

Creative Expression on the Digital Canvas: An Online Digital Art Class

Jeremy Sutton
jeremy@portrayals.com
www.portrayals.com

This paper discusses how I have created and taught an online digital art class. The focus of the class is creative empowerment. The goal is to encourage and facilitate students' creative expression on the digital canvas, harnessing the unique benefits of the digital medium both as an exciting, versatile, and powerful medium for painting, and as an efficient and convenient medium for worldwide communication and interaction.

I explain the background to this class, the choices I made in curriculum structure, technology, and marketing. I provide an insight into the way the class has evolved, sharing my experience implementing the course – the successes and pitfalls, the lessons learned along the way. And I provide a road map that can encourage and assist others who are interested in teaching their own online classes, or who are considering becoming online students.

An Overview

This online digital art class, a 10-week cross-platform course, teaches students:

- 1 To master incredible computer paint tools (MetaCreations Painter 5.0 with a pressure-sensitive stylus and graphics tablet).
- 2 Painting skills, applied to creating expressive portraits from the live model.

No experience with drawing, using the tablet, or using Painter is necessary.

Students are sent a ring-bound workbook that contains detailed notes and complete assignment instructions. The Internet is the principle means of interaction. Each week, students upload completed assignments into a virtual Student Gallery on the Web, where they can view each other's work. My students and I communicate with each

other via email. The class discusses relevant issues, and seeks information and advice, by posting messages onto a class email list. Each week, I select extracts from my critiques and communications with individual students, and post them on the email list.

The Digital Medium

Two distinct aspects of working in the digital medium are encountered in teaching this course: students learning to paint with digital paint rather than using traditional art materials, and distance learning via electronic means versus physically attending a real-time, in-person classroom. I shall consider each of these two aspects in turn.

Digital Paint

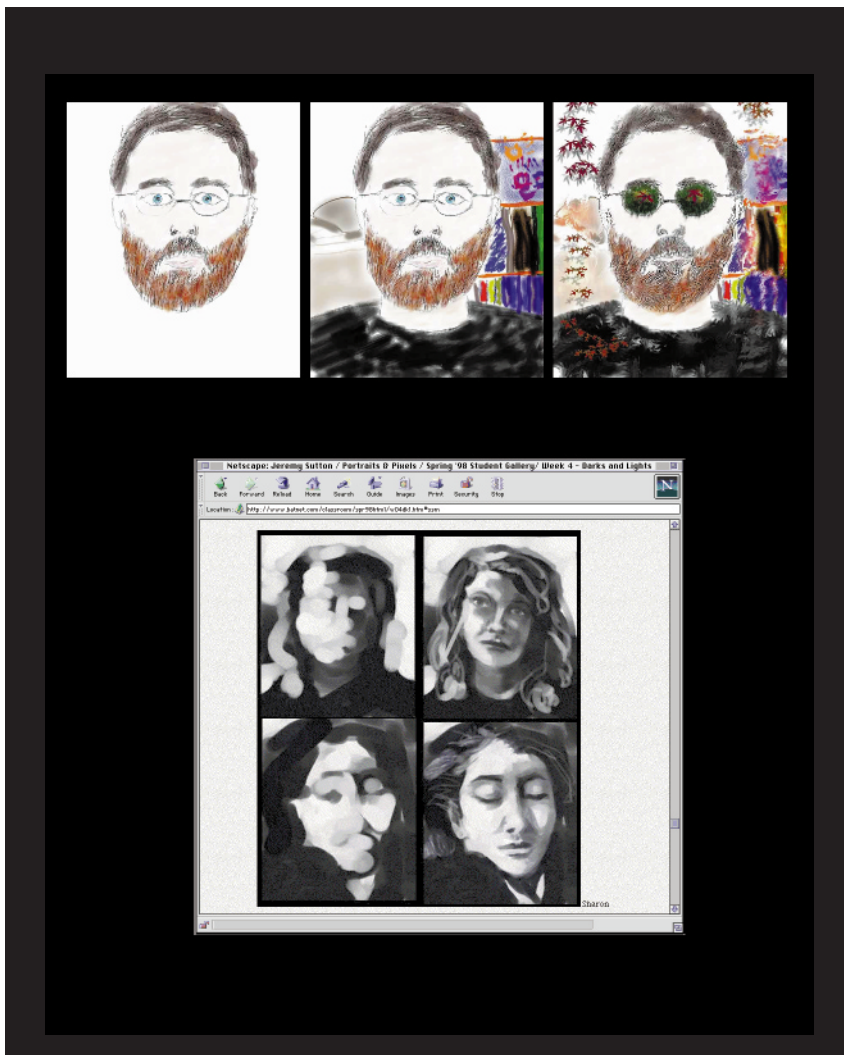
The computer has brought to our fingertips a number of unique advantages that make learning to paint on the computer easy and fun, including:

- 1 Convenient access to a vast array of brushes and art materials.
- 2 No need for a dedicated paint studio.
- 3 No mess to clean up.
- 4 Unlimited paper and paint (no need to feel precious about materials).
- 5 Forgiving medium (brush strokes can be easily transformed, erased, or undone).
- 6 Versatile medium (in seconds, you can go from applying oil paint to watercolor to the unique Image Hose).
- 7 Comfortable (the vertical screen avoids the perspective distortion encountered with a horizontal sheet of paper, and the tablet avoids the shoulder, arm, and wrist fatigue encountered when you paint on a vertical canvas).

- 8 Healthy (no poisonous or carcinogenic chemicals and solvents to deal with).
- 9 High degree of control (brush behavior can be controlled with greater precision than when working with a traditional brush or piece of chalk).
- 10 Large range of magnification (one moment you can zoom in and paint pixel by pixel, and then the next moment zoom out and see the whole painting as small as a stamp).
- 11 Record, playback, and use the creative process.
- 12 Share artwork across the world almost instantaneously.
- 13 Minimal physical storage space needed for paintings.
- 14 Convenient reproduction of paintings.

The main disadvantages of painting in the digital medium are:

- 1 Lack of tactile, olfactory, and audible stimulation. In other words, the sensual aspects of working with traditional materials, the feel of the paper or canvas, the smell of the paint, the sound of the charcoal. One student taped a sheet of paper to his tablet surface to imitate the resistive feel of working on real paper.
- 2 Lack of whole-body motion involved in the paint process. There is a tendency when working on a small tablet surface to become sedentary.
- 3 Potential UV radiation exposure, muscle ache, and eye strain associated with sitting in front of a computer screen for long periods of time.



- 6 One-on-one instruction at no one else's expense (typically in off-line computer classes the instructor must take time for each student at the expense of the available class time for other students).
- 7 In-depth critiques (the instructor provides a more detailed written critique than can be provided verbally).
- 8 Lack of inhibition (students avoid an instructor, or other students, looking over their shoulder as they work).
- 9 Simple communication (email is easy to use and immediate).

Here are student comments on why they chose an online course:

"Difficult for me to schedule my other activities around a rigid class schedule. Also the time to travel to/from class was important as I live in a fairly rural area"

"Less expensive... and I can work at my own pace without the possible concerns of how my 'work' compares to others."

"Freedom to assign my own time and place to do the lessons."

Online Instruction

Online instruction offers a number of unique advantages to students, as well as the instructor, including:

- 1 Geographical freedom (students and teachers can be anywhere in the world).
- 2 Temporal freedom (students determine their own work schedule and pace).
- 3 Economy (students avoid the expense, in both time and money, of going to a remote location for a

residential course. The online course fee is typically less than paying for a regular class, or paying an instructor for private tuition. Internet access and email communication is relatively inexpensive.

- 4 Self-sufficiency-an (online course provides the motivation to become self-sufficient).
- 5 Interactivity at a distance (the benefit of active interactive learning and one-on-one tuition with an experienced instructor from the comfort of the home or studio).

Drawbacks of online instruction include:

- 1 Lack of real-time, in-person contact, both between the instructor and students, and between students themselves. One student commented "I would love to meet everyone. That is the only drawback to working at home."
- 2 Lack of lively synchronous group discussions and critiques of each other's work.
- 3 Hardware/software problems (achieving trouble-free file transfer and communication via the Internet.

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How it All Began

In 1996, I was teaching a Painter class at San Francisco State University. During a staff meeting, there was an announcement asking for anyone interested in teaching online. I became intrigued with the possibilities. I posted a trial question on my Web site:

"I shall be teaching an online art class entitled 'Portraits & Pixels: Creative Expression on the Digital Canvas.' Please email me if you are interested in receiving more details on the class."

Over the following twelve months, I received almost 80 responses to my trial question. The magnitude of this response motivated me to make this online class a reality.

The Focus: Creativity, not Software

Prior to my online class, I had been teaching how to master tools, not how to be creative with those tools. My online curriculum focus is creativity, not software. I am launching my students on a journey in creative expression. The software and hardware tools are simply the vehicle chosen for this journey.

Guiding Principle: Simplicity

My guiding principle throughout the creation and implementation of this course has been simplicity. This has applied to the way I've structured the curriculum, organized class interactions, and harnessed technology.

Curriculum Development

The Magic of Computer Paint

My first step into creating a curriculum was to work out an organized and logical sequence of instructions that would familiarize my students with the use of the amazing digital paint tools. I needed to introduce basic concepts and guide the students through the Painter interface. My experience teaching Painter off-line helped me develop the first section of my course.

The Art of Portrait Painting

In the second section of my curriculum, the focus shifts from mastering tools to applying them. I analyzed the intuitive way I go about painting a portrait. I asked art teachers how they go about teaching their students to draw portraits. I read books to see how other artists have approached art theory and practice.

From this background research, combined with my own experience, I developed a series of practical assignments that would teach basic drawing skills, open my students' eyes to fresh ways of seeing, and lead them to create expressive and intuitive portraits.

The Workbook Concept

I considered delivering class notes and assignments via email, publishing them on my Web site, or distributing them as a PDF document on a CD-ROM. Students overwhelmingly said they wanted a hard copy workbook they could have open for easy reference while working in Painter on the computer:

"I need a hard copy to take notes in..."

"It is very important to me to have a hard copy to refer to. It is much more difficult to find something you want to refer to on the net than flipping through a manual."

The workbook is split into weekly sections, each easily located via divider tabs. The books are bound in a ring binder, which allows students to conveniently add their own notes, email print-outs, and artwork. I encourage students to make notes as they go regarding favorite brushes, problems they encounter, etc. The workbook builds up into a useful resource that students can refer back to. Small graphical icons denote where there is a key point, assignment action, warning, question, or optional exercise. The workbook is easy to skim and easy to refer back to

for specific information and instructions.

Workbooks are not the solution for everyone. The Corcoran Online courses have real-time lectures delivered in a virtual chat room. The University of Illinois at Chicago Biomedical Visualization online course in Electronic Illustration has all lecture notes and assignment instructions posted on their Web site.

Temporal Structure

Initially, I envisaged students beginning and completing classes at their convenience. However, as I got closer to making this class a reality I began to consider the following:

- 1 My need for periods of non-teaching time.
- 2 The complexity of instructing multiple students, all at different stages of a class.
- 3 The value of creating a virtual community of students, all taking the class at the same time and able to learn from each other and motivate each other.
- 4 The value of having distinct assignment deadlines and a defined course completion date for focusing and motivating students to complete their course work.

These factors led me to create my own semester structure. I decided to be flexible with assignment due dates, but firm with the final completion date for the semester. Corcoran Online and The University of Illinois at Chicago Biomedical Visualization online both have semesters with strict homework deadlines. The University of California Extension Online has an open-ended structure where students can work at their own pace and take up to a year to complete a course.

Workload

Instructor Workload

I am spending about 1.5 hours per student per week on direct communication. In addition, I am spending about five hours on "class business:" communicating with the whole class on general issues that have come up during the week.

My first semester, spring 1998, had a total of 15 registered students. Of these 15, three had persistent technical problems (computer crashes, difficulty obtaining software, etc.) that prevented their active participation in the course. The remaining 12 were my "active" students. Thus my total weekly workload was approximately 23 hours, and my semester total was 230 hours. This excludes the time put into writing the Student Gallery HTML code needed for each semester.

Student Workload

Most students spend between four and 20 hours per week (based on student surveys) on course study – a total course workload of between 40 and 200 hours per student. This compares with an estimated 30 student hours for a DigitalThink Photoshop 4 online course, 40 hours for a University of California, Santa Barbara Extension Painter (off-line) course, and 46 hours for a Santa Fe Photographic Workshops, Advanced Painter (off-line) course.

Students found that, in addition to taking the time to complete assignments, considerable time was needed in the first few weeks downloading software, overcoming memory problems and software bugs, implementing file transfer protocols, etc.. I have reduced the workload in the first two weeks, allowing a breathing space for overcoming technical problems.

Communication & Interaction

Commencement And Completion Rituals

I originally assumed all students would realize when the course started (it was on all the registration material). I was surprised to get an email from a student a week into one semester asking when the course was starting! This experience taught me the importance of introducing a commencement ritual.

Since that time, I always begin my courses by sending out a welcome email on the very first day of the semester. Likewise, at the end of the course I send out a thank you email.

Getting to Know Students

When students register for the course, they fill in a questionnaire that asks them about their experience, the equipment they use (important for troubleshooting), and what they hope to get out of the course. Their first assignment, a self-portrait, is the first sense I get of what they look like.

Tutorials, Guidance and Problem Solving

In my tutorials, I give positive feedback and encouragement, share my reaction to their work, comment on the assignment objectives, ask their reaction to their work, answer their questions, and make constructive suggestions. I am careful to avoid any negative judgmental statements.

An example of constructive feedback is the following suggestion to one student regarding his self-portrait assignment:

"I like your self portrait. It's well-proportioned and obviously based on careful observation. As an experiment go back to your self portrait and continue working on it: add your neck, shoulders, fill the canvas. Finally take that new version, don't look in the mirror any more, just work from your imagination. Be loose and free. Distort and transform your portrait, have fun with it!"

And his reply:

"I guess I was concentrating so hard on my head and face that it didn't really occur to me (to add neck, shoulders and background). So it was fun to go back and add to it this week."

The top three portraits in Figure 1 show the original self portrait followed by the two subsequent versions created in response to my suggestions.

Class Email List

I like to share students' discoveries and excitement with the class. Here are a couple of examples that I posted on the email list:

"I did have some trouble with the liquid metal process... I kept clicking 'OK' and then tried to apply the liquid metal, not realizing that the submenu needed to stay open..."

"Ahhhhhhhhh... did I get surprised at myself about drawing with my left hand. At the beginning I thought my work would be unrecognizable but I discovered I have strength in my left hand and could control my arm movement to design what I saw..."

The class email list has proved a useful way for students to share problems and views amongst themselves. Here is an excerpt from an email list discussion on the difficulty of getting a live model to sit:

"Is any one having troubles getting a model? Wish I could use my cats. They are always close by:"

"I'm having problems with live models too! I've set up a mirror next to my computer so that I can use myself as a model when live ones are in short supply. It was a bit of a problem with the upside-down exercise though!"

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"I've resorted to the cats. My cats like to curl up next to the computer while I'm working so I gave in and used them for that exercise and it worked out very well!"

Group Critiques

Although opinions may be more thought out, even less inhibited, when posted to an email list, a list lacks the spontaneity and immediacy of a real time virtual chat room, or of a real-time, in-person meeting of the whole class.

I advise students who are critiquing another's work, to begin with positive statements, say what they like about a piece and why, ask about techniques they see used, and combine any other comments with constructive suggestions and solutions.

Online, as well as off-line, group critiques have a valuable role to play in helping students learn from each other, and gain confidence in presenting and explaining their ideas and feelings.

Utilizing Outside Resources

There are very useful online resources that can assist both instructors and students. Part of my role is to know where these resources are and to seek outside help when I need it. I found it useful to go to the Painter email list. There were a couple of sticky technical difficulties that responses from the Painter email list were able to resolve.

Transmitting Data

One of the toughest technical issues has been transmission of assignment file data. Most assignments involve creating graphic images (JPEG files). Initially, students sent assignment files to me as email attachments. This became impractical due to bandwidth limitations.

The solution was a dedicated ftp site that allowed students to conveniently upload their assignment files directly

onto my Web server. The Student Gallery HTML documents were placed in the http directory of the class ftp site. Students now upload their assignment artwork, with carefully defined, Windows-compatible file names, directly into the Student Gallery http directory. Their work is immediately visible to me, the other students, and anyone else interested in visiting the Gallery.

Student Gallery

My original concern about introducing a Student Gallery on the Web was that publicly displaying their course work, which by its nature is often experimental and unfinished, would inhibit students. I also did not want to introduce the complexity of a password-protected site.

The students' reaction to the Gallery has been generally positive. They appreciate being able to see other students' artwork. It's motivating for them to know how the others are getting on. It's proved instructive to see other approaches to the same exercises. One student stated: "It will make us work harder now the entire world can see what we have done." Yet another wondered about students who "are somewhat shy, not wishing to have all their work in public." She also wondered "if one is concerned on 'what to display,' several valuable exercises will never see the 'day-light.'" Some students avoid looking at what other students have done in forthcoming assignments so as not to be influenced by them.

In the Student Gallery, the artwork of each class is divided up by assignment. Within each assignment Gallery page, you can conveniently select the specific student whose work you wish to see, or you can scroll through all the work uploaded for that assignment. At the bottom of each page are all the links to all other pages in the Gallery for that class.

Students mount their own work and prepare their files for uploading. Thus they gain experience presenting their work for viewing on the Web. An example of one students' uploaded artwork is shown in the lower half of Figure 1.

Cross-Platform and Cross-Browser Issues

Software/Hardware Interaction

In my workbook notes, I attempted to cover all the obvious cross-platform differences, such as keyboard commands. I also adopted the Windows-compatible case sensitive 8.3 file naming convention. Unexpected cross-platform problems still arose.

For example, a Windows-based student brought to my attention sporadic unwanted straight lines that were appearing on images as they were painted. An inquiry posted on the Painter email list resulted in confirmation that there is a potential conflict when a Wacom tablet is used in conjunction with Painter 5.0 on a Windows-based system.

File Transfer

In one assignment, I asked students to record a script in Painter. They were to create a painting that went through transformations in time. This exercise helps the students focus on the transformative and continuous nature of the painting process. I asked them to save the script into a Painter script library file and send it to me as an email attachment. My intention was to replay the scripts in Painter on my computer and see the students' brush strokes unfold. I could not get my Mac Painter to recognize Windows Painter script files. The problem turned out to be the different ways Mac and PC create and code file information. The simplest solution was to export the Painter script as a text file.

Another aspect of cross-platform and cross-browser behavior difficulty is

setting up the ftp file-transfer protocol. On the Windows platform, I recommended use of the software WS_FTP. It turns out that certain America On-line subscribers have problems using 32-bit ftp clients with Windows. They have to go into the help menu for About WS_FTP and make sure they have the 16-bit version.

The Cost

The class fee per student is \$475. This includes the workbook cost, shipping within North America, an online service fee, and a tuition fee. The time spent constructing the curriculum, publishing the workbook, administering the course, and creating HTML code is not covered by the class fee.

A sampling of other online and off-line course fees (as of 3 March 1998) are:

\$125.00 Digital Think (online)

\$320.00 Corcoran Online (includes registration and certification fee)

\$465.00 University of California Extension Online (AOL account is a prerequisite)

\$710.00 University of California, Santa Barbara Extension (off-line)

\$1065.00 Santa Fe Photographic Workshops (off-line)

Marketing

The primary marketing tool for my online class has been the World Wide Web. Of my first semester student body, four were alumni of Painter workshops I taught at the Santa Fe Photographic Workshops and eight students had come across my Web site and responded to my trial question.

Geographically, my first-semester student body included 11 from the U.S., one from Canada, one from the UK,

one from Belgium, and one from Brazil. I have informed MetaCreations, who now list my course on their Web site. I have encouraged online and off-line reviews of my course in webzines, user groups, and high-quality international magazines.

Visitors to the Student Gallery on my Web site get a very good idea of what my course can offer. The benefit of my online marketing is that it reaches a highly targeted audience. Those who reach my Web site are already:

- 1 Web savvy (they have access to and interest in online interaction).
- 2 Interested in computer art and/or Painter (they are visiting my site typically because of a link from another computer art site or because of a recommendation from a computer graphics or Painter user group).

Thus most visitors to my site are already pre-qualified to take my class.

Evaluations

My students are my best teachers. I always learn a lot from candid student evaluations. As the course progresses, I check back with students on how it is going. At the mid-way point, they fill in a survey assessing how the course is meeting their expectations up to that point. Finally, at the end of the course, I ask for a detailed evaluation assessing their overall impression, what they liked and didn't like, the course and workbook structure, content, delivery, assignment content and distribution, overall workload, and suggestions on how to make the course better.

Lessons Learned

The main lessons learned from my experience are:

- 1 Be clear about prerequisites. Warn students that they'll need dexterity

in using the Web and email. Let students know all the software, hardware, connectivity, and file transfer requirements. Encourage students to make sure everything works prior to the course.

- 2 Keep it simple. Stick to simple technology (where possible) and simple instructions.
- 3 Don't assume anything! Explain everything from the basics in methodical, precise detail.
- 4 Structure your instructions carefully. Break every set of instructions down into easily digested steps.
- 5 Start with basic, simple exercises. Give your students time to acclimate to the new learning environment.
- 6 Encourage interaction between students. They can be of great help and support to each other.
- 7 Give frequent positive reinforcement and constructive feedback.

The Future

My experience in creating and teaching my online art class has been an overwhelmingly positive one. I have been thrilled by the enthusiastic response of my students. I wholeheartedly encourage anyone to consider sharing or developing their knowledge and skills via online training.

Resources

A list of online Web-based training resources is available on the accompanying CD-ROM. Feel free to contact me, or visit my Web site, for further information on my online art classes.