



The Creative Inventor: Five Great Tips

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The Creative Inventor

Information and tips for the Manufacturing Engineer/Designer

Welcome Change

If you are new to using Autodesk Inventor®, learning a new CAD system might appear to be a daunting task. Here are a few tips for a successful transition:

- *Embrace Change* – a person cannot resist change and still grow as a human being, or even an engineer. Our world is constantly changing around us, and like mutating insects, we must change to survive also.
- *Human Nature* – it is human nature, to resist change. You are not alone, we are all in that same boat.
- *Age* – you are never too old to change. Even old dogs like myself can and do still learn on a daily basis. Never stop learning.
- *Inventor is not AutoCAD®* – this unknown quotation echoes around constantly in newsgroups and training classes. Understanding this is your first step toward learning a new CAD system.
- *You do not know it all* – if you believe that you do, then you have stopped learning anything. We all can learn, especially from others.



Find a Mentor

We all need a teacher or, at the very least, someone who can mentor us as we learn new and obscure approaches to design. That person should be:

- An experienced, current Inventor user who can discipline himself to only provide factual information and approaches to design problems. There should be no bad habits transferred to a new user.
- An instructor well-versed in both the software and in your industry, who can provide information on the software, and a workflow that will be appropriate to your needs.
- *The discussion forums* at augi.com and autodesk.com provide a wealth of information and assistance to beginners and experts alike. Be sure to read the FAQs and ground rules for these sites before posting questions of your own. Keep in mind that these forums may contain some inaccurate information; however, moderators and other users try their best to correct those errors.
- *Join a local user group* – AUGI sponsors many locally organized user groups. Join the fun, meet new friends and associates, and learn something new.

Get Training

If you think your education years have ended, think again. You wouldn't want to use a doctor who stopped learning when he graduated from medical school. The same applies to engineers and designers. Here are things to look for in training:

- *Opt for live classroom training if possible* – locate a qualified instructor who understands your industry and does not merely parrot instruction from the textbook. Ask lots of questions, take notes, and do your homework in locating an instructor.
- *Web-based live training* – just now hitting the Internet, a quality class will allow exactly the same feedback as live classroom training, but with a twist; web training is available that fits your schedule, without sacrificing quality. Again, do your homework.
- *CD and published tutorials* – locate a quality tutorial that allows for feedback between the student and a mentor who can answer questions and provide solutions. Merely following a tutorial will not help you learn how to apply what you've learned to your application.
- *Don't need any training?* – sure, you may learn on your own, but you will be shortchanging yourself and your company. You may require 4-6 months of self training to accomplish what a good trainer can teach in a week. Teaching yourself is a good way to acquire are many bad habits in the process.

Burn The Hours

In the real world, we measure a pilot by the number of hours in the air, a surgeon by the number of successful heart transplants, a builder by his experience. Achieving these goals requires many hours of study and practice, as well as actual use. Here's a few ways to productively use your time:

- *Reading* – yes, I know it's a lost process, but it's a proven fact that good readers are fast learners. The more you read about 3D modeling and Inventor in particular, the more versatile and productive you will become.
- *Internet* – Google is a great tool to find information on a problem. Learn how to do productive and accurate searches and the information is at your fingertips... instantly!
- *Doing* – the way to become an expert in using Inventor is to actually use the software. Reading a book about Inventor, but failing to practice is a waste of time. Many of my students complained that there is no time at work to "play" or perfect their skills. However many of them spend their lunch break cruising the Internet or playing video games. Instead of wasting your time on something that



will not put money in your pocket, bag your lunch, and use that time to play with Inventor and explore areas that are outside of your work experience.

- *Challenge yourself* – take parts or mechanisms that you see in the real world and try to model them accurately. One excellent way to challenge your thinking is to download the monthly challenges from the **Inventor World Cup Challenge**.
- *Take It Home* – if your company is on Autodesk subscription, you may ask your company for permission to use a free **home user license**. It's legal, as long as your company's subscription is active, and you are still an employee. Now, instead of watching <ICSI< i>or playing video games, you have really something productive to do with your computer!

Think "Lazy"

Some of the smartest people I know are very lazy, and yet they are very successful. Why is that? A truly lazy person will look for the fastest and easiest way to successfully accomplish any task. Here's how to become "lazy" with Inventor:

- *Simplify your sketches* – in AutoCAD we tend to put the kitchen sink into every view. Concentrate on creating more sketches for features, rather than trying to incorporate every feature into one sketch.
- *Learn Design Views and Level of Detail (LOD)* – learning how these two options function and coexist will be paramount to fast and productive assembly modeling.
- *Learn the tools* – a craftsman is only as good as his knowledge and skill of the tools he has at hand. Practice!
- *Use the embedded help tools* - Inventor has a wealth of help functions in nearly every command. When in any command, picking F1 or selecting the dialog question mark icon delivers the exact help to your screen.
- *Develop a simplified design workflow* – if you take five engineers or designers, and assign them each the same part to design, you will probably have at least four different workflows for creating that part. Possibly two or three will accomplish a stable and editable part, with the remainder either failing to create the part or creating a part that will be difficult to edit downstream. Understand how a 3D modeler works, regardless of software brand, develop a workflow that creates a stable model, and stick with it.
- *Imbed Design Intent into every model* – **design intent** is the intelligence that is preserved within a parametric model, that allows easy and predictable modification while preserving the part design.
- *Do not be afraid to ask for help* – even doctors suggest a second opinion. When you get stuck on a problem, don't waste days on it. that's what mentors and discussion forums are for, so use them!

If you have questions regarding the use of Autodesk Inventor, please do not hesitate to e-mail me, or visit the AUGI manufacturing discussion forums by clicking the Discuss This button below.