

# Computer Animation Education: Keeping It Simple

William J. Joel  
Computer Science Department  
Western Connecticut State University  
Danbury, CT 06810  
joelw@wcsu.edu

Abe Echevarria  
Art Department  
Western Connecticut State University  
Danbury, CT 06810  
echevarriar@wcsu.edu

## 1. Introduction

When teaching computer animation, one is often torn between teaching students the essential principles, and introducing them to the tools they'll need to enter the work force. This pedagogical dilemma is further compounded by the vast array of software and hardware tools available. Given this scenario, how could an instructor ever hope to satisfy all students?

Our approach to teaching computer animation has been to “Do more with less”. That is, to provide students with simple software and hardware tools, as well as well-focused exercises that can provide students with the structured practice needed to become proficient animators.

## 2. Fundamentals Vs Tools

As hinted at above, there is always a tug-of-war between teaching fundamentals and teaching tools. It's not that both cannot be addressed in a single course. Rather, it's from which perspective lessons are drawn. In our courses, we have chosen to use a fundamentals approach, which has acted as the guiding principle for choice of software/hardware, and design of exercises.

### 2.1 Animation Tools

During a panel at SIGGRAPH 2001 [Smolin 2001], one of the panelists stated that at the introductory level the most important thing a student could do was to animate, animate, animate. The speaker went on to state that simpler animation tools (such as Blender, 3D Studio Max, and Animation:Master) were more appropriate because they placed tools into students' hands to accomplish this goal.

We'd like to suggest that faculty choose, for an introductory course, animation software that is less extensive than products such as LightWave or Maya for several reasons. First, many of these more “complete” tools require a significant learning curve before being able to create meaningful animations. Second, by not providing students with every “bell and whistle” available, they become less distracted by the tool, and can focus on the task at hand. Lastly, with a nod to the above mentioned panelist, simpler tools generally come with a much lower price tag, and are often

freeware (Blender). This allows students to own their own copy and therefore animate, animate, animate.

An additional benefit of choosing simpler tools for introductory classes is that they tend to require fewer computing resources. This can translate into the ability to purchase many more licenses for the tool, thus loading it onto a significant number of workstations. More advanced tools can then be purchased, in limited quantities, for intermediate, and advanced, courses and projects.

Once again, it should be emphasized that by providing students with simpler, but not simplistic, tools they are often less distracted and more able to focus on learning and applying fundamental animation principles.

## 3. Exercises

There's nothing wrong with a student wishing to create the next computer animation masterpiece, but not necessarily within the confines of a single, introductory course. At this stage in a student's learning process, it is perhaps more appropriate to construct exercises, each of which focus on one or two fundamentals, while restricting students from exploring other aspects of the tools they are using.

It's no surprise that Walt Disney Studios have long been known to “re-educate” entry-level animators by initially having them animate a flour sack. The beauty of using such an amorphous character is that things like arms, legs and heads don't get in the way – literally. In one of our courses, we foolishly allowed student teams to create animations of their own, with very little restriction. This led to one team suggesting a rather complex animation of robots fighting on a barren world. Sound familiar? It took some imaginative work on our part to cut this project down to size, such that we were sure the team could finish it on-time. The lesson learned, here, is to incorporate multiple restrictions concerning what students “cannot” do, as well as what they can. These restrictions are, in the end, less limitations than they are guideposts that lead students to successful completion of their projects.

Also, by requiring students to create multiple “short” animations, each of which is meant to address a particular principle, students can acquire sufficient practice in needed fundamentals. This can lead to a final project, where students will spend less time “learning” skills and more time applying them. And yes, it can be done in a single course; just be hard-nosed and say “No” when students want to play with those features you know are too advanced.

## References

SMOLIN, J. (ORGANIZER) 2001. Traditional Skills, New Tools. In *Conference Abstracts and Applications, SIGGRAPH 2001*, ACM Press/ACM SIGGRAPH, New York, Annual Conference Series, ACM, 79-80.