

How Visual Effects works

This is a training module from the ScreenSkills 'From Script to Screen' programme.

The text includes multiple choice questions for you to answer. Each question is identified with the words 'Multiple choice question' and finishes like this:

Question end

That's so you can stop and think. Each question end is followed by the correct answer or answers, and feedback.

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Section A: Introduction

Characters that visit our nightmares, fantastic digital cities, and scenes that are out of this world are all made possible thanks to Visual Effects.

Visual Effects, also known as VFX, is anything you see on screen that is digitally created, changed, or removed.

Sometimes we use live action, and sometimes we create shots entirely through computer graphics, or CG. Anything is possible!

Hi, I'm JJ, I'm lucky enough to be a VFX Producer, and I'm going to show you some of the essentials.

Multiple choice question. Which of these things do you think VFX is used for?

- A. Aliens and monsters
- B. Painting out stunt cables
- C. Explosions
- D. Crowd extensions
- E. De-aging

Question end

We use VFX for all those things, plus lots more besides. It's not all about aliens and monsters!

Often, people won't even notice the effects in the finished scene. We can transport the Cast into literally any environment – including places that would be dangerous or impossible to use for real.

Sometimes VFX means building a concept or character from scratch. That's when the craft is used to make the narrative better or to enable the story to be told in the first place.

Section B: Who works in VFX?

As you might imagine, it takes a lot of people to breathe life into a VFX project.

Supervisors are in charge of the entire enterprise. Those responsible for managing the budget and overseeing the processes that fall under VFX Production include Producers, Managers, Coordinators, and Production Assistants.

VFX Supervisors work collaboratively with the Director, helping them achieve their vision and making the impossible, possible. In some parts of the world, there's a VFX Editor who cuts the footage and keeps track of the files, and a Technical Department that includes Technical Directors and Software Developers.

And then there are the amazing Artists. They are usually specialists in particular areas of the VFX process. Concept Artists take the Director's vision and illustrate key characters, props

and environments that will be developed by the VFX facility in collaboration with the Production Designer and Director.

There are other types of Artists with expertise in Modelling, Texturing, Simulation, Match Move, 3D work, Storyboarding, and more. They're all different. For example, one Artist will model and texture an asset, before handing it to an Animator to rig and animate it.

Some VFX Artists do more than one type of work, it really depends on the size and scale of the production. You can find out more about these roles in the Glossary.

By the way, 'assets' means all the elements involved in the VFX process – like a model, a piece of footage, or a matte painting.

That's a lot to take in. Let's rewind a little!

Section C: When does VFX work start?

Multiple choice question. When do you think VFX first gets considered?

- A. During Pre-production
- B. During Production
- C. During Post Production

Question end

The correct answer is A. Just like in most departments, the starting point is Pre-production.

As soon as there's a script, the VFX Producer can start breaking it down to work out exactly what's needed. Then they'll determine just how complex the work might be, including the potential time involved, and see if there are other solutions such as stunts or real-life locations.

With that, we can put together costs and the timeline and get all the VFX work aligned with the Post and Production schedules. After that, the VFX Supervisor and VFX Producer work together to arrange everything and give production support and guidance.

Pre-production is a time to decide with the Studio, Director, and Producer how the VFX will look. The reason to do all of this early in the process is so the assets can be ready and approved for when they're needed.

Next comes 'Previs', or previsualisation, where Artists design simple animated shots for the Camera Department to use as reference on set.

Multiple choice question. Do you know what the Previs animations are used as a reference for? More than one of these answers is correct.

- A. Colours
- B. Positioning
- C. Scale

Question end

The correct answers are B and C. The Previs animations show how the VFX elements will be placed, along with the positioning of live action elements within each VFX shot.

Section D: The VFX production process: Working on set

VFX teams are heavily involved during the shoot to help with things like shot positioning and tracking. Tracking camera movements ensures that the VFX team creates elements that fit seamlessly into the scene.

The VFX Supervisor works closely with the Director, and coordinates with the Camera, Lighting, and Art departments to ensure that the shots are set up correctly before they're filmed.

Capture Technicians capture vital information about the set space, Actors and objects that need VFX enhancements. This is a really complex technical job where moving elements are tracked by markers.

Often a LIDAR scanner is used to map the space. It's a tool that can build 3D maps by firing out laser beams.

The VFX Supervisor stays in constant communication with the Director while VFX teams assist with creative aspects of filming such as helping Actors understand what's going on in each scene when the Cast can't see the digital environments and characters.

Section E: The VFX production process: After the shoot

'Turnovers' is what we call the package of video and data that VFX gets after a sequence has been filmed. Once we have that, we can start working on the shots themselves.

The best shots are selected, and the VFX team communicates to the VFX vendor what's in and out of a cut, and what the duration will be. It's the vendor who completes the actual shot work, whilst the VFX team on the show oversees the whole process. And the VFX Editor is in charge of keeping track of all the files.

Multiple choice question. What key responsibilities do you think the VFX Editor has before editing? More than one of these answers is correct.

- A. Deciding which shots are in the cut
- B. Making sure files are technically correct
- C. Tracking the multiple VFX versions coming in from the VFX facilities

Question end

The correct answers are B and C. They'll make sure the files are technically correct, and they'll keep track of each version. At this stage they're not deciding which shots are in the cut. Now the real work of actually building the shots starts!

We could be working on 2D, 3D, FX Sims – that's short for simulation – or Graphics. Each creative step has to be reviewed and approved by the VFX Supervisor – who gets the OK from the Director and Producer – before we go on to the next step. Once all the elements are ready, a Compositor comes in.

Multiple choice question. What does a Compositor do?

- A. Designs the 3D world
- B. Combines all the elements into one shot

Question end

The correct answer is B. The Compositor will bring all the elements together in the final shot where the VFX is fully embedded into the live-action sequences.

During Post Production, the VFX Editor receives VFX works-in-progress, which they cut into the edit. Each edit will be reviewed by the Director, Producer, VFX Producer, VFX Supervisor, and the Post Production Supervisor. By the end of the review process, the VFX will be approved.

And finally, delivery. The last step is to render the final shot at the agreed specifications.

Section F: Virtual Production

Before we finish, let's talk about an exciting methodology called Virtual Production.

Virtual Production is an umbrella term for techniques that allow filmmakers the ability to interact with the digital process in the same way they normally interact with live action. With this approach, Digital Artists produce digital worlds using gaming engines and other methods that can render graphics in real time.

These graphics are developed in advance so that they can be displayed on a large LED screen on set allowing everyone to see the VFX elements with their own eyes and film them through the camera. This can help the Actors immerse themselves in the environment and can aid the Director of Photography with framing.

Other Virtual Production approaches include world capture, visualisation, performance capture, simulcam, and interactive lighting. More and more productions are using Virtual Production to enhance storytelling.

So, from the script breakdown, all the way to delivery, VFX involves many different people and processes. Now you know why those credit lists are so long! As technology advances, the ability of VFX to sculpt realistic imaginary worlds increases, enabling more and more stories to be brought to life – with illusions that can enchant audiences everywhere.

And that's the end of this module. This was created by ScreenSkills.