A Guide to the Questions that Beginners Always Ask

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Foreword

This particular article is a collection of information that is relevant for all beginners in this massive and constantly expanding world of 3D computer graphics. Over the last few years I have been moderating, and now adminstrating, the highly popular and active CGTalk forums and have seen, time and time again, the same questions being asked by new members. Of course this isn't their fault, as it is natural to want to ask the advice of those more experienced than yourself as to which direction you should head in, but nevertheless it gets a bit tiring to always have to point out the same bunch of sites to visit, or to repeat over and over again the same bits of advice.

So what I have done is put together a bunch of the most commonly asked questions and issues, as well as some popular "what is a..." questions, so that we can begin to alleviate this constant repetition.

This article, while based on many of my experiences, is nevertheless my own opinion. I am sure that some people will disagree with some of the things that I have to say, but I do try to be as unbiased as possible in my advice so as to portray a decent level of realism and accuracy with regards to the industry today. I have been working professionally in this industry for quite a few years now, and in light of that I am not sitting here sucking all this stuff out of my thumb.

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What Program Should I Learn?

The first overwhelming conudurum facing any beginner is that eternal question - what program should I begin with? The answer to this is pretty tricky. This is because every person is different, and has different ways of approaching things. While one artist may totally swear that the program they are using is the best, it might not necessarily be the ideal package for another artist.

Of course all programs have their advantages and disadvantages, but when it comes to the most popular of the mid-to high-end packages (I hate using the term "high end" but I guess people know what I mean by it), most of them are pretty much capable of the same things, which means that at the end of the day it really comes down to the individual artists themselves. Someone who has no skills will not be able to produce anything of any worth, no matter how "good" the program they are using is.

Once you have grasped the basic fundamentals of 3D, you can always move to another package since the basic priniples apply across the board. I personally use a number of different packages - it's great to be able to utlize the strengths of a number of different packages that each compensate for the shortcomings of the others.

But when you are starting out in this field, you should ideally focus on one particular program until you are comfortable with the basics. Learning too many programs simultaneously when starting out will probably end up confusing you and will most likely end up with you taking far longer to get anywhere than if you choose to focus on a single piece of software to learn the fundamentals.

“This Program was used on that Film"

This is a very commonly-said thing on the internet and around CG school campuses, but it really is one of the worst things that anyone can use as a basis of deciding which software they should begin learning on.

The people who insist of using this bit of "logic" often tend to forget:

- That it takes a massive team of highly skilled and experienced artists to take the software and create anything seen in a blockbuster film like Lord of the Rings or The Matrix ;

- that the software used in films has (more often than not) been altered with many proprietary codes;

- and lastly, that many different software companies boast that their software was used on the same films (and often is - many large VFX houses use a number of packages to get their work done).

So basically this line of thinking is not really worth wasting time on if you were thinking of taking it into account when deciding what package to settle on. Just because someone on the web tells you that you should learn Maya because it was used on blah blah blah film, doesn't mean that you'll be able to take the program and make exactly the same kind of stuff.

Trying out Demos

The best way, in my opinion, to figure out which program is best suited to you, is to try them out. Makes sense, doesn't it? These days, most of the popular packages have very cool demo versions available that allow you to explore every aspect that each package has to offer.

Since 3D programs are generally quite expensive, this also ensures that you won't spend an obscene amount of money on some program just because somebody recommended it to you, only to find out that you hate it. Would you buy a car without test-driving it? Generally it is wise to always give things a whirl before handing over your cash. Try out all the programs that seem interesting to you, and see if any of them suit your style and workflow. Most demo versions come with tutorials (or links to tutorials) that you can use to explore the capabilities and toolset of the program. Try out as many programs as you like - it never hurts to keep your horizons broad.

Here are some of the most popular packages used in production today:

- Alias Maya (www.alias.com)
- Softimage|XSI (www.softimage.com)
- Discreet 3dsmax (www.discreet.com)

Some of these demos have certain restrictions or limitations (often they watermark your renders, which means that a small to medium-sized logo of the application will appear on all rendered images), but this is a small price to pay for the free use of the program, in my opinion.

All of these programs have great toolsets and any of them that you choose will be worth taking the time to learn if you are keen to develop some basic skills. And since they are all advanced

packages, you're not likely to find yourself feeling frustrated after you have gone past the basic stage.

I have compiled a large list of other programs (including free programs) on CGTalk's General Discussions forum. You can read it here (no membership required).

Of course free programs do provide a great alternative to forking out great wholloping wads of cash, and a number of them, especially Blender and Wings3D, have actually gained a massive popularity with large usergroups who are creating some very cool stuff. There is no reason why you can't learn and develop your fundamental 3D skills in a free program.

Which Program is the Easiest?

There is no absolutely cut-and-dry thing is "the easiest" program to learn because everyone has a totally different definition of what is easy and what is difficult. Different programs generally require different mindsets, and each one offers a slightly different toolset, some of which make certain tasks a little more efficient by providing you with more control, or by automating certain tasks for you.

Some programs may seem a little more complex at first than others. Maya, for example, has a lot more menus and things to click on than Max. It doesn't necessarily make the program harder as such, but it may make it seem a lot more intimidating at first.

But in the end, there is no easy way to learn 3D. No matter which package you choose, you have a hard road of learning ahead of you.

Is it okay to download my software off Kazaa or another P2P program?

No, it is not. If the program costs money, then downloading it for free, or paying for an unlicensed copy of it, is against the law. Commonly known as "warez", the acquisition and use of unlicensed software can lead to fines and criminal charges, regardless of whether you were using it for personal use or commercial use.

A commonly heard excuse is "but I am not earning money with it, so why should I pay for it?". This excuse holds absolutely no water - you're not earning money from your computer either, but you didn't steal that, did you? When you download unlicensed/cracked software, you are stealing it.

As mentioned, all of the big name packages do have perfectly adequate demo versions. Use those.

Be wary of buying secondhand software as well - many 3D packages have strict rules regarding transferring of licenses, and some packages are not allowed to be transferred to a new owner. If you are planning on purchasing software second-hand, make sure that it is legitimate. Simply contact the appropriate developer and check to see if they allow license transfers before giving your money to anyone.

Remember that if you are a student registered at an educational institution, you qualifty for educational licenses of software, which are usually very reasonably priced. The only condition is that the software may not be used for commercial purposes.

I want a job in 3D, does it make a difference what program I use?

Okay, I know I said it doesn't really matter what program you start off on, but bear in mind that sometimes certain jobs will require that you know certain software packages. Of course, you probably won't be looking for work until you have been working with your chosen software long enough to have developed some pretty serious skills. And by then you may have moved to another package anyway - it happens a lot.

Nevertheless, this whole software thing can sometimes become an issue. Lots of people have some strong opinions about this, but the fact remains that some studios don't mind what you have been using, while others do. It's all very well if you can create awesome work in 3dsmax but the studio you're applying to uses Softimage|XSI - the question is, will this be an issue for the studio? Most of the time it isn't. Many studios will provide training for new employees for the software in their pipelines, especially in the case of studios that rely largely on proprietary software solutions (a prime example being Pixar). However, sometimes you do see job listings that specify that applicants need to know a certain package or two in order to apply for the job.

I personally have experienced both sides of this coin. The first studio I ever went to work at used LightWave, a package that I had never touched before. This was not an issue for them at all, and I spent the first few days of work there learning the program and shifting my knowledge that I had gained previously in 3dsmax over to LightWave.
Learning a new program once you are comfortable with 3D principles is actually generally really simple.

Last year I began to do some work with another studio, who exclusively use Softimage|XSI for their 3D. I had only a very, VERY basic knowledge of XSI, and all the work that I showed them was done in LightWave. Again, this wasn't an issue. I simply got the Softimage|XSI Experience (the XSI demo), learned it all over the course of a few days, and started work. No big deal.
On the other side of the coin, I applied for a dream job last year and was turned down at the last minute simply because I had no experience in a certain program. I was told that the reason it was important in this case was because there was only 8 or so months left on the production, meaning that due to the extremely tight schedule, there was simply no time to train me on the particular package. Fair enough.

Of course the problem we face here is that it is not always a viable option to learn every single program that you can. This is because it can be expensive (if you do not wish to be limited by the restraints of a demo version of a program), as well as unnecessarily time consuming - you'd be spending a whole lot of time trying to learn everything instead of focusing on doing great work.
Since this article is aimed at beginners, the best advice I can therefore give is:
Totally focus on your skills until you would consider yourself to be a good artist. Only then should you start to consider experimenting with other programs. Even then, you don't necessarily have to become an expert in all packages - often even a cursory knowledge of the program is actually sufficient to port your skills over to it and start creating.

Where can I find tutorials and learn the program I have chosen?

Start off with your software manual. Most programs come with manuals that are suitable for beginners - don't be afraid to read them. Many people are put off reading manuals because they feel that they are boring or might be too technical. Hogwash. Your manual was included in your software for a reason, so use it.

Lots of packages also come stocked with a horde of tutorials and other learning materials. Go through them! Tutorials are a great way to learn programs, especially if they explain why things work the way they do. Check your software documentation and discs to see if any learning material was included.

The internet offers a vast wealth of learning materials for software packages. Google is a great place to start. Using a search engine can yield great results that should keep you occupied for hours on end.

Participate in online communities. Sites like CGTalk.com (okay I am plugging this because I help

run to dang site!) are fantastic for getting help and for learning from the techniques and advice of others. There are many other forums on the net that offer loads of information for all artists, both beginner and veteran alike. Don't be shy to register with some forums and ask questions, even if they seem a bit silly. Many experienced and professional artists hang out on forums and are happy to share advice and help you with your learning process.

CGTalk has individual forums for each of the most wellknown 3D packages, each packed with a vibrant community who is there to help. Most forums have collections of tutorials in them, and you'll find members who can help you with crits and advice. Make the most of modern communication technology by actually making use of forums like this.

Take Some Initiative

It is very important to have initiative and tenacity if you wish to succeed in this field. If you encounter a problem, try a few things to solve it or read your manual to see if you can find the answer. Don't give up on something the moment it becomes difficult, or you will never get anywhere. Even when you get to the stage where you are working in a fancy studio, you will still be learning new things all the time, and having to constantly adapt to new techniques, technology and demands. If you never learn to take the initiative of working through problems, you will buckle under the stress and you'll probably end up losing your job.

Should I study for a Degree in CG?

Another hotly-contested and debated subject is that of education. Some people are really in favour of it, while others are deadset against it. In my opinion, nothing learned is ever a waste, and thus I am in favour of education myself. If you can afford to go to school, then go for it. The advantages to going to school far outweigh the disavantages that some people claim.

Sure there are many people who are self-taught, who are fantastic artists, but not everybody has the discipline to push themselves at home to work hard at developing and improving their skills. A good school, on the other hand, will keep you challenged with constant assignments. It is also very important to receive criticism for your work, and your instructors at school can provide insightful and constructive feedback to ensure that your work constantly improves.

Another good reason to go to school is that education can be an issue if you move to another country. The VFX and animation industry is one that is growing rapidly all over the globe, and many artists like to travel to other countries to go work in studios there. Immigration officials are

much more inclined to issue work permits to people who have formal education (this is a fact). In light of this, a qualification in the field could be essential in some cases.

However, in terms of actual studios, not many of them require a formal education. In most cases, experience and skill are the most important.

If you are interested in studying CG, then perhaps it's time to start looking for an appropriate school to attend. I compiled a lengthy list of schools around the world (and constantly update it) on CGTalk in the General Discussions forum.

I would like to stress that a self-taught artist is in no way inferior to a schooled artist. My point here is that education can occasionally be an issue, and that if artists have the opportunity to study, it is something that they should definitely consider. Many artists will continue to learn on their own upon completion of their studies anyway.

How Long Does it Take to Get Good?

This is entirely up to you. Some people take a few years, some a few months. People learn and develop skills at different rates. Don't feel bad if you have been working at it for two years but aren't as good as some other artist who has been working at it for the same time. Everyone is different. While it is important to challenge yourself, remember not to jump in at the deep end too soon, as it will most likely only end in disappointment. Practise makes perfect.

What Defines Good Work?

An artist who takes pride in their work, is able to accept criticism, works hard at their skills and strives to constantly better themselves, generally produce good work. Watch some films with great VFX or play a game that has spectacular graphics, and compare your work to that. Set yourself goals to achieve. Develop an attention to detail, and push yourself to create great looking stuff. This is the only way to get good at CG.

Does Drawing Help?

Ask this question on a public forum if you want to start a war. The fact is that nothing learned is a waste, and frankly, the fine arts training that I had before I studied CG has helped me enormously over the last few years. Learning to draw properly helps you to understand form and proportions, which can help you a lot in modeling. So yes, I do strongly believe that drawing lessons can help

a lot.

Traditional painting can also be a great skill to have, as it helps you to work with colour and light. Good painters have a highly developed sense of mixing and reproducing colours, and I would personally recommend painting lessons to anyone who is struggling with texturing or lighting.

I am crap at drawing. Does this mean I'll never be a good CG artist?

Despite what I have said about drawing being beneficial, there is no real reason why you cannot be a good CG artist if you cannot draw. However, people who are very good at drawing and do so regularly are likely to find the process of modeling a bit easier, as they are trained to deal with proportions, space and shapes. If you wish to improve your skills, take a drawing class.

How Difficult is it to Get a Job?

To be blatantly honest, this industry, especially in the States, is heavily saturated. This doesn't mean that you cannot get a job, but what it does mean is that you have to be very good if you want a job. You cannot expect to start applying for work just because you have modeled your first head and a few axes and now think you're going to make a great addition to the team at Blizzard. You have to be realistic about these things.

Take a look at the quality of work in films and games at the moment. If you honestly feel that your work matches up to it, then go ahead and start sending out some showreels. Don't be disheartened if you do not hit the jackpot straight away. If your work is great, you will eventually get a job.

Why do Studios Always Want Experienced Artists?

Having experience is a lot more than simply having been doing 3D for a long time. An artist who has actually worked in a studio before has had to adjust to specific pipelines, crazy deadlines, working in teams and various other things that an artist simply working from home has not necessarily experienced. This is why experience is a major plus factor, even if some of the work that an artist has done in a studio is not exactly the best. The fact is that they nevertheless have gained certain experience in doing so.

Does it help to Know People in the Industry?

Many people have said that if you are looking for a job, then it comes down to who you know and not what you know. This can definitely be true in many circumstances. Networking and making good contacts and building up a good reputation as an artist can do half the work of landing yourself a job.

How Much Money Will I Make?

This depends on what part of the world you are in, how good your skills are, and how much experience you have. Frankly though, if you want to be stinking rich, then CG is not really the ideal career for you. Sure, you can earn a great living, and if you can get together the capital to start your own studio that then becomes very successful, then of course you stand to make a lot of money, but generally working as an artist on the pipeline you cannot expect to one day own a mansion on the coast.

Since it's difficult to mention any actual figures (as mentioned, this can vary so much), it's impossible to really give any hard facts here. But rest assured that even a junior artist should be earning enough to pay all his/her bills comfortably.

What is a Demo Reel?

A demo reel is an animation artists portfolio. When applying for jobs in this industry, it is standard to provide the studio with some kind of reel showing your work.

What format should I create my reel in?

These days, the safest bet remains VHS. While lots of people are wanting to go the DVD route, the fact remains that it has not yet become as standardized as VHS is in studios. Other problems with DVDs include zone issues (although you do get zone-free discs now), as well as general performance issues. The latter also applies to CD-ROM reels. Particularly interactive ones. I have had to sit and attempt to navigate through more interactive CD-ROM reels that I would have liked over the last few years. Why should the people viewing your reel have to navigate through "flashy, cool" menus to see your reel? The chances are more likely that your CD-ROM/interactive DVD will end up in the trash. Discs also have the problem of being far more sensitive and the chances of being damaged are much higher than in VHS.

How do I get my work to tape?

Some video cards can output to tape, but be sure to check the quality before sending it anywhere, as many of the popular cards that have this feature do not actually produce great quality output to tape. Alternatively you can take it to a place that offers digital to tape transfer services, which generally aren't too pricey. Be sure to render your work at the correct resolution (720x576 for PAL and 720x486 for NTSC) to ensure that your work looks okay on tape, and is not stretched. It's also best to render with decent levels of anti-aliasing to eliminate noise in your renders.

What is a Good File Format for Rendering To?

This depends on what you are going to do with the render. If you are going to be uploading it onto the web for other people to see, then you will need to save it as an .avi (Windows Media) or .mov (Quicktime) file. These file formats are for clips, as opposed to single images. When you are needing to render to a single image, one of the best file formats is Targa. A 32-bit Targa file also includes an alpha channel that ignores the background of your render, so you can then put the model onto a different background in a 2D program like Adobe Photoshop. From Photoshop, you can then compress the image and save it as a JPEG file if you wish to upload it to the web.

When working on an actual production, you generally render animated sequences to images as well. This is because compositing is invariably required. Compositing is when the 3D elements that have been created for a production are added to any filmed footage, or any backgrounds rendered seperately. Popular compositing packages include combustion, After Effects, as well as high end systems like flame and Shake.

What is the Best Method of Modeling?

Again, this is something that varies from artist to artist. While there are certainly guidelines as to ensuring good polygon flow in your model, there is really no "best" method of modeling anything. Artists must use whatever method they feel most comfortable with.

Some people like to box model, some people like to model poly-by-poly, others like to model with splines. There are so many ways to do any one particular thing that as long as the end result looks good and can move (if necessary) without problems, then the method you used to get there really doesn't matter at all.

What are NURBS, polygons and sub-d's?

While box modeling and spline modeling are defined as modeling techniques, you can think of NURBS (Non-Uniform Rational B-Splines), polygons and sub-d's (subdivision surfaces) as building materials. They are like the bricks that make up a wall. Polygons are basically the three- or four-sided (sometimes more, then called N-gons) shapes that make up models. NURBS and sub-d's are similar to polygons in that they also generally have three or four sides, but unlike polygons, they can curve - a polygon becomes non-planar when you try to bend its shape, while NURBS and sub-d's can bend easily. Think of a polygon as a piece of metal - if you lift one corner of it, at least one other corner will lift as well. While NURBS and sub-d's can be equated to something like fabric, that can bend as you wish. Polygon modeling is the most universal modeling type, while sub-d's and NURBS are suited more for organic and technical models, respectively. While these are not hard-and-fast rules, they are generally what is practised.

How Should I Begin with Modeling?

Start with simple things, such as household items. Chairs, tables, etc are a great starting point, especially since you have plenty of reference right at hand. Once you are more comfortable with your tools, it is important to challenge yourself with more complex modeling, or else your skills will stagnate. Move onto organic shapes, and perhaps even simple characters, once you have successfully managed to create basic to intermediate items. Don't try and model complex characters too soon though, or you might end up stuck and frustrated. It is important to set yourself realistic goals that will challenge your skills, yet are feasible for you to complete.

Once you are comfortable with modeling all kinds of things, then perhaps try out some texturing and animating... from this point onwards, you can do anything you want!

Any Advice for a Good Portfolio Website?

▪ Make it simple. There are few things more annoying than "clever" navigation ideas on a site that make the site difficult to navigate. If the HR person visiting your site cannot locate and load your gallery quickly, they're going to lose interest.

▪ Make it attractive and make some effort with the layout and design, if you're actually going to do any layout/design. It's funny how many artists have really badly-laid out sites with horrible graphics. We're supposed to be visually advanced, and yet there are many sites with badly chosen colour schemes that make the text difficult to read, and have downloaded flashing GIFs

and repeated backgrounds all over the place.

▪ This is more of a personal note, but I don't think it's ever a good idea to put work that you did according to tutorials on your portfolio.

▪ Try to have images that are not too compressed and make sure that they are a decent resolution. JPG compression, in particular, can make images really muddy, and displaying images at a decent resolution (this means no 240x320 renders!) means that all the details can be seen properly.

▪ Most importantly of all - **put only your BEST work up on the site**. An employer is not interested in hearing you say "oh but this piece over here is like 5 years old and I actually don't like it much blah blah".

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This PDF will be updated periodically to include additional information.
Please feel free to contact me at leigh@cgcommunity.com if you have a question that you'd like me to include.