Animations

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Overview and Definition

Animations are traditionally defined as "inanimate entities that appear to take on dynamic attributes, such as motion and growth, that are normally associated with living organisms" (Ploetzner & Lowe 2012, 782); think, for example, of Mickey Mouse. There is, however, a more apt definition of animations within the scope of education: "a series of varying images presented dynamically according to user action in ways that help the user to perceive a continuous change over time and develop a more appropriate mental model of the task" (Gonzales 1996, 27). It is the construction of mental models of a task that adds value to the use of animations in instruction.

There is a variety of animation and video software available within a range of price and complexity. Examples of software include Screencast-O-Matic, Camtasia, and Captivate, which contain animation editing tools and can work simultaneously with animation software (i.e., screen capturing an animated website). Other software, such as Xtranormal, GoAnimate.com, and Adobe Flash Professional, has the ability to create fully animated videos.

Basis for Current Interest

Using animation in instruction is an increasingly viable way to engage students and support learning. Instructors who use animations point out that animation can enhance an otherwise static learning management system (LMS). One author notes that animations provide a "rich, immersive environment [that] encourages action and interactivity, which overcome an often dehumanizing learning management system approach" (Nash 2009, 25). Nash also states that animations provide "an opportunity to bring together community-forming behaviors and objects that can be used to create knowledge."

It is often noted that the current cohort of traditional-aged college students have been immersed in media since their collective birth. Not only do they require multimedia to learn and communicate, but they also require stimulation from media in order to facilitate their learning (Nicholas 2008). While the authors of this document discount the notion that all Millennials are fully competent online, there is credence in the generalization that many Millennials are "techno-literate, techno-savvy...and even dependent on technology" (Nicholas 2008, 3). There is also consensus that students should enjoy a classroom experience that is as stimulating and as multisensory as what students enjoy in the outside world (Lamb & Johnson 2006).

Much of the research concludes that animations can help students learn if they are used effectively. Kim Leeder addresses some principles of using multimedia, which reiterate the importance of using sound pedagogy when using multimedia. Leeder refers to the redundancy principle, articulated by Mayer and Moreno in 2003 which states that students learn better from narrated animation, instead of animation with concurrent narration and text. Adding text becomes redundant and does not contribute to student learning (Leeder 2009).

Current Applications in Academic Libraries and Higher Education

Video tutorials that incorporate movement of various graphics, or that are entirely animated, are being used in online, hybrid and flipped classroom modules throughout colleges and universities. Animations serve multiple purposes: animations can be cosmetic, but when so used offer little opportunity for learning. They can be incorporated to gain attention at the beginning of an instruction session or to transition from one topic to another. Animations can be utilized to motivate students, through feedback or other means of positive reinforcement. They can also be used to help clarify relationships between concepts through visual means (Weiss et al. 2002).

The most direct use of animation is as a demonstration method. Animations have greater benefits for learning "when procedural-motor knowledge ["knowing how"] rather than problem-solving or declarative knowledge ["knowing what"] is requested" (Hoffler and Leutner 2007). For

example, animated graphs are often used to teach complex mathematical and statistical concepts. Digital learning objects have been created to illustrate scientific principles, such as those created by the National Library of Virtual Manipulatives. Animations have also been used to simulate work environments, such as "The Law Simulation Series: The Paralegal Law Practice Experience", a 120-150 hour internship simulation used to train students in paralegal programs.

Current Applications in Academic Library Instruction

Animations are most often discussed in library instruction in terms of videos that have animated elements. Instruction librarians use these tools in various ways. For example, the ANimated Tutorial Sharing Project, encourages librarians to create tutorials using commercially available animation tools, and then to share those tutorials with other library instructors.

Other examples include Felician Library's tutorials created with GoAnimate, including video animations that address "Constructing Your Search" and "Narrowing Your Research Topic". The librarians at the University of Technology in Sydney, Australia use Xtranormal, another popular web-based animation software to create videos about referencing and introducing library resources. Kimbel Library at Coastal Carolina University uses Final Cut Pro to create humorous, animated and simple videos that explain similar concepts, such as "What is summary?" and "How to locate scholarly articles."

Animations have been used by librarians to reach distance library users and to create reference tools that address point-of-need issues in a cost effective manner. Regis University (Betty 2007) and Western Michigan University (Behr 2004) both offer examples of how to extend library services using animated resources. Librarians also use animations to teach information literacy concepts as well as basic bibliographic skills.

Flexibility and ease of simple integration are key elements for using animation tools. Animated videos can be uploaded to YouTube, placed in LibGuides, and embedded in learning management systems.

Potential Value

General benefits of using animation in instruction include the ability to incorporate aspects of universal design in order to make library instruction more inclusive of varying learning styles. Animation also offers the ability to situate concepts within realistic scenarios; it can facilitate social learning; and it offers the ability to connect students meaningfully to prior learning (Nash 2009).

Animation provides librarians with the ability to improve services: the benefits of augmenting courses with multimedia are well documented in the research. Less research exists on the particular use of animations, but its potential to improve video tutorials by engaging students and, in particular, using humor to explain information literacy concepts, is considerable.

One of the most promising values for the use of animations is in the flipped classroom. Bloggers have been discussing flipping information literacy (IL) one-shots in recent years (see Maura Smale's discussion, Alan Carbery's discussion, and the thoughts of Designer Librarian). Using animations in flipped IL classes permits the division of learning tasks as noted by Hoffler and Leutner (2007); the "learning how" aspect of IL instruction can be moved to the tutorial, leaving the "learning what" (or why) to face-to-face instruction. Doing this gives instructional librarians more time to engage students in active learning and frees the librarian from the need to constantly lecture or demonstrate.

Lastly, there is value in using animations to engage students through the use of humor. Humor helps librarians meet students where they are, and can help to introduce complex information (see Socrates and Information Literacy: An Xtranormal Xamination).

Potential Hurdles

While web-based software, such as Xtranormal, has made brief, simple animations easy for the novice to use, creating complex animations can take considerable amounts of time. There may also be a steep learning curve and technical difficulties, depending on the type of software or application being used (Nash 2009). Courts and Tucker (2012) point out that resource constraints can also be an issue for some institutions, but with so many free

and low cost options available, this a minimal deterrent.

Nash (2009) also noted that there might be cultural confusions depending on how content is depicted in animations. Being aware of the composition of your student body is key when beginning to design animations. As noted earlier, some populations may not be as familiar with technology and may have less connection or background with media content used (Nicholas 2008).

Animated elements can be difficult to understand for those with disabilities. ADA regulations require adaptation of websites for people with disabilities, particularly if your college or university is a public institution. Also, a May 7, 2013 settlement between the University of California, Berkeley and students represented by the Disability Rights Advocates (DRA) outlines new procedures that colleges and universities (and their libraries) must follow to ensure that disabled students have access to all written materials needed for their studies.

Creators of animation for instructional purposes need to also be aware of the potential for cognitive overload. Understanding that "meaningful learning involves cognitive processing including building connections between pictorial and verbal representations" (Mayer and Moreno 2003, 43) is essential in designing animations; but are instructional librarians sufficiently educated in design principles to understand how the mind works when using multimedia? It is essential that instructional librarians use animations intentionally, supported by sound pedagogical or andragogical principles, and not just because animations are cute or fun.

Some librarians may lack knowledge about considering learning styles in the creation of a learning object, such as an animation. Mestre (2010) suggests creating scenarios that relate to student experiences, allowing student control of the organization, using sound design principles and giving students options to choose their preferred learning style.

Conclusion

The use of animation will continue to evolve as a useful tool for library instruction. While video creation is being widely used in libraries, the potential use of animation in making these videos

more engaging and dynamic will increase, particularly as librarians rely on sound principles of multimedia design.

Courts and Tucker (2012) identify a major goal for librarians looking for ways to effectively use animation in their library instruction, "The challenge is to find ways to augment current instruction while maintaining academic integrity utilizing the technology the students expect to enhance learning in the college classroom." Librarians should continue to keep student learning at the forefront of their efforts and consider best practices as they use animations in their teaching.

References and Further Readings

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Other Examples

ANimated Tutorial Sharing Project (ANTS)
http://ants.wetpaint.com/
This project provides librarians with a repository of instructional tutorials on a range of topics. Videos are purposefully general in order to be shared across institutions.

http://www.resourcesforlife.com/docs/item6613
(explanations of online, simple animation creators):

- Blabberize.com
- GoAnimate.com
- SitePal.com (Business version of Voki)
- Voki.com (Educational version of SitePal)
- XtraNormal.com