

Multimedia and Animation Issues

Earlier, you learned that multimedia and animated elements typically are some combination of text, images, animation, audio, and video used to produce stimulating and engaging webpage content, as shown in the Food Network website in Figure 6-1. Animated elements can inform and educate website visitors in an entertaining way. You can add a video clip of an interview that supports a news story, an animation that shows how to use a product correctly, or audio to teach the proper pronunciation of a foreign language. Web design tools, such as Adobe Dreamweaver CC, include tools for incorporating animated elements into your webpages.

Although animated elements can add value and interest to your website, they are not essential. Many well-designed websites achieve their objectives without it. Drawbacks associated with adding multimedia components include longer download time, the possible need for browser plug-ins, and the substantial use of storage space on your website's host server. Lastly, creating professional quality animated elements often exceeds the expertise and budget of many designers. A poorly executed element can detract from your website's message and make you look unprofessional.

Instead of including source media on your website, you might consider embedding it. For example, embedding a YouTube video or playlist enables you to show the video or playlist while maintaining a link to its original source. This not only keeps a connection to the video's credit information (author and copyrights) but also enables the video to play without any additional programming or support from you. Playing a video within your webpage also keeps the visitor engaged with your website.

Audio and Video Elements

You can include audio and video on your website as either downloadable or streaming media.

HTML5 uses the `<audio>` and `<video>` tags to enable multimedia content to stream, or run within a webpage. Streaming audio begins playing as the server delivers the audio file to the computer or device. Visitors must have a compatible browser, or a plug-in or app installed, such as Spotify or Last.fm to listen to audio. To stream audio, your webpage files must be stored on a server that also has streaming software to deliver the audio stream when requested by the browser. Figure 6-3 lists common audio file formats.

Web Audio Formats

File Format	Description
.aac	Advanced Audio Coding format used by Apple Music streaming service
.aiff	Apple's standard audio file format
.Au	Audio file format used by Sun, Unix, and Java
.m4a	Format used by Apple for iTunes music downloads
.mp3	Most common file format
.ogg	Free, open source audio format type similar to mp3, used by Spotify streaming service
.ra, .rm	Online streaming audio format developed by RealAudio
.wav	Audio file format commonly used by Windows PCs
.wma	Microsoft-created Windows Media Audio Format

Figure 6-3 Common web audio file formats.

website visitor's browser must store downloadable media in its entirety before the device can begin playing it. In contrast, streaming media begins to play as soon as the data starts to stream, or transfer from the server to the browser. Progressive downloading, or pseudo streaming, allows the media to play while it downloads. Because the entire media file does not download before playback starts, there may be delays in playback. Each media type has specific advantages and disadvantages.

Audio Elements

Adding audio files to your webpages enables you to add sound effects, entertain visitors with background music, deliver a personal message, or promote a product or service with testimonial statements. You can provide a webpage link to download an audio file, or embed the audio file in the page's HTML coding. Sources of web-deliverable audio include websites that offer royalty-free and copyright-protected audio files, as well as services you can purchase from vendors that allow you to create and edit your own audio file.

Most computers or devices have a sound card or capability, a microphone, and speakers. With these tools, you can create your own audio easily and inexpensively. You also will need to use audio-recording and editing software, such as Adobe Audition® CC and WavePad to save, edit, and publish your audio files.

A podcast is digital audio or video available to listen to remotely. Originally called webcasts, they more commonly are known as podcasts due to the popularity of the Apple® iPod® player. Examples of podcasts include radio shows, interviews, and classroom lectures. NPR offers a library of podcasts available to download or stream to a remote device or computer.

Video Elements

Downloadable or streaming video can have a powerful impact, but it is a challenge to deliver streaming video content over the Internet efficiently. File size is a much greater issue with video than with audio because of the large amount of data necessary to play the dual components of video and audio.

Before you add video to your website, first consider simpler alternatives to video, such as animation or audio. If you decide that only video will best further your website's purpose, you can download royalty-

free video files from the web, or create your own video files with a good-quality digital video camera or a smartphone with video recording capabilities, and video-editing software, such as Adobe Premiere Pro CC or iMovie

Web Video Formats

File Format	Description
.avi	Name comes from audioVideo interleaved; common format used by digital video cameras
.mov	Originally designed for Apple systems, now usable with the free QuickTime player on most devices and platforms
.mpeg	Platform-independent file format created by the Motion Pictures Expert Group
.rm	One of the first streaming media formats, used with the Real Player
.wmv	Windows Media Video format, available for streaming or download

Figure 6-7 Common web video file formats.

Animation

Webpage animation can catch a visitor's attention, demonstrate a simple process, or illustrate change over time, such as the metamorphosis of a butterfly. Animations— whether simple buttons, short animated GIFs, or complex animated movies—can entertain, educate, and engage the visitor. They also can help the user understand how to interact with the website.

Animated Elements

Animations use a fast-paced presentation of changing static images to simulate motion. During creation, animation software records the changing images in a series of frames along a timeline. With frame-by-frame animation, the designer must change the image manually, such as by erasing a portion or increasing the size of the image. With animation with tweening, the beginning and ending frames identify the original and final location and/or appearance of an image. The software automatically creates the necessary frames within the changing image in between (or “tween”) the beginning and ending frames. Animation with tweening is a more expedient, less-intensive method than frame-by-frame animation.

Animation software programs provide a range of animation creation, editing, and optimization tools for web designers of all levels, from basic tools such as HTML5Maker for novice users to more advanced tools such as Adobe Animate CC or GreenSock Animation Platform. More experienced web programmers might use a scripting language, such as JavaScript, or a combination of scripting plus HTML5 and CSS to create high-quality animations.

Web designers increasingly rely on JavaScript, HTML5, and CSS3 standards to create browser- and device-independent animations. They produce animations with an open format which do not need proprietary viewing or creation tools. Screen readers and adaptive devices can interpret the content without using a separate plug-in.

When deciding whether to incorporate animations or animated movies at your website, consider whether you have the necessary expertise and resources. Depending on your level of experience, you

may wish to purchase ready-to-use animated elements or hire a skilled developer to create custom animations.

Interactivity

Well-designed website should include elements that enable the website publisher and website visitors to engage in interactive, two-way communication. You also learned about a variety of elements you can use to promote interactivity, such as contact pages, social media integration, and web-based forms.

Interactive elements also can serve as calls-to-action. In addition to videos and animated GIFs, animations also can be small, UX-driven interactive elements such as buttons or hidden menus. Many UX-driven animations are calls-to-action that encourage interactivity by telling the visitor what he or she can do on the website. Others have the goal of gathering user information, such as through a form or creation of an account.

Web-based forms allow visitors to submit information to a website publisher using email or directly to a database or spreadsheet. Scripting languages play a role in creating interactive content elements, such as quizzes or polls, for webpages. Enabling your visitors to post comments to an article, or share it using social media, provides you with feedback about users' reactions and interest in a topic. Some e-commerce websites encourage communication and promote interactivity by using avatars or live chat. All of these are examples of how web designers incorporate calls-to-action.

Web-Based Form guidelines

Web designers include forms to obtain comments and feedback or to enable customers to order products or services.

Common form elements include text boxes, check boxes, option buttons, drop-down list boxes, and a Send or Submit button. Each form element is called a field.

Breaking your form into multiple form pages can help by chunking the information into smaller, screen-sized forms. One benefit is that if a visitor makes an error on one part of the form, he or she only has to go back to that page to find and fix the error. An example of multiple, sequential form pages is an e-commerce website shopping cart. A series of shopping cart form pages allows an online shopper to review purchases, enter shipping information (name, address, and phone number), enter billing information (third-party payment service or credit card number), and, finally, verify entered information and submit the form. To further simplify forms for your visitors, enable autocomplete or autofill.

To create forms that follow UX principles, you should:

- Require visitors to complete fields containing essential information before submitting the form. Prompt visitors to provide the missing information, and enable users to confirm data before submitting.
- Let users indicate values that should be copied to other fields, such as indicating that the billing and shipping addresses are the same. Include a reset button so that the user can clear the form quickly and reenter the information if necessary.
- Make text boxes large enough to hold the approximate number of characters for a typical response, and to adjust as necessary.
- Use an input mask, where appropriate, to limit the number and type of characters, and provide parentheses, hyphens, or other characters to guide the user to properly format, for example, a phone number or Social Security number.

- Send an email or text confirmation notice informing the user that the server received the form data.
- Use checkboxes to allow users to submit more than one response to a query, and provide space for additional comments or requests for further information.

When creating a form, you also must plan how you will collect, store, analyze, and use the data. For example, an e-commerce form should connect to the inventory and sales database to ensure that the product is available, and then update the inventory. A form that collects website visitor information to create or add to a mailing list should feed the information into a spreadsheet or database that enables you to sort and filter the data, as well as create custom mailings.

Interactive Content Elements

JavaScript, PHP, and CoffeeScript are all examples of scripting languages that web designers use to create interactive content elements. Web designers use programming tools to create customized interactive webpages, verify form information, and to create rollover buttons, advertising banners, and pop-up windows. Programmers insert scripts directly into a page's HTML code.

Scripts also can be packaged together into a format that web designers without programming experience can insert into webpages to add functionality. Website widgets, also called gadgets, are small code objects that provide dynamic web content, including clocks, weather reports, breaking news headlines, and more. On a personal webpage or a blog, you might add a widget to display the current weather or to launch a slide show to add interest or enhance your visitors' website experiences. To add a widget, you can copy and paste the script or code directly into the HTML file of your webpage from a source such as AccuWeather.

Comments

Adding a comments feature to your website enhances interactivity by enabling visitors to comment on articles and by creating a sense of community. News websites allow visitors to comment on a specific article and to respond to others' comments. Entertainment news websites that regularly feature recaps or information about a specific television show use the comments feature as a venue in which viewers can discuss characters, story lines, and other aspects of the show. Blogs use comments features extensively to promote interactivity. Comments help the website's creators gauge interest in each post or article.

It is important to monitor comments posted to your website. Many websites have a disclaimer stating that the website owner will remove anything offensive. Some websites permit visitors to rate the comments made by other visitors. Spam often appears in comments as well. Having someone monitor comments before or as they post gives you control over any postings that might be offensive or that may contain links to malware or phishing websites. Consider requiring users to create an account before posting comments. Doing so helps you keep track of and block users who violate the code of conduct by introducing spam or using inappropriate language.

Live Chat

Live chat allows visitors to ask questions and receive answers in real time using text, voice, or video. Web designers include live chat features to enable website visitors to query product information, ask for customer service, or troubleshoot problems with a computer or device. Websites either offer reactive or broadcast live chat, in which visitors initiate the chat, or proactive live chat, where a chat window opens automatically. Live chat uses a browser window in which a visitor exchanges messages with a chat agent, a customer service representative who handles the visitor's query. Chat agents can be in-house or they might be outsourced chat agents located in a call center. F

