Apoorva Kaushik

Mr.Speice

Independent Study and Mentorship

25 October 2018

Low Polygon Modeling
Assessment 9: Research

Date: October 25, 2018

Subject: Low Polygon Modeling

MLA Citation:

Bennett, Donna. "Creating a Low-Poly Game Building in Maya." *Pluralsight*, Pluralsight, 26

Aug. 2015,

app.pluralsight.com/library/courses/low-poly-game-building-maya-2229/table-of-content

s.

Low polygon modeling is extremely important in the video game industry and is a

necessary skill for all modelers in video games. The advantage of low polygon modeling is that it

cuts down on the amount of faces which allows for a better rendering speed of assets. This

advantage is what makes low polygon modeling significant for video games that need to use real

time rendering. However, this is not a technique used in 3D modeling for films since all of the

frames are rendered through a render farm. Thus film models need not meet a polygon count and

are higher polygon and higher quality models as a whole. Overall low polygon modeling is a

useful skill to have for both video games and virtual reality.

Low polygon modeling uses a very refined system to model assets at a low count. The first way to go about low polygon modeling is to begin modeling in the lower polygon count style. This is a system that works well for simplistic models that are very cartoony and do not need much detail. However, for more complicated models this system is not very good. More complicated models tend to begin at a high polygon count with a standard use of beveling and edge loops. Following the high polygon model it is remodeled at a low polygon count with the 3D reference in mind. Alternatively, and more commonly a process called retopologizing is used. This uses the preexisting high polygon model, but changes the topological structure of the model. The system of retopologizing can be done in many softwares and it often is based on personal preference as most softwares will accomplish the same things. These are all systems that are needed to understand the full scope of creating low polygon models that can be used within various game engines and in virtual reality.

In conjunction with the low polygon box modeling workflow for polygon modeling is the necessity for strong textures that can be used on the models to give the impression of more detail than is really present. This is done through various texture maps such as bump map, albedo maps, and specular maps. This all allows for the addition of detail without the added polygon count. These texture maps can be created using software such as Photoshop, Mari, Substance Painter, and 3D coat. Overall this is another part of low poly modeling that is very important particularly with the technical skills of UV mapping.

As a whole low polygon modeling will be very helpful in the future as I work in game development for art. For my original work I will be texturing a few low polygon models as I

have never created low polygon models or done a lot of work in texturing. Overall low polygon

modeling is an important skill that will be beneficial to have and understand in the future.

Notes

- Get rid of unneeded faces in video game modeling which will keep the rendering time low

- This asset was made mostly with multiple pieces rather than extrusions. This can sometimes help the poly count of a model

- Reuse pieces of geometry when possible. Helps keep space use low in the UV mapping process

- Thickness of objects can enhance cartoony look

- Having multiple textures for one object (Window) will add variety with no poly count addition

- Standard lambert can be used for a cartoony game style

- Once the textures are applied the UV mapping will affect the projection of the texture onto the window face

- Moving the location of faces will allow for different location projection

- Copying and pasting UVs will allow for a lot of reusing of UVs which can help make the working through an entire piece easier.

- Low poly counts can require bevels to be painted onto an object.

- bright pastel colors for textures helps the cartoony look

- Center pivot, delete history, and freeze transformations at end of model creation. Also group sections when it makes sense for future duplication

- Duplicate as needed and keep the alignment of the building in mind