

## **Designing Animations on an (Almost) Shoestring Budget**

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Online courses can often be enhanced with the use of narrated animations. With little or no budget available, an instructional designer may be able to unearth neglected in-house resources (vector-based graphics, video camera, vocal talent) and, with inexpensive software tools, create simple animations to help teach concepts best articulated visually.

### **Background**

A recent instructional design challenge for this author involved transforming a research medical school professor's lengthy explanation of musculoskeletal disorders into a more accessible online course delivered on the WebCT platform. The audience for the online course was diverse – physicians and medical students, healthcare providers, as well as lay persons – health and safety individuals in a corporate setting.

Other constraints for the course included Internet access speed, limited resources, and a restricted budget to develop the course. Though much of the audience would have high speed access to the Internet, there were still those that would struggle with a 56k dial-up connection. Any budget that existed was previously spent on the development of text-based materials so there was complete reliance on existing resources and boundless creativity.

### **Assessment of Available Resources**

The general content to be covered in this online course existed in a notebook that accompanied an earlier instructor-led course. The notebook consisted of many pages of dense text and medical illustrations commissioned specifically for this physician training. Fortunately the illustrations were delivered as vector images (graphics that take little space and allow for resizing). This signaled a smooth transition to a vector-based animation program like Macromedia's Flash.

The university's department was graced with a few essential commodities—a PC equipped with digital video editing software, a DV (digital video) camera, a web designer interested in further exploration of Flash, and other staff members eager to participate in a multimedia project.

### **The Content**

Upon examination of the content, this instructional designer realized that a complete understanding of each musculoskeletal disorder's (22 in total) anatomy was crucial for this new audience of learners. The instructor-led training, specifically geared toward physicians, had the physician focusing a good deal of time on the mechanics of each disorder as well as any diagnostic maneuvers necessary to determine the specific disorder.

With hard copies of the medical illustrations in hand, this author sat with the physician (SME) to learn all about these disorders. Props for this endeavor included a tape recorder and red pen for sketching on the illustrations. Playing the novice student (which wasn't far from the truth!) and knowing that the audio-taped recording could be played back, allowed the freedom from note-taking and the opportunity to just ask questions.

### **Ah-hah...Animation!**

The easiest way to transfer this didactic presentation would have been to videotape the doctor's discussion and display each static anatomical drawing. But this could cause drowsiness with some of the audience. The content wasn't rocket science but it wasn't exactly conceptually simple.

Based on research studies meriting the use of rich multimedia (including animation) to teach difficult concepts, and the existence of easily manipulated graphic files, animations seemed the most appropriate choice.

### **Writing the Script and Storyboard**

A well-crafted script, for a voice-over narration, would drive the instructional animation. Listening to the audio-taped recording of the SME assisted with the ID's writing of the script. Careful attention was paid to avoid medical terminology that the general public would be unfamiliar with. Each animation's script was approximately one-minute in length. The scripts were approved by the SME to guarantee their scientific integrity.

The next step was the drafting of the storyboard. The storyboard's purpose is to communicate the visual imagery for synchronization with a voice-over narration. If the actual development of an animation (Flash or another animation software tool) is done by another person, the storyboard is vital for the animator to understand the correlated action for each chunk of audio.

During this step it was soon realized that there were numerous types of pain associated with musculoskeletal disorders and each should be visually communicated in a unique way. Spending additional time with the SME, this author was able to create a legend for pain (numbness, tingling, mild, sharp, and throbbing) that would serve the Flash animator well. Other descriptive visual information included types of inflammation and the movement of arrows to express radiating pain.

### **The Production Process**

Now that the plan was solidified, it was time to record a voice-over narration. Without the luxury of professional voice-over talent, a sound studio, nor an audio engineer, something makeshift would have to suffice.

A careful study was made of department staff's vocal qualities. Since there were many animations both a man and a woman were chosen to split the recording.

A room the size of a closet was selected for the "recording studio" because of its absence of windows, electronic equipment, and other disruptive noise. The best available tool to record the audio was the DV camera. Although the narrator would never be seen in the final animation, it was helpful to focus on their face (and mouth) to assist with the eventual audio editing. The talent was grateful for not having to memorize the script as long the camera was positioned to see their lips moving (again, helpful for editing).

The only budgetary item (beyond salaries) for this project was the purchase of a lavalier microphone for under \$200. Most built-in microphones on DV cameras are unsuitable for professional quality productions.

## Post-Production Process

The hurdles for the post production process included editing and processing the audio files so they seamlessly integrated into the Flash animations. As previously mentioned, this university department had a PC equipped with video editing software (Adobe Premiere). The processing of the individual audio files was an iterative one. Though .wav and .aiff files presented a better quality audio, MP3 was chosen to keep the final Flash (.swf) file small enough.

## Conclusion

Reviewers for the online course gave a favorable response to the use of narrated animations.

## References

- Dahlqvist, P. (2000). *Animations in physics learning*. Paper distributed via the Web by permission of Association for the Advancement of Computing in Education.
- McMillan, A., & Hobson, E. (2001). *Animation tutorial overview*. Webmonkey: <http://hotwired.lycos.com/webmonkey/multimedia/animation/tutorials/tutorial1.html>.
- Taylor, R. (1996). *The encyclopedia of animation techniques*. Philadelphia: Running Press Book.
- Underdahl, B. (2002). *Macromedia Flash MX: A beginner's guide*. Berkeley, CA: McGraw-Hill/Osborne.

## Biographical Sketch

**Leslie Krongold** is an Instructional Designer, Video Producer, and Owner of Whatever Productions, a company focused on the instructional design and development of educational and training products. As a past producer of educational multimedia for Encyclopedia Britannica, Addison Wesley, and Wadsworth/Thomson Learning, Krongold has developed many websites, CD-ROMs, videotapes, and print manuals for young and adult learners. Krongold holds an MA in Instructional Technologies from San Francisco State University and a BFA in Film Production from New York University.

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