amazon.com	Amazon.com opens for business, selling books online, offering “one million titles, consistently low prices”
1995	Internet Explorer	Microsoft releases the first version of its browser, to compete against the market leader, Netscape
1997	Google	Google.com is registered as a domain. The name—a play on the word “googol,” a mathematical term for the number represented by the numeral 1 followed by 100 zeros—reflects their founders’ mission to organize a seemingly infinite amount of information on the Web
2001	Wikipedia	Jimmy Wales launches Wikipedia. Users write over 20,000 encyclopedia entries in the first year alone
2003	Music, blogs, and social networks	The iTunes Music Store is born, revolutionizing the business of online music downloads. During the same year, MySpace, Blogger, WordPress, and LinkedIn make their debut
2004	Facebook	[the] Facebook opens for Harvard students
2004	Firefox	Mozilla launches v. 1.0 of the Firefox Web browser
2005	YouTube	YouTube is founded. Less than 18 months later, it would be acquired by Google for \$1.65 billion
2006	Twitter	Twitter—defined then as a “micro-blogging” platform—launches
2008	Chrome	Google releases the Chrome Web browser
2008	HTML5	The latest version of the HTML standard, HTML5, is introduced

(continued)

Table 2.1 (continued)

Year	Event	Description
2008	Deals and coupons	Groupon launches, offering daily deals at restaurants, retailers and service providers
2009	Bing	Microsoft’s Bing search engine launches
2010	Photo sharing	Social photo-sharing sites Pinterest and Instagram launch
2010	Quora	Ex-Facebook employees launch user-based question and answer site Quora
2011	Social networks	Google launches an interest-based social network, called Google+
2013	Smartphones and the mobile Web	A majority (56 %) of Americans now own a smartphone of some kind
2014	WhatsApp	Facebook buys messaging app WhatsApp for \$19 billion. Less than 2 years later WhatsApp would reach the one billion users milestone

^aIf you are curious about how a page/site used to look like at some point in time, check the *Internet Archive: wayback machine*: <http://archive.org/web/>

World Wide Web

The WorldWideWeb (W3) is a wide-area [hypermedia](#) information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an [executive summary](#) of the project, [Mailing lists](#) , [Policy](#) , November’s [W3 news](#) , [Frequently Asked Questions](#) .

[What's out there?](#)

Pointers to the world's online information, [subjects](#) , [W3 servers](#), etc.

[Help](#)

on the browser you are using

[Software Products](#)

A list of W3 project components and their current state. (e.g. [Line Mode](#) ,X11 [Viola](#) , [NeXTStep](#) , [Servers](#) , [Tools](#) , [Mail robot](#) , [Library](#))

[Technical](#)

Details of protocols, formats, program internals etc

[Bibliography](#)

Paper documentation on W3 and references.

[People](#)

A list of some people involved in the project.

[History](#)

A summary of the history of the project.

[How can I help ?](#)

If you would like to support the web..

[Getting code](#)

Getting the code by [anonymous FTP](#) , etc.

Fig. 2.2 The world’s first website (currently available at <http://info.cern.ch/hypertext/WWW/TheProject.html>)



The screenshot shows the PizzaNet website interface. At the top, there is a header area with a "Document Title" field containing "Welcome to PizzaNet!" and a "Document URL" field containing "http://www.pizzahut.com/". To the right of these fields is a small logo. Below the header is a large Pizza Hut logo. The main content area features the heading "Welcome to PizzaNet!" followed by a paragraph: "PizzaNet is Pizza Hut's Electronic Storefront and is brought to you by Pizza Hut® and The Santa Cruz Operation®. You may click on the Pizza Hut logo on any page to submit comments regarding PizzaNet to webmaster@Pizzahut.COM". Below this is a section for ordering a pizza, with the text "If you would like to order a pizza to be delivered, please provide the following information:". This section contains three input fields: "Name:", "Street Address:", and "Voice Phone ###-###-####". The "Voice Phone" field has a placeholder "(where we can reach you)". A "Continue" button is located below the input fields. At the bottom of the page is a logo for "SCO OPEN SYSTEMS SOFTWARE".

Fig. 2.3 PizzaNet: early example of online shopping (currently available at <http://www.pizzahut.com/assets/pizzanet/home.html>)

2.5 New and Better Ways to Learn: A Curated List of Web-Based Resources for Lifelong Learners

The Web is a vast source of information, much of which is free and easily accessible, which can be used to learn just about anything. It is, however, an unwieldily large and rather unstructured source of information which is not often curated or edited properly, leading to two potential problems: (1) information overload; and (2) difficulty selecting reliable contents and sources, rather than noisy ones.

In this section, I provide recommendations on how to use Google, Wikipedia, Twitter, Facebook and YouTube for casual learning purposes. I also suggest several sites for learning a variety of topics in a more structured way.

2.5.1 *Informal Learning*

You can use Wikipedia, Twitter, Facebook, YouTube, and several Google products and sites for what I refer to as *informal* or *unstructured* learning. Here are some practical recommendations on how to best use those resources:

Wikipedia

Wikipedia is a free-access, free-content Internet encyclopedia, whose contents are edited by users themselves. It has recently celebrated its 15th anniversary, boasting more than five million articles in its English edition (one of 291 Wikipedia editions available) and becoming the Web's largest and most popular general reference work [5].

I recommend using Wikipedia as a quick-reference source for *preliminary* reading on *noncontroversial* topics. When reading a Wikipedia entry, be mindful that some entries will display warnings that indicate that the page has issues (for example: vague language, lack of external references, biased arguments, etc.). If you need more authoritative sources (e.g., peer-reviewed scholarly journal articles), follow the references to external (reputable) sources usually found at the end of a Wikipedia entry.

Facebook

Facebook can be an excellent source of useful news and information from which we can learn about a wide variety of topics. I recommend that you use Facebook to do one or more of the following: (1) *subscribe* to inspiring feeds; (2) *like* the Facebook pages of people, companies, news sources, you admire; and (3) *follow* the public updates of individual users who are not close enough to be invited to be your friends. To help you get started, these are three of my personal favorites (out of more than 2000):

- Brain Pickings¹: rich collection of inspiring cross-disciplinary posts on literature, psychology, art, science, design, history, philosophy, and more, curated by writer Maria Popova, an MIT Futures of Entertainment Fellow.
- Harvard Business Review (HBR)²: articles and blog posts on management aspects of professional life from Harvard's flagship magazine.
- The British Museum³: highlights of the museum's vast collection, explained and contextualized in short and frequent posts.

Twitter

Twitter can be a wonderful source of fresh, relevant information from reputable sources. In Twitter—perhaps more than in any other social media platform—the decision to follow people is based on the quality of what they post. In addition to

¹<http://www.facebook.com/brainpickings.mariapopova>.

²<http://www.facebook.com/HBR/>.

³<http://www.facebook.com/britishmuseum>.

following people (or institutions) whose updates are of high quality and relevance, you can also “bookmark” your favorite tweets for easy future reference to a particularly informative post.

These are some of my personal favorites to follow on Twitter:

- Engadget⁴ (on Twitter: @engadget): Engadget describes itself as “the definitive guide to this connected life”. It provides an excellent coverage of devices, gadgets, and technology and occasional discussions on how they impact our lives.
- Bill Gates⁵ (on Twitter: @BillGates): Posts from the personal blog of technologist, business leader, and philanthropist Bill Gates where he shares insights and recommendations on books and other ways of learning.
- TED Talks⁶ (on Twitter: @TEDTalks): TED contains a vast and rich set of short talks in a broad variety of topics, whose main goal is to spread ideas worth sharing.

YouTube

Video plays a significant role in improving the effectiveness of learning in a variety of ways. Properly produced videos can shed light on difficult subjects, for instance, by using animation to illustrate scientific concepts. Recorded video lectures by world-renowned authorities in their fields of expertise allow us a chance to learn directly from the expert in ways that would not be feasible otherwise. Moreover, video is often the preferred medium for the ‘how-to’ category, which taps onto skills that are better learned through video, such as playing a musical instrument, fixing a computer, or cooking a new dish.

My advice is to subscribe to good-quality channels related to your interest and let YouTube recommendations do the rest. The personal recommendations below (out of more than 200 channels that I subscribe to) are closely related to the categories outlined earlier (science, distinguished talks, and how-to):

- AsapSCIENCE⁷: Short videos that use animation (and a good dose of humor) to explain scientific concepts.
- Big Think⁸: a collection of thousands of videos, featuring experts in a broad range of topics, covering “the big ideas and core skills that define knowledge in the 21st century”.
- Howcast⁹: vast collection of *how-to* videos covering a wide range of topics, from sewing to playing the guitar, to taking care of a pet rabbit, among many others.

⁴<http://www.engadget.com/>.

⁵<http://www.gatesnotes.com/>.

⁶<http://www.ted.com/>.

⁷<http://www.youtube.com/user/AsapSCIENCE>.

⁸<http://www.youtube.com/user/bigthink>.

⁹<http://www.youtube.com/user/Howcast>.

- SciShow¹⁰: short videos, quiz shows and talk shows on popular science topics.
- Talks at Google¹¹: Usually long (45 min or longer) talks by some of the world's best-known book authors, innovators, scientists, actors, actresses, artists, filmmakers, musicians, and speakers.
- TED-Ed¹²: library of animations and educational videos, linked to lesson plans and additional resources available at the TED-Ed website (<http://ed.ted.com>).

Google (Beyond Search)

Using the Google search engine to locate relevant information has become second-nature to all of us: whenever we want to learn about something quickly we just “google” it. Not many people know that—in addition to its flagship product, the search engine—Google also has a variety of products and sites worth checking out for learning purposes. Some of them are listed below:

- Google Books¹³: Collection of millions of searchable full-text e-books. It also allows signed-in users to create a personalized library of books, organized in bookshelves, which can be shared with friends by making bookshelves publicly visible and sharing the secret library URL.
- Google Cultural Institute¹⁴: A cultural project that allows visitors to discover exhibits and collections from museums and archives all around the world.
- Google Earth (and beyond!)¹⁵: Google Earth allows users to explore almost every corner of our planet in great detail. It is available as Web-based, desktop, and mobile app. It has also been expanded to allow exploring the sky, the moon, and planet Mars!
- Google Scholar¹⁶: Google Scholar provides an easy way to search for scholarly literature—such as journal articles, academic theses, books, abstracts and patents—from a variety of sources, such as: academic publishers, professional societies, online repositories, universities and other websites.
- Google Trends¹⁷: Google Trends shows—based on Google searches—what are the current trending topics on the Web, organized by country and category. Moreover, using Google Correlate (<https://www.google.com/trends/correlate>), one can examine search patterns which correspond with real-world trends,

¹⁰<http://www.youtube.com/user/scishow>.

¹¹<http://www.youtube.com/user/AtGoogleTalks>.

¹²<http://www.youtube.com/user/TEDEducation>.

¹³<http://books.google.com/>.

¹⁴<http://www.google.com/culturalinstitute/u/0/home>.

¹⁵<http://www.google.com/earth/explore/products/>.

¹⁶<http://scholar.google.com/>.

¹⁷<http://www.google.com/trends/>.

and learn, for example, that user uploaded activity for “Winter Wave” and United States Web Search activity for “Italian wedding soup” have a very high correlation ($r = 0.9374$).

2.5.2 Structured Learning

The Web has also become the destination for structured, formal education. Fully online undergraduate and graduate programs in a wide range of subject areas are now being offered by many universities worldwide. Additionally, the Web became the platform that enabled the rise of massive open online courses (MOOCs), open-access courses available to an audience of (hundreds of) thousands of students that can take courses with some of the world’s top-experts covering the latest developments in their fields, for free (or—in some cases—for a modest fee, significantly smaller than tuition at a regular American college or university).

Since the blossoming of the MOOCs movement in late 2011, several MOOC providers have emerged and partnered with prestigious universities worldwide, among them: Coursera¹⁸ (whose partners include Johns Hopkins, U of Michigan, Stanford, Duke, and UC San Diego), Udacity¹⁹ (which offers access to individual Georgia Tech Online Masters in Computer Science), and edX²⁰ [whose partners include MIT, Harvard, UC Berkeley, and TU Delft (The Netherlands)].

A Checklist

The amount of (mostly free) open-access structured courses—taught by subject matter experts using the latest technological resources—is vast and ever-growing. Before you begin searching for a course, in order to avoid getting caught in the “information overload” trap, I suggest assessing your needs, expectations, and learning style by asking yourself the following questions:

1. What *exactly* do you want to learn? Try to be as precise as possible. For example: you may want to become a front-end Web developer (which could be achieved by taking a series of small courses, in what is called a specialization or “nanodegree”) or learn a specific language, tool, or framework within the domain of front-end Web development, such as HTML5, CSS, Bootstrap, or jQuery.
2. What is your learning style? Each individual has a unique learning style and set of preferences, such as loosely structured versus strictly sequential. Moreover, depending on the subject, you may learn more effectively by reading, watching, or actually doing something—building a website, for example.

¹⁸<http://www.coursera.org/>.

¹⁹<http://www.udacity.com/>.

²⁰<http://www.edx.org/>.

3. Is this a continuous process or a one-shot experience? The answer to this question might determine the nature and duration of the learning process, as well as the format and amount of time and money you are willing to invest in it.

Once you have reached satisfactory answers to these diagnostic questions, consider how important are the aspects in the checklist below:

- **Self-paced or not:** self-paced courses (as opposed to courses with rigid start and end dates) allow you to adjust your progress to your available time and learning style, without the pressure of deadlines. The downsides of self-paced courses include: the lack of a sense that you are part of a cohort (taking the same course at the same time as many other students) and the higher risk of delaying your progress due to procrastination.
- **A sense of community:** online learning can be much more satisfactory when students feel connected to other students as part of a community of learners. If this is important to you, check which features are available for interacting with other students, how friendly are they, and how much they foster participation.
- **Online help,** e.g. Q&A forums: every user of an online learning platform will need help at some point, whether it is assistance with the subject matter or the use of the platform itself. Moreover, giving and receiving help (within the limits of academic integrity) is a common practice among participants in online courses.
- **Badges** and other “bragging rights”: many online courses offer mechanisms by which you can share your progress and achievements with fellow classmates and friends outside of the learning platform, e.g., via Twitter or Facebook.
- **Videos:** the use of short, effective, professionally-produced videos has become an essential staple of successful online learning programs. You should expect nothing less from a professional site or course, especially a paid one.
- **Continuous feedback:** many online learning programs include clever ways of providing frequent feedback—and often a much-needed “pat on the back” as you progress throughout the program.
- **Reputation:** check the credentials of the instructor, the associated site and—whenever available—the affiliated university. You might be able to learn about a topic from a world-leading authority in that field!
- **Mobile friendly:** the world has gone mobile and for online learning, the convenience of using your smartphone or tablet should not be neglected. Before committing to a course, ensure that its contents (including videos) work well—and without loss of functionality—on mobile devices.
- **Offline capabilities:** online learners do not always have uninterrupted, cheap, and/or reliable Internet access. The ability to download contents for later (offline) viewing adds great flexibility to the learning experience.
- **Official certificate:** several courses have a paid option whose main difference from the free counterpart is the issuing of an official certificate at course completion time. Take this into account if such a certificate is important to you (for personal and/or professional reasons).
- **Cost:** last, but not least, check the cost of the program and what it covers.

Selected Websites for Lifelong Learners

In addition to Coursera, Udacity, and edX (discussed earlier), these are some personal recommendations:

- Codeschool²¹: excellent site for learning programming, with a balanced combination between professional short videos and interactive hands-on exercises using a rich interface. It contains several courses in a variety of topics and programming languages, structured into learning paths. Users collect points in the challenges and earn badges as they complete each course level, culminating in the course completion badge.
- DuoLingo²²: the brainchild of brilliant computer scientist (and Carnegie Mellon University Professor) Luis von Ahn, it exemplifies the best in terms of “gamification” of language learning. The (mobile) app design is engaging and the gameplay almost addictive. It contains a growing list of languages and remains free at the time of this writing.
- The Khan Academy²³: enormously popular with K-12 students, it now contains courses in a wide range of topics in the fields of mathematics, science, computer programming, history, art, and economics, among others. The instruction is mostly video-based and the site is packed with options to quantify and encourage continuous learning: statistics, coaches, badges, challenges, energy points, avatar parts, and more!

Lastly, a good portal to online courses, structured by learning categories (e.g., Academics, Art, Computer Programming, Cooking, eBooks, HowTo + DIY, Languages, and Music) is the *No excuse list*.²⁴ Definitely worth bookmarking!

2.6 Practical Recommendations

2.6.1 Browser

It is important to know that not all websites work on every browser (and there is usually very little you can do about it). Moreover, some browsers are—indeed—better than others, for reasons that are too technical to explain in this introductory text.

Here are some browser-related recommendations:

²¹<http://www.codeschool.com>.

²²<http://www.duolingo.com>.

²³<http://www.khanacademy.org>.

²⁴<http://noexcuselist.com/>.

- Install two or more leading browsers (e.g., Chrome, Safari, Firefox, Opera). Having a second option may be a lifesaver when a site misbehaves in your favorite browser.
- Keep your browsers updated to the latest version (this can be done automatically).
- Beware of Internet Explorer (IE), especially older versions, since they are notorious for not being compatible with many Web-based standards.
- Remember that “it takes two to tango” (i.e., not all sites run on all browsers).

2.6.2 Browser Extensions (Add-ons)

If you use Google Chrome,²⁵ Safari,²⁶ Opera²⁷ or Mozilla Firefox²⁸ as your primary browser, you should consider installing additional pieces of software, known as *extensions* or *add-ons*, which allow you to improve and customize the browsing experience.

Some examples of useful extensions include:

- **Ad blockers**, such as Adblock Plus,²⁹ minimize the number of intrusive ads associated with viewing Web pages. Be mindful, however, that certain sites might require that you disable the ad blocker in order to work properly.
- **Password managers**, such as 1Password,³⁰ assist you when filling out forms and encourage the healthy habit of using different passwords for different sites.
- **Security- and privacy-related extensions** such as Ghostery³¹ can help you control how much information you might be unwilling sending to tracking sites, among other things.
- **Productivity and workflow assistants**—such as Evernote Web clipper, Feedly, Wunderlist, Save to Pocket—allow for a seamless integration between your browser and some of your favorite productivity and note-taking tools and apps.

2.6.3 Safe Browsing

Despite its convenience, the Web has also brought about several privacy and security concerns, from hacker attacks to ID theft, among many others. After all, as the dog

²⁵<http://chrome.google.com/webstore/category/extensions>.

²⁶<http://safari-extensions.apple.com>.

²⁷<http://addons.opera.com/en/extensions/>.

²⁸<http://addons.mozilla.org/en-US/firefox/>.

²⁹<http://adblockplus.org>.

³⁰<http://1password.com>.

³¹<http://www.ghostery.com>.

sitting in front of the computer in the classic 1993 *The New Yorker* cartoon by Peter Steiner famously said to the other dog: “On the Internet, nobody knows you’re a dog”.

Here are some privacy and security recommendations:

- Install HTTPS Everywhere,³² a Firefox, Chrome, and Opera extension that encrypts your communications with many major websites, making your browsing more secure.
- Do not volunteer unnecessary information.
- Do not accept cookies from strangers.
- Do not allow sites to track your physical location (unless absolutely necessary).

2.6.4 Speed Test

If you need to check the current speed of your Internet connection consider using <http://www.speedtest.net> (or its mobile app, available for download at the same Website). It might help explain why certain pages are taking longer than usual to load and—in the case of Internet access from your home—it could assist you on checking whether the actual speed (bit rate) is commensurate with the one you signed up for with your ISP.

2.7 Concluding Remarks

In this chapter we discussed the World Wide Web, from its conception to current use. We paid special attention to the use of the Web as a platform for lifelong learning and offered many suggestions of sites and practical recommendations for a safe, meaningful and effective online experience.

Takeaways from this chapter:

- The Web is here to stay. It is not a fad and will not go away.
- Originally conceived for sharing documents, the Web has become a platform for hosting apps that cover virtually every area of human activity.
- For the past 10 years, we have all become content creators, whether we do it explicitly (e.g., by maintaining a blog) or implicitly (every time we rate, like, or share an item).

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³²<https://www.eff.org/https-everywhere>.

- The Web is possibly the best place to learn about any topic.
- The Web browsing experience can be improved by using the right tools (e.g., browsers and selected browser extensions) and adopting measures to protect your privacy and the security of your computer.

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