The Art in Science Education

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Abstract

Today's ever evolving graphics technology serve as a growingly important tool for science education, and general public teaching. The Regenerative Medicine Partnership in Education (www.sepa.duq.edu) produces multiple educational projects on platforms that include films, web resources, and print teaching resources. Under the guidance of my colleagues, many projects were produced, including a film that is aimed at educating the older public about osteoporosis, and the modern treatment options. Using detailed visuals to simulate the look of bones, cells, organs, and cell-cell interactions we aim to educate people on the processes of osteoporosis and its treatment by illustrating the actions on screen. Other projects include the preliminary steps in the production of a full-length film to educate heart-transplant kids about the human heart and surgery.

Methods

After the preliminary planning sessions and storyboard mock ups, and the verification of various scientific facts in this film, does the production actually begin. With the aid of my colleague Catherine Prince, a graduate student at the University of Pittsburgh, a general storyboard is realized and the film's content is meticulously reviewed.

The workflow behind this project consisted of having to create 3-dimensional scenes using 3ds studio max, and sometimes the aid of Zbrush to add fine details to the 3d models. The scene is setup and animated within 3ds max. The scene is then rendered, or output as a final product, into a final video format.

As mentioned above each scene of the movie is output as a final product. This leaves the film in a scattered array of short videos. The editing process gathers these short parts and assembles them into the final product. The editing process consists of piecing the scenes in a correct fashion as well as video effects, smooth transitions, and sync with the narration.

Discussion

The overall goal of this project, the production of an educational film that is geared towards an older audience, has been reached. The film is nearly 12 minutes long and contains a wealth of information pertaining to information about osteoporosis, effects, diagnosis, and treatment options. This project is important as it is a crucial tool to let the general audience realize the importance of things like proper nutrition and exercise. Moreover, it can be used as a reference as a tool to avoiding osteoporosis and living a long and health life.

Future plans for this project include the production and distribution of physical content, as well as possible revisions. Other future plans include the start of the production of a full-feature film concerning heart transplants, that is geared towards younger heart transplant patients. The film will deal with the process of heart transplant as well as inform the kids on how to take care of their new heart.

Introduction

My work revolved around producing various 2 and 3-dimensional assets that were critical in the production of the film(s). This task is completed through the use of various software packages such as Autodesk® 3ds Max®, and Adobe® Photoshop®. The method through which a final product is achieved in the graphics community is called the workflow. My work flow depends heavily on the content being created and the detail that is to be achieved, but the simplest work flow to achieve a 3-dimensional product would usually involve the use of the two software packages mentioned above. I will begin by introducing some basic concepts, and defining some important terms. In 3ds Max, mesh refers to a collection of connected polygons that form a larger object. Objects are created through various techniques; I will discuss the polygonal modeling technique.

Results

Below is some of the osteoporosis-related imagery produced:

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