AUTODESK UNIVERSITY 2013

AV2597 Is It Going to Look Like That? Using Storyboarding and Previsualization Before Final Rendering

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AV2597 This class covers how to use storyboarding and previsualization tools to help convey ideas before final rendering. We show you some successful and not-so-successful examples.

Learning Objectives

At the end of this class, you will be able to:

- Work with other teams (e.g. Engineers, architects) to first come up with a story
- Start mocking up quick storyboards or non-rendered previsualization scenes
- Communicate with other teams the story you are presenting through your storyboards or previsualizations (and be prepared for changes)
- Incorporate all the previous information you received into your final renderings to avoid having to re-render from unexpected changes.

About the Speaker

With over 10 years in the 3d industry, Chip has done extensive work in the areas of civil engineering, industrial design, visual fx, and 3d animation. Some of the clients he's worked with have included national and collegiate sports teams (in-game jumbotron animations), Garmin and Hot Shot (commercials), Learjet and Rayovac (photo-real concept renders). He is Autodesk Certified in 3ds Max and Maya. He has been the Tech Editor of Mastering Maya book (Sybex) for the past 2 years. He has also taught 3d modeling, texturing, render, etc. at Kansas City Art Institute (kcai.org). In addition, he is the President of the Kansas City chapter of AAUGA. Currently at HNTB in Kansas City, he is a 3d Team Lead responsible for oversight and best practices on many visualization projects utilized by their pursuit teams.

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Introduction

What is Storyboarding?

Storyboarding is the process of creating a visual layout via a series of images at key points along a concept for the purpose of showing the entire story from start to finish. It was credited as being developed at the Walt Disney Studio in the early 1930's by animator Webb Smith. The same studio that developed the 12 Principles of Animation. Gone With the Wind was one of the first, in the world of live action film, to utilize the technique.

Storyboarding has become synonymous with pre-visualization. The idea isn't to have high quality final images, but to quickly convey camera movements, and the motion, action, and aesthetics of various points of view to follow along with a script.

Storyboarding for AEC visualization is a bit of a different process. Whereas in traditional storyboarding you're describing a story & doing some basic framing of sequences, many times in AEC storyboarding you're describing strategy & other things which may or may not need to be drawn out.

How can it be used in visualization?

The proliferation of technology used in the entertainment industry is astounding. The thing is, it seems to have only gone one direction. They seemed to have adopted the engineering aspect a lot better than AEC has adopted the entertainment industry aspects. Visual FX companies are using terrain data for accurate fluid simulations. Set designers are using Revit to create their sets virtually before building them. Still others are gathering LIDAR data for use in particle sims or set extension.

Seriously, how can it be used in visualization?

Well, much like how we utilize animation principles in visualization (not so much, squash/stretch, but things like ease in/out, silhouettes), there's no reason we can't adopt other tried and true practices to fit in our workflow environments. You could go a step further and hire some actual computer graphics artist to do the work instead of engineers who don't want to get stuck with it.

Currently, there's a big shift in the visual fx industry. Many studios are declaring bankruptcy and unable to pay their artists. Many of those artists are being burnt out and left with not very many options. This is the perfect time to add those people into the AEC world of visualization.

How have you used it in visualization?

The main two projects I'm going to talk about are very different. One was for FTE, Florida Turnpike Enterprise. The other was for the 6th St Bridge Project for the City of LA. In addition, I'll use some other bits from different projects as visual explanations of concepts.

Working with other teams to develop your 'story'

Everything has a story, even seemingly 'boring' projects

Who, What, Why, How? There's 2 versions of this. An internal and external. Internal being your team, External being your end client. Use these questions to your advantage and make it interesting and engaging.

The WHO

Who you're presenting 'for' and 'to' determines all the other questions. If your internal clients are Architects, for instance, they tend to want to focus on materials, shape, or color, and usually like still renders explaining a design concept that is as close to photo-real as possible. While Engineers focus more on process, time tables, or accuracy, and are usually willing to sacrifice image quality as long as it explains their 'patented' process effectively.

Even further, your External clients will also determine this story. Is it for a more conservative aviation commission that is more concerned about your team's organization charts or a DOT that's looking for something new and want you to blow them out of the water visually?

The WHAT

Now that we have the WHO (internal and external client type) you can start to tailor your story a little further. What type of project are you going to work on? Does the project lend itself to be more process oriented or more visually oriented?

The WHY

Why are we doing this? What are the advantages? Examples for process oriented could be the process saving time or money either before or after the project's completion. Visual oriented examples could include how the project fits in with surrounding areas. The WHY seems to be more prominent in the visual oriented projects than process oriented projects. Process projects still need a WHY, but are more concerned with HOW the project will be accomplished.

The HOW

How are we going to do this? The HOW is where the process oriented projects shine. Visual oriented projects use it as well, to show HOW the project will be built, but in visual projects it's more of WHAT will it look like or WHY we need the end product instead of HOW we get there.

Start mocking up quick storyboards or non-rendered previsualization scenes

What to do after you've answered the above questions

Once you have those questions answered, it's time to decide how your immediate vis team will handle those answers. Stills? Animations? Real-Time? Real people? Traffic? Weather? Plugins?

Gather what you can from engineers or architects

The more data you can get from other teams is less modeling time for you and your vis team. Reference photos are a big help. Generally, as the vis team, you may not be familiar with

an area. The engineering or arch team may have been at the location many times and can forget that you and your team don't know what the area looks like.

Take stock in available data and create what you can with the tools you have available

This can be 'paste-up' collages, hand drawn, previs renders, wireframes, etc. Something just to show progress internally so you can start filling in the blanks. We use a combination of screen captures, iPad, Keynote (Powerpoint), (as mentioned before) hand drawn, photoshop. Anything that is available.

Fill in the blanks and refine if necessary

If there's any areas of the story that aren't resolved at this point, make sure there's a point of contact to discuss what needs to be put in its place or maybe that will be something just talked to. Finally before you send them back to the presentation team for comments, refine the look of everything so it feels consistent. Do you have pre-rendered stuff that jumps to hand drawn? Make sure you make note so you can explain.

Communicate with other teams the story you are presenting through your storyboards

Send on the first draft

Make sure to send it to only the major players of a project. They can always funnel down if needed. All the 'errors' you took note of during your refinements need to be annotated in there as well. Just like these people have been on the project prior to you, you're more used to things popping, being solid shaded, wireframes, etc. So take a bit of time explaining what 'errors' they're expected to ignore.

Don't rest while waiting for feedback

Use every part of the buffalo. Many times early on in a project there's lots of other things going on that the leads may not get back with you for a few days or maybe even a couple weeks. Take this time do a bit of research (if you can) or to start fleshing out a terrain model, drape aerials, start traffic sim, foliage, various entourage placement, or even start on the final composite setup. There's lots to do.

Is it going to look like that?!

After sending off the first draft and explaining why everything looks the way it does, you will no doubt have heard "Is it going to look like that". This is usually where you'll have to walk them through the storyboards. The good thing is once you've worked with a group in your firm this way, they will respond differently the next time around. Hopefully…

If possible send some examples of final quality

Remember that part above about not resting while waiting for feedback? This is why. Generally, by this time you have incorporated enough data into a pretty close to final product. Send them a few stills of that progress to soften the 'roughness' of the storyboards. This also gives you a better idea of render times.

Rinse and Repeat as necessary

Send on the second draft and go through the steps again. Each revision, try to add more detail or areas you want to add, not just areas they want fixed. Again, don't wait for feedback to keep working. Try new ideas on your own. It's easier to delete something than it is to create it.

Incorporate all the previous information

Manage expectations

Try to manage expectations as much as possible. Part of the communication process is to make them well aware of the time frame regarding rendering. If you have an interior animation that is taking an hour a frame to render and they want to add another 10 seconds, make sure they know that's 300 hours of render time on a single computer. Even on a decent 10 machine farm, that's 30 hours. After working with some groups, you may be able to anticipate certain changes and offer up newer concepts or ideas.

What's next?

After everyone has come to an agreement... Or you've run out of time. Make sure to incorporate as many changes as possible in the final render. At this point, you should have had some time to explore final composites during any iterations. Hopefully you can just plug in your final passes into your compositions and generate your final renders.

Final Thoughts

Sometimes things don't work out

All the questions were answered. We began to flesh out the areas. We had multiple storyboarded sections and ideas on cards already. We used all the buffalo, but as we got closer to the deadline, the team started having a different message. Then we didn't have a final design. We had many concepts, but nothing final at the time. In addition, much of these changes weren't communicated to us.

In the trenches

Since we didn't waste our time waiting on feedback, we had a lot modeled. This part we did right and had the majority of control over. As it got closer to deadline, all we needed to do was put in the final bridge model and adjust our traffic sim. But we still didn't know HOW the team wanted to show up this thing. What were we to do...?

Storyboards FTW!

Even in the darkest night of a project, there is a glimmer of hope. One storyboard rose from the ashes to rule them all. We got a single storyboard with arrows directing us to different areas along the bridge. We started working with the team by doing previz renders on multiple machines and sending them over. We finally delivered the final animation about 45 minutes before the presentation.

Be prepared

Be prepared for it to possibly shrink and grow.

Be prepared to lose your favorite shot.

Be prepared to fill in the blanks.

Be prepared for a bit of initial pushback.

Stay on target

The purpose of this is to maintain a single story concept from start to finish. As mentioned earlier, about it shrinking and growing, a little wiggle room is expected. However, if it goes too far off message, it may be best to gather all the assets needed to move forward and abandon the current idea.