Online Design

Ashley Keller

American Intercontinental University

Abstract

Understanding the basic and advanced principles of web design are essential for anyone who aims to create and online learning environment. Online learning environments can be anything from entire schools online to a single assignment for a single class. No matter the size of the webpage or website it is important to address a few key factors of online design: page and design layout, use of graphics and animations, use of video and audio, and the greater picture. Page design and layout consists of screen size and resolutions, use of tables, text and font presentation, contrast, and navigation layout to name a few (Lipera, 2002). Likewise, the greater picture is the view from the designers, instructors and students vantage points.

Online Design

Design for the online world is significantly different than design for the printed world. However they have many common attributes. “What factors must be present to produce effective Internet-based courses?” (Arbaugh, 2000, p.33). Dunlap (1998) proposes the three Ls of introductory web-based instructional design: linking, layout, and learner support. For online designers to be successful they must link their audience to the information they desire, in a layout conducive to interaction with the users, and by providing universally accepted file and design formats along with support references for the users. E-learning provides a flexible and diverse environment for its students. “However, learners only reap the benefits of e-learning if the designer implements researched and proven best practices.” (DeWolfe Waddil, Milter & Stinson, 2006, p.603-604).

Page Design and Layout

Choosing the appropriate page design and layout is essential when it comes to online learning. The original online learning environment was completely lacked design and interactive thought resulting in a page by page reading assignment and many students negative response to the learning environment, or lack thereof. “What might be spontaneous in an on-campus setting spells confusion at a distance, so care should be taken to be extraordinarily organized and clear” (Brindle & Levesque, p. 453). Although the content and replies to postings may be the instructor’s responsibility, the designer must provide a clear and organized layout of information as well. Page design and layout considerations should take into account several key points: screen size and resolutions,

use of tables, text and font presentation, contrast, and navigation layout to name a few (Lipera, 2002).

Screen size and resolutions considerations are essential as there can be significant difference in the initial and continual view of a website from a student viewing the webpage at 640 by 480 resolution and one viewing it at 1600 by 1400 pixels. Web sites design for the smaller resolution can create significant dead space when viewed at high resolutions. While, web sites designed at the higher resolution can easily cause cutoff viewing and require excessive scrolling on the lower resolution views.

The use of tables in web design is still controversial as they have immense abilities to add and detract from websites. But the proper usage of tables can lead to a more organized and uniform design. Tables can be used to create uniform page sizes, align text and graphics in a more visually appealing manner, create divisions within the webpage, or create composite text and images (Lynch & Horton, 2002).

Multiple surveys have been taken over the years, much like the one conducted by Dr. Ralph Wilson readability study on serif and san serif fonts in regards to html reading. The current standard of printed text is in serif fonts such as Times New Roman or Garamond. The assumption for years was that serif fonts were more conducive to reading via any medium; however research proves this to be false. Nearly two-thirds of the surveyed population prefers san serif fonts, such as Arial and Verdana, for reading on the computer screen over serif fonts (Wilson, 2001)

There are a few primary wants to address contrast in both printed an online design. Color contrast is the most apparent and important when it comes to online design. For years many websites were designed with bright back ground colors and bright or

white text colors, leading to a very small color contrast and extreme difficulty in reading what was on the screen. Although white text on a black background and black text on a white background are of equal contrast studies say it strains the eye least and is easier for the population to read black on white (Johansson, 2007).

Navigation layout is essential to an easily navigated website. Layout of primary navigation links are generally done horizontally across the top of the page or vertically down the left side of the page. In many cases one will find a website use both of these designs to represent the primary and secondary navigation levels of a website. It is important to always keep the top level navigation links visible from every page. Clear and concise titles are important to be used in navigation links and "should correspond closely to the title and content contained on the linked page" (California Polytechnic State University, 2006). Text and images can both be used as links, however the latter can cause download delays, rarely allow the visited link differentiation, and can disguise links as well. Dynamic menus are becoming more and more common as they provide a compact, appealing look. However the primary disadvantage of this style of navigation comes with keyboard users, as there is immense difficulty to access this style of navigation for the keyboard alone.

Use of Graphics and Animation

Graphics can come in many forms, images, icons, background images, image maps, and animations. Graphics and animations have two primary functions on any website, one is to convey information to the viewer and the other is to assist in the design and attraction of users. Graphics should be used to support the content rather than detract from it. They should be easily recognizable and interpreted by the viewer, and optimized

for web-based viewing (Clark, 1997, p.9). There is nothing more detouring for web users than to be constantly forced to download new plug-ins to view images because the designer created them in non-universal programs, or to wait for extended time periods for images to load on their system because the designers failed to optimize the graphics for speedy transmission. “Electronic tools allow the user to capture, display, distort, enhance, store and print images” (Knupfer, 1997, p.139). When designers place graphics on web pages it is important to keep in mind that many of them will be downloaded and printed, especially if they are visual representations of important information. Animations have the ability to interactively provide information to the learners. They can portray information in an accelerated timeframe or under circumstance even unattainable within the normal classroom. Together graphics and animations provide extensive design and educational information to students when used correctly, or can create a significantly frustrating environment of slow downloads and new plug-ins required for viewing.

Use of Video and Audio

The use of video and audio closely relates to static graphics and animations, however varies greatly as well. Videos can be used to transmit complete classes across the internet, to show science experiments, or condense important information into a short presentation timeline. The use of audio on websites can assist in the animations and videos presentation of important information and can provide interactive audio conferences with students, instructors or guest speakers.

When integrating videos onto a webpage several key issues come up, such as the length and size of the footage, embedding videos, requiring viewers to download the video and not actively stream information, hosting location of the videos, or merely

providing links to externally hosted videos. Viewers with slow internet connections prefer small or no videos, as they can become extremely frustrating to view or download and take extended time periods to do so. Requiring viewers to download the video rather than stream the information can be intimidating as well, do to excessive file sizes and the potential of viruses. Hosting videos requires significant bandwidth, especially if multiple people will be accessing the videos simultaneously. Due to this many people choose to simply provide links to externally supplied videos, however they rarely take the time to confirm proper links over extended time periods and end up with significant broken links to their video or audio information. Audio is slightly less intrusive on the user due to file size. However file size and streaming abilities can still be an issue. In addition lack of sound cards or speakers on some computer proves to be a problem as well.

Ensuring Instructional Quality

To achieve and maintain a top-notch, user-friendly, interactive, and engaging websites takes considerable effort on behalf of the designers. Page design and layout is essential to the transfer for information to the students. Usability and user-friendliness is one of the most important aspects of a website to ensure viewers return. Even with the all the right content, websites can fail because they are difficult to read, or navigate. "Effective web pages contain good screen design, graphics, icons, background images, image maps and hypertext" (Clark, 1997, p.356). Graphics have the ability to make-or-brake a website as well. They have the ability to create eye-straining pages due to inappropriate background images, or excessively long download times due to the non-optimization of imagery. But graphics and animations also have the ability to create interactive and engaging learning environments when utilized correctly. They can

enhance the design and content by drawing viewer's eyes to the most important information, and visually represent the information it at the same time. Video and audio also has the ability to make-or-brake a website. Video and audio usage can create interactive classes or seminars, show experiments, display instructional activities and training, or enhance many specific aspects of curriculum.

The Greater Picture

Although design, layout, graphics, animation, video and audio usage is important when creating and e-learning environment, there are many other factors that contribute to the success of the environment as well. The utilization of the previously addressed mediums, along with bulletin boards, e-mail and chats are essential to the continuous loop of communication. This "blended model has the capacity to extend learning through a variety of online 'live' environments, such as coaching, synchronous classrooms, and team chat rooms. It also can consist of limitless 'self-directed' learning, including self-assessments, interactive e-courses, self-study guides…" (Van Dam, 2002, p.38) through any number of mediums. Adults are attracted to the flexibility that the online learning environment provides. The "…flexibility in the course comes as a result of the medium being both place and time independent, allowing course conversations to continue over time in the midst of interruptions (Harasim, 1990; Leidner & Jarvenpaa, 1995)" (Arbaugh, 2000, p.35). Students are opened to new forms of learning and communication. They have the ability to follow a self-directed learning environment, focus on their weaknesses and exploit their strengths. E-learning utilizes the technology at hand, "online learning can train students in the very technology that is providing the competitive advantage for global corporations and at the same time allow them to build

international knowledge communities (Webster & Hacklery, 1997)" (Berger, 1999, p.684).

The flexibility and diversity of the online learning environment is its greatest asset. This flexibility "may attract a competent type of student with a wide variety of experiences who otherwise might not partake in graduate management education (Ellram & Easton, 1999; Taylor, 1996)" (Arbaugh, 2000, p.35). The self-directed, self-paced environment is ideal of students on the go and self-empowered students. Designers must support this audience and open them to new applications of information to assist in their learning and intrigue their minds, imagery, animations, video and audio are the first steps to this multiple intelligence approach to interactive learning.

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Figure Caption

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Figure 2. Screen capture of a website being viewed at a high resolution (Lipera, 2002).

Figure 3. Illustration of the use of tables to structure alignment of text on a webpage (Lynch & Horton, 2002).

Figure 4. Example provided by Wilson to represent serif and san serif fonts (2001).

Figure 5. The use of text and contrast (W3Schools, 2007).

Figure 6. The use of color contrast on web pages (Kramer, 2000).

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Figure 8. Navigation layout: vertical near the left of the page (Yahoo Inc., 2007)

Figure 9. The self-proclaimed worlds worst webpage, an example of how not to use graphics and animations. Follow the linked image to experience the entire website (Michelle, n.d.).

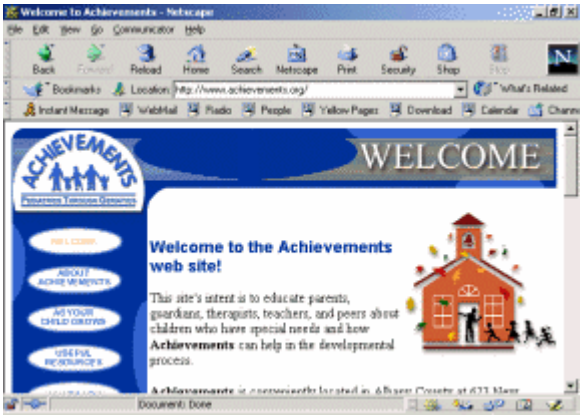
Figure 10. An example of the use of imagery to support web design (Retrasmission, n.d.).

Figure 11. An animation example used to support the learning and understanding of Foucaults Pendulum (Harrison, 2005). Follow the linked image to experience the entire animation.

Figure 12. Another example of the use of animation to support learning (Ion, n.d.). Follow the linked image to experience the entire animation.

Figure 13. An example of video to support the understanding of the sound barrier (Michalik, 2007). Follow the linked image to experience the entire video.

Figure 14. The use of audio on a website can assist learners in reading and comprehension (LearOutLoud.com, 2007). Follow the linked image to experience the entire audio sample.



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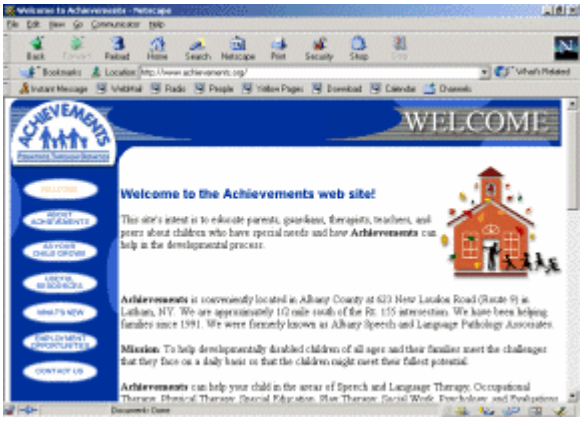

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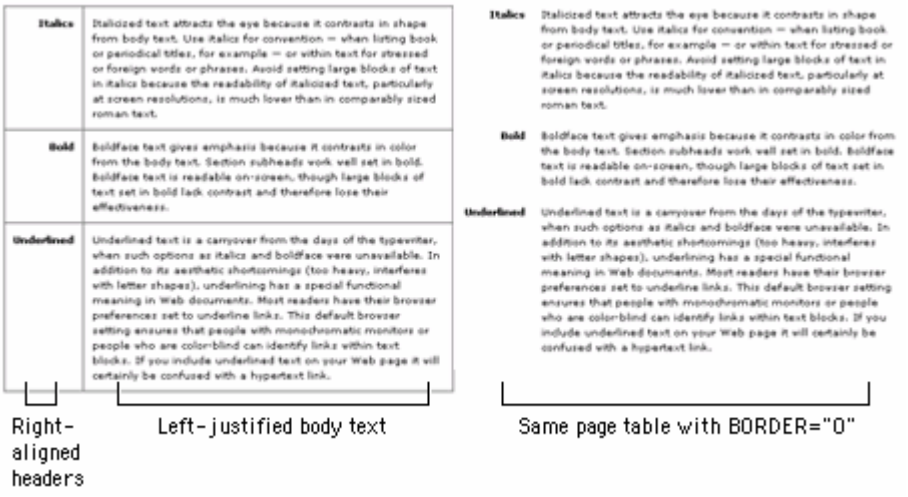

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Times New Roman 12 pt	Arial 12 pt
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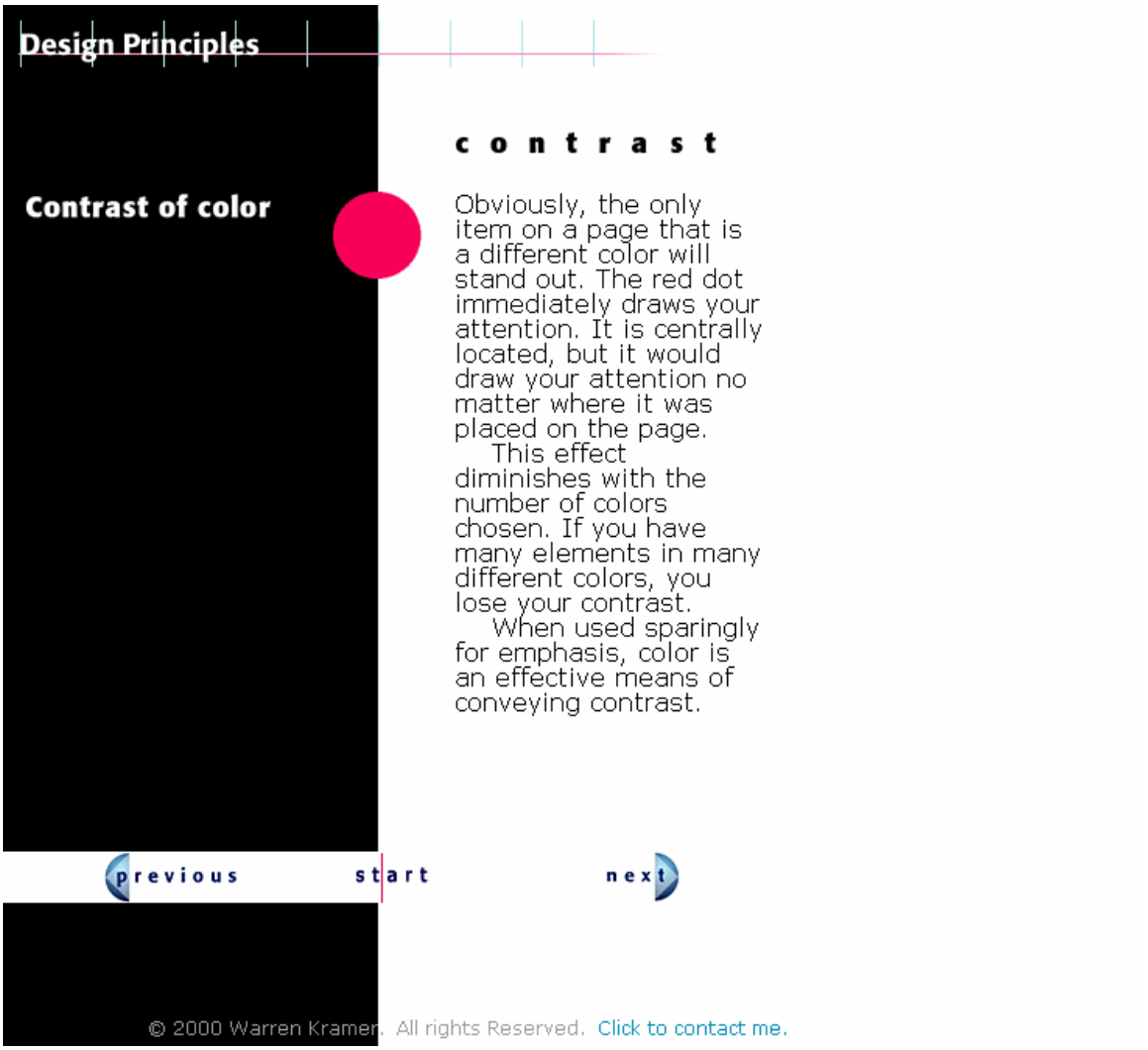

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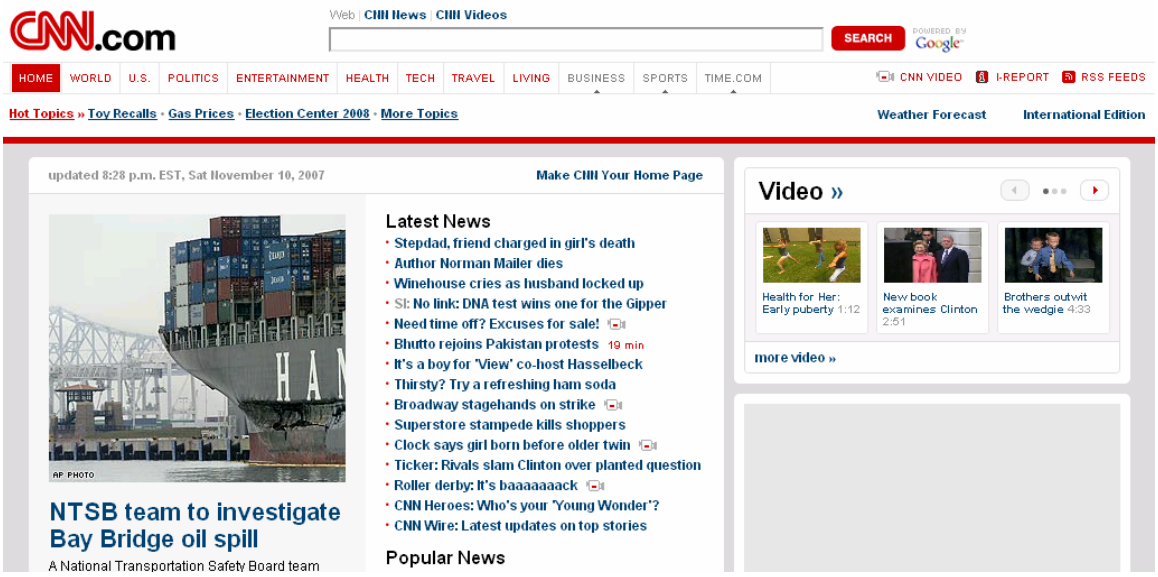

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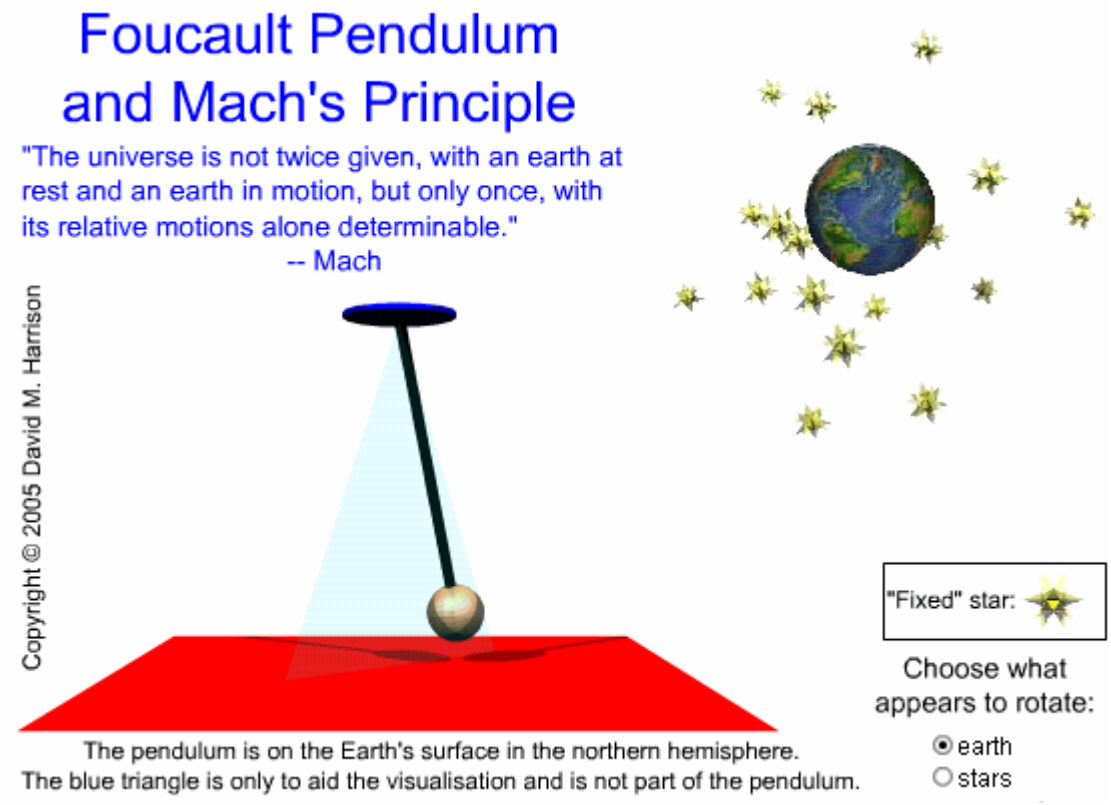

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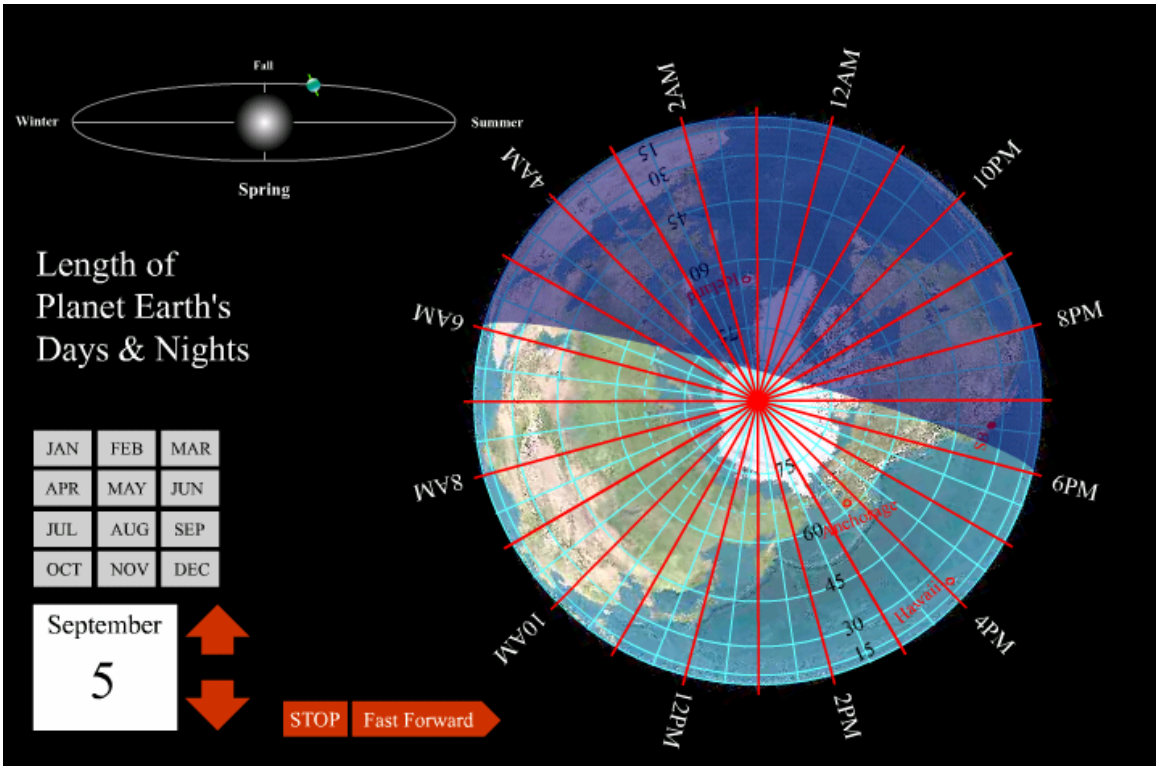

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