

Student-Made Textbooks

How to Boost Enthusiasm, Learning and Creativity in the Classroom

by Stephen Knudsen

One of the most valuable tools I have used in my 22 years of teaching is the student-made textbook. The simple premise is this: It is not the reader of a text who learns the most, but rather the author. I have witnessed the remarkable effectiveness of the student-made text used both at the K-12 and college level, in a wide variety of courses from fine art to science. When a student makes a textbook in a course, the student engages daily in all classifications of learning, as illustrated in the revised Bloom's pyramid (shown right). If students are only asked to memorize facts, learning often becomes tedious bottom-feeding at the base of the pyramid. Boredom. But when students are asked to make a textbook, they are required to remember, understand, apply, analyze, evaluate and create. The results of this process are often nothing short of astonishing.

Components of the Textbook

So what does a student-made textbook look like? Let us be clear: It is not a notebook. In order for the book idea to work, the educator and the student alike must believe that a real textbook is being made. Notebooks do not elicit the respect necessary for the job. They serve a good enough purpose, but are soon relegated to life in an attic or landfill after the course. A true textbook, on the other hand, will include some (but not necessarily all) original diagrams, exercises, graphs, experiments and analysis, and is presented in a way that enables another reader to use the book as a reference.

I recommend using a hardbound drawing journal filled with blank white paper (8 1/2" x 11" is a good size). I do not recommend a soft cover book. Hard covers create the *sanctum sanctorum* for these white pages, which will soon exhibit the exciting labor of authorship.

Textbooks should be organized in chapters, with page numbers, table of contents, introduction, etc. Designate the last 20 pages of the text as an appendix. By organizing the book with classic textbook structure, it becomes more respect-

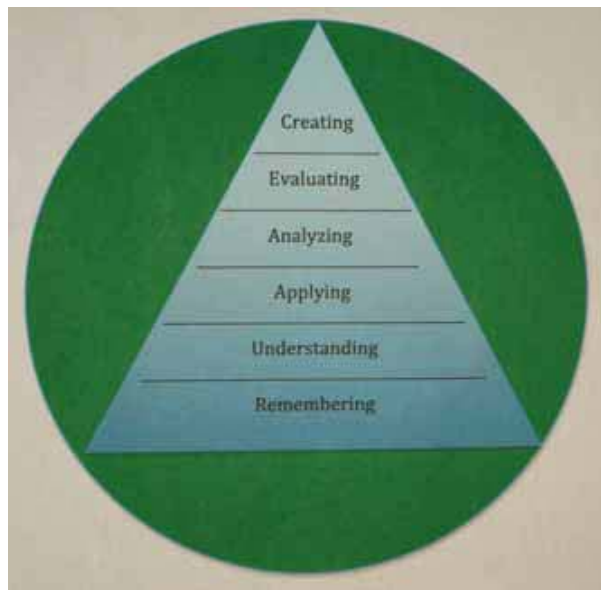


IMAGE COURTESY STEPHEN KNUDSEN

Revised Bloom's Taxonomy of Cognitive Objectives

This is an example of a student-made diagram for a student-made textbook in an education workshop I taught. After looking at examples of diagrams in the literature, students were asked to make their own diagram, one that improved on content delivery. In this example, the placement of the pyramid onto a green circle addressed two goals: First, it is a graphic nod to the fact that the revised pyramid (revised by Bloom's student, Lorin Anderson, in the 1990s) comes out of the background of Benjamin Bloom's original work in 1948, and says something about the name Bloom and the idea of growth. Second, the addition of a circle suggests the idea of daily cycling through the various modes in the learning process, rather than adhering to some strict linear progression.

ed, boosting effort and enthusiasm. Also, when students take pride in their authorship, they will keep the book and revisit it later in life, ideally adding to it long after the course.

Creating a Cover

Real student design input can begin the first week of class, with the design and creation of the book's cover. This project will get students excited about their textbook and clarify the intention of making an original textbook with the personality of the maker.

Before your students begin their book covers, consider giving a short lecture on 2-D design principles. Students can take notes in the appendix section of the book. A short essay on 2-D design written by the educator and/or student could be included as well. The criteria for the book cover can be written out as a general explanation of the design, as though it has already been made. This explanation could go on the inside of the front cover. Here is an example:

There are three design ideas exhibited in this front cover. First, we see compelling complexity via contrasting formal elements, con-

trasting pictorial thrusts and regions of emphasis. Second, we see inviting unity through use of repeating formal elements, rhythm, enclosure and proximity. Third, in the design, we see a form of intensity called urgency. The content of this book is delivered via subject matter, lettering and formal decisions, which render the message immediately recognizable to the reader.

The student could then make the design and add even more cause/effect analysis describing what they have done. Comments from a group critique could also be added to the explanation. In this manner, the book cover project exhibits a good blend of the student's efforts with faculty and peer input.

Projects to Include

Let us consider the types of student projects that could be included in the textbook. Brief "lecture pause" exercises are not only great additions to the book, but can bring any day-dreamers back into the fold and give everyone concrete clarity to an abstract lecture. For example, the educator might give a short lecture on the dimensions of color. He or she might lecture on the concept of lightness being a function of value and brightness being a function of saturation. Students could put notes from the lecture into their books. At the end of the lecture, the students would demonstrate the concept in paint, in their books. The following exercise would work well:

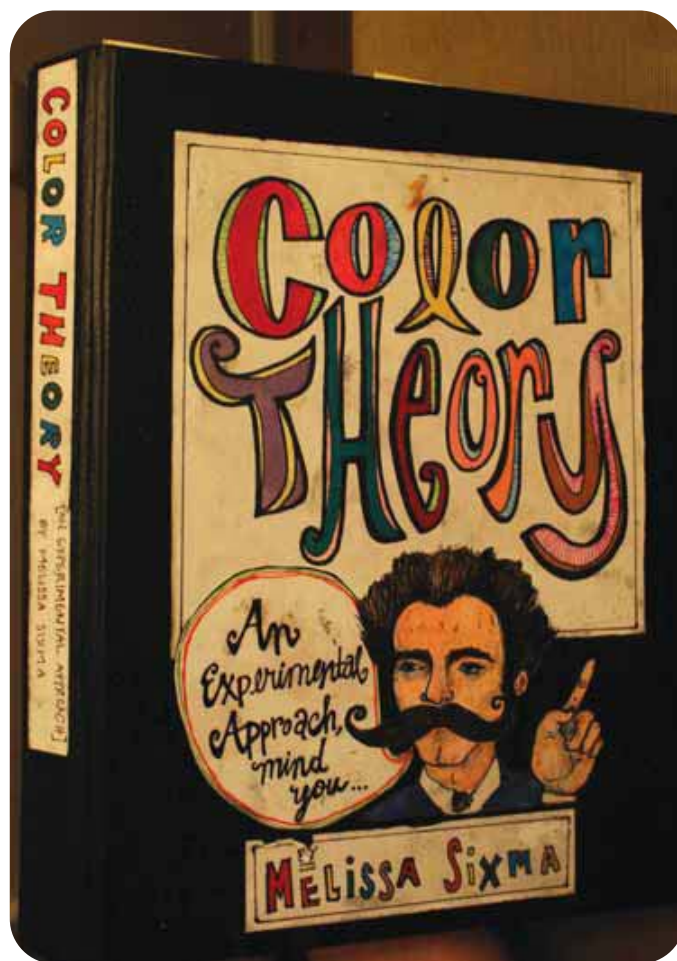
Paint a dull swatch of red adjacent to a bright swatch of red, and make the two swatches the same value. Place a note that the two swatches are the same lightness but differ in brightness.

The exercise could then be graded as the students are working, with the whole pause in the lecture lasting only about 10 minutes. Lecture and/or discussion could then resume with greater clarity and with minds refreshed.

Three-hour medium level projects could be done as intraweek homework. These projects might involve doing more complex exercises, diagrams, short analytical essays and/or literary research. While inserting typed sections with a glue stick creates a cleaner layout, writing directly into the text for at least some of the work is a good approach (it certainly served Leonardo da Vinci well). Though seemingly primitive for a textbook, taking notes directly in the book personalizes the text and allows immediate chronicling of lectures, discussions and critiques. It also allows the student to process the information differently than if typed. A good balance would be to handwrite class notes and short homework analysis but to type and insert more formal essays.

Weekend homework projects with student analysis, requiring six to 10 hours, can also add a great deal to the text. In a 2-D design class, students might do a major project on the principle of complementary buffering. The following is possible criteria which could be included in the text:

Make two compositionally dynamic, complementary designs identical except for one independent variable. Make one unbuffered (design A) and one buffered (design B). That is, make one with a full measure of adjacent complementary colors. Then, in a second version, a minuscule amount of one color is mixed into all of the colors in the design,



This is the cover of a 190-page student text made in a college Color Theory course I taught.

IMAGE COURTESY MELISSA SIXMA

essentially giving the complementary design a hint of an analogous quality (namely a group of colors with a color in common).

This project could then be followed by an experiment. A group of test subjects could be asked if designs A and B are both complementary and if they are both dynamic. The hypothesis might be that the answers will be yes. Even design B will be viewed as complementary, since it only has a bit of almost undetectable analogous flavoring. Next, subjects are told to choose one design to look at for a period of five minutes. The hypothesis is that they will choose B, the buffered design, because it has almost as much complexity as A, but has more pleasing unity (due to the analogous touch), and because it does not have any irritating complementary vibration at the interfaces. All of this could be done directly in the text, including chronicling and analysis of data.

Twenty-hour (or more) projects with analysis can also be beneficial in the text. These projects are less frequent (possibly just one or two throughout the duration of the course), and students are given approximately five weeks to execute each project. These can be very large projects that get photographed and placed in the text as a color plate.

Not everything included in the text must be created by the student. For example, color plates can be provided by the educa-

tor and/or printed from the literature by the student for placement in the text. In a course that I teach on color issues in painting, I provide students with many color plates, one of which is of Gustave Courbet's painting, *Burial at Omans*, 1849-1850 (a public domain image). The student then writes an analytical essay on the painting that gets placed in the textbook with the plate.

The Educator's Responsibility

The input from the educator also should not be understated. Rather than letting students completely loose, be sure to guide them, chapter by chapter, all the way to the conclusion page. All students can essentially cover the same content (but in a way that personalizes the information), and the pages of all the different texts can synchronize for ease of reading. Regardless of what you, as the educator, bring to the table as a general structure, it is essential to be open to the think-tank of students. Projects, literary research, experimental research and other information not originally envisioned can be added to a chapter, and chapters that were never originally intended can be added. Letting the text develop organically within a flexible structure will put the student into an exciting position of influence.

One might think that student text-making would be a great burden on the educator. If students are doing so much more work than what might be typically done in the course, doesn't it become a grading nightmare? To the contrary, I have found that text-making keeps grading more organized and logical. All projects, writings and diagrams are being placed in one location, namely this hardbound text. Daily grading can be done on the spot, with grades written directly in the textbooks as students are given some in-class time to complete a small exercise in the book, say after a lecture or demonstration. The textbook might then be returned in at mid-term and end-term to add up individual grades, resulting in an average grade for the overall book.

Of course, the greatest benefit to the educator is a room



The drawings shown here are by college student Melissa Sixma for a chapter on atmospheric perspective in her color theory textbook. This was approximately a 10-hour project. Her analysis was part of the project and can be summarized as follows:

In the first plate, color factors are used to get maximum depth. This creates a great feeling of height and a feeling of upward floating. It does, however, sacrifice some of the rhythm of shapes playing out on the 2-D surface. On the other hand, in color plate 2, atmospheric perspective was subverted, leaving less of a feeling of height and less of an upward floating sensation. Gained, however, is a poetic scheme of shapes playing out on the surface. Also, the linear perspective in the work acts as a catalyst to get the mind to spontaneously generate some atmospheric perspective and feeling of depth. This second version then, has, in fact, not lost all 3-D sensation.

Editor's Note:

While this article was intended to help art educators discover an innovative way to reach their students, the idea for creating a reference book can be easily adapted for any artist. If there is a particular technical issue you have been encountering, or a subject in which you would like to become more of an expert, such as color theory, try creating your own textbook. The research you put into crafting your own book will likely be far more beneficial to your skill level than simply reading another author's book. Plus, you'll be able to apply what you learn as you go through the book's creation.

full of inspired and hard-working students involved in effective learning with long-term impact. My experience has taught me that students want to create in courses even outside the arts, and that text-making in any course, even in chemistry or math, is worth consideration. When drawing and design are practiced in courses other than an art class, artistic skills are fostered in contexts where they usually do not get used. This idea lends itself to art educators working in tandem with educators in other fields. When this happens, everyone benefits. **AC**

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