Web Evaluation: www.radiology.starlightprograms.org

The website and e-learning module I chose was selected for several reasons. First, I have received feedback from hospital staff who have used the website and its modules with their patients and it has been well received. A few months ago, I personally used the program when one of my work contacts at a hospital was telling me about how great it was. While playing, I was fully enthralled and completed all 3 of the tutorials. It was engaging, motivating, and educational; all of which are essential to the success of an e-learning tool. Before jumping into the evaluation, I’ll briefly describe the module and the developer.

Starlight Children’s Foundation is a non-profit organization dedicated to “helping seriously ill children and their families cope with their pain, fear and isolation through entertainment, education and family activities” ([www.starlight.org](http://www.starlight.org)). Their motto is primarily ‘high-touch’ over ‘high-tech’ but they also take advantage of online mediums to reach more individuals. One of their prominent goals is to educate and entertain simultaneously, so they have developed many online tools to help educate kids about their illnesses and recovery in an entertaining manner. The Radiology Center—the e-learning site I am evaluating—teaches patients about 3 common procedures ([http://radiology.starlightprograms.org](http://radiology.starlightprograms.org)). Hospital staff have patients play these ‘games’ before a procedure so they know what to expect. In this module there are 3 ‘e-patients’. The user can learn about each ‘e-patient’, and then can learn about 3 different procedures: X-ray, CT, and MRI. Users learn about the procedures by helping the e-patient prepare, while the e-nurse answers the e-patient’s questions. Below I have outlined the positive elements of the website that lend to its success as well as some of the shortcomings that, if rectified, could make the module even more meaningful, memorable and motivating.

**Graphics and Audio**

The entire module is built with graphics and simple animation. Interestingly, text is not used at all throughout the module, with the exception of labeling certain items. The entire module disseminates information through audio and visuals. Meaning, there is an on-screen coach (heard but not seen) relaying all the information and answering the patients questions. All interaction is between the user (child in a hospital), the on-screen patient (e-patient), and the on-screen coach (e-nurse).

The graphics, while not complex, play an integral role in the activity as they facilitate the entire learning experience. The colors are bright, fun and inviting, not distracting. The background scenery is very basic so the user is able to focus on the important objects. It is clear all the images and graphics were deliberately used for their contribution to the learning and entertaining. In my opinion, all of them were useful and none were solely decorative.

The audio is the most important part of this learning module, and therefore carries the burden. Since text is not used at all—mostly due to the fact that patients of any age may use it—the language and dialogue were carefully chosen in order to address questions the user will have, as well as guide the
user through the experience. Because of its importance, the quality of the audio could be improved. However, it is clear, colorful, conversational and without static. Though at the intro page, it does sound like a tunnel. Interestingly, this module had the unique opportunity to show patients how the specific procedures will sound. We all know that X-Rays have a distinct click and beeping sound, but many of us have never had a MRI or CT scan. With the website’s use of sound clips, the creators were able to bring the user into the procedure and allow them to hear the sound of the machine. This is extremely effective because it mimics the user’s experience when they actually have the procedure in real life. The module primes them for what they will hear, see, and feel during the process, which is the precise goal of the tool.

**Navigation and Interactivity**

Every element of this module is focused. Breaking the module into chunks is extremely effective. It allows the patient to play only the procedure they need, without bombarding users with unnecessary information. The learning module takes users through the experience in a logical order: from the waiting room to the preparation room, then to the procedure room to the results room. The e-patient progresses to each room in order. The user cannot control the sequence, either through skipping ahead or going back. The user also cannot pause the module, so if he is distracted by something in the real world and misses important information, he will need to restart the module. These three elements (jump ahead, go back, and pause) are important in any e-learning module, and therefore the lack thereof is a definite flaw.

In its defense, the simple navigation provides a clear path for the user. There is very little distraction which helps focus the user’s attention. This format is also user friendly as it provides age appropriate visuals, cues, and instructions. The purpose and outcomes are clearly stated in the “waiting room” and “preparation room” which prepares the user for the task.

The radiology module also incorporates effective interactivity, allowing the user to assist in the procedure. By engaging the user to help the e-patient dress in his robe (by dragging his shirt off and dragging the robe on), and helping the e-nurse start the procedure (by placing headphones on and pushing the bed into the machine) the user is able to engage in the simulation. There certainly could be improvements to the interactivity, but those will be discussed in the improvement section below.

**Site Comparison**

In my opinion, the content is accurate, complete, and reliable. I say this because I spent a great deal of time researching additional information on the processes involved in educating children on CT, MRI and X-rays and they all follow the same format as the module. One website in particular was very similar, and I will take this moment to compare the two. Memorial Children’s in Illinois created their own e-learning videos with a stuffed bear to show patients what is involved in x-rays, CTs and MRIs. You can find the site and videos here: [http://www.childrensmemorial.org/depts/radiology/benny-the-bear.aspx](http://www.childrensmemorial.org/depts/radiology/benny-the-bear.aspx)
Ironically, the videos take the user through the same steps and similar dialogue, yet are not as clean. While they disseminate the information just fine, the video image is shaky and unsteady and the sound is muffled. The video often pauses on an image while the talking continues, so it is rather boring. There is too much talking and too little action. There is also a lot of unnecessary information prior to the actual procedure which is ineffective. Because the main character is a stuffed bear, there is no interaction, only an informational narrator. While watching these videos, it became obvious how beneficial Starlight’s Radiology Center would be to this hospital. In fact, I emailed the hospital a link to Starlight’s webpage letting them know about the many educational programs included on the site.

**Improvements**

I would certainly (and do) recommend this website to children’s hospital staff as well as parents with kids who will be going to the doctor for these procedures. While I do not think the site necessarily challenges learners to think, reflect, and hypothesize, it does allow for comparison (of the three procedures and outcomes) and allows the user to start a discussion with their parent or health care provider before going into the procedures. The module engages users in the process, letting them take on the role of assistant rather than patient. This authoritative position gives them the confidence they need when they become the patient in real life.

As for improvements, there are several I would recommend based on the suggestions and guidelines we learned in this course and from Michael Allen. First, a progress bar should be included as well as a clearly stated timeframe for the module. After timing them personally, two of the modules took 10 minutes from start to finish and one took 5 minutes. This is important for staff to know before they have a patient use it. Secondly, there should be the ability to pause, skip, or go back during the module. If a patient only has a few minutes before their procedure, the staff should have the option of skipping to the important parts. Or if a patient is playing the game and his nurse comes in to tell him something, he should be able to pause the game—which at this time, he is unable to do.

Another improvement I would recommend is to adjust the “Learn More” button. During the actual procedure, the online coach introduces the Learn More button and says the user can click on it at anytime to learn more about the X-ray, MRI or CT. Unfortunately, if the user does not click on it right then, or during that particular moment, it actually becomes unavailable during the rest of the module. I would suggest that the Learn More button be accessible through-out the entire module.

As far as interactivity goes, while I think it definitely included useful and creative interactivity, I think it could have been more meaningful. For instance, rather than the e-nurse telling the user to remove the e-patient’s shirt, watch and hairclip because of its metal, perhaps the e-nurse should have said “Is there anything April has to remove from her body before getting the MRI? Is so, drag and drop it on the counter”. This could be asked after the e-nurse teaches about metal on clothes. This would allow the user to think critically about the task rather than doing what he is told.

Another suggestion I would have for the designer is to improve the user’s experience. While I think it is very effective to have the user participate as the assistant so they can see it from the outside, I think it would also be useful for the module to be from the patient’s (or user’s) perspective—putting
them inside the machine to see how it feels. Users are using this module because they have never had the procedure done and want to know what to expect. What better way than to make it a simple simulation? Rather than watching April go into the MRI machine, the perspective should change to her perspective once inside. Then the user can feel how it feels (in a sense) to be inside—which essentially is the point.

Lastly, one thing of serious concern in this e-learning activity is the fact that it relies solely on audio. If you happen to play it without sound, you will be completely lost. Therefore, patients who are deaf (or using computers without speakers) will not be able to take advantage of the program. There should be an alternative to the audio, such as a transcript shown on the bottom of the window. This would address this particular accessibility issue.

On the whole, I think this module is really great. I’ve heard first-hand from staff who use it to help their patients understand the process and feel more at ease before undergoing the procedures. Personally, I also feel more knowledgeable in the process, and if I was told at my next doctor appointment that I had to have an MRI, I would know exactly what to expect. So, even though it is a game meant for children, it is just as meaningful and memorable for adults—at least in my case.