Animating Art History for Teaching

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Abstract

Animating Art History is a creative learning methodology that incorporates new perspectives for introductory art history courses through digital technology created by computer animation and art history professors and their students.

CR Categories:

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1 Introduction

To overcome difficulties that students in introductory courses in art history have had in learning traditional concepts of art, the Professors of Art History and Computer Animation and our advanced students in the Fine Arts Department, have developed a new curriculum that synthesizes art history and animation. We have created animated spatial diagrams and sequences to teach several classical methods of the ancient Greeks and Romans which were revived by artists of the Early Renaissance artists in Florence, Italy: one-point perspective in pictorial art, *contrapposto* in sculpture, and dome construction.

2 Exposition

"Animating Art History for Teaching" has devised groundbreaking, collaborative methodology in animation for explaining difficult-to-understand concepts in Art History. It provides an innovative and three-dimensional perspective towards teaching and learning art history through digital media. Students who have created it have learned art history with self-motivation, new interest and practical experience.

This unusual collaboration between educators in art history and computer animation catalyzed a synergistic effect and an unusually original product--the product is greater than a simple adding together of our professional skills. As we collaborated, we discovered that principles central to the creation of sculpture, painting, and architecture as explained by art historians are the basic principles for animators. Z-Rhythm and Wave Principle, for example, refer to the anatomical structure and three-dimensional serpentine stance of *contrapposto*.

We also found it challenging to respect and harmonize the special qualities inherent in each of our fields--the accuracy, aesthetic connoisseurship and documentary evidence characteristic of Art History and the advanced technology, humor, and anatomical and spatial exaggeration which distinguishes computer animation.

Digital animation is not only an expressive art vehicle but it also can give the artist tremendous freedom to create 3D history with striking impact. Art history stories vibrate with reminiscences of ethnicity and time through pixels & resolution by using a visual vocabulary of NURBS curves, polygons, clusters, particles, reflection maps, motion blurs & raytraced shadows.

2.1 Detail

From the onset, teams of professors and students collaboratively developed research, ideas, choices of subjects, development of storyboards, character designs, modeling, material textures, animation, rendering, and output. Throughout the process, we actively listened to the unique insights of the students and to professionals from very different fields of creative endeavor. We struggled to maintain a balance between the correctness of the art history content and its pedagogical mission and the caricature and comedy inherent in animation.

Students animated Holy Trinity, a fresco in the Church of Santa Maria Novella, the masterwork of Masaccio (1401-28) who was a young and innovative artist in the fifteenth century as these student animators are in the twenty-first century. When art history students observe the animated version of Masaccio's Holy Trinity on a virtual turntable, they discover the three-dimensional constructs that Masaccio had had in mind in 1425 as he conjured linear (orthogonal) perspective and foreshortening in this seminal fresco. Because Masaccio was breaking from a late Gothic--flat--style of rendering the human figure and pictorial space, he had not fully mastered the mathematical and technical bases of his perspective pyramid which he centered below the cross on one point at the base. Our new video demonstrates this.

The David of Donatello(1386-1466) is as revolutionary as Masaccio's frescoes. This free-standing, nude, bronze figure depicts the adolescent Biblical hero who symbolized Florence. David assumes a complex but stock pose of ancient sculptures called *contrapposto* which had been devised by fifth-Century B.C. Greek artists. After Donatello revived it, *contrapposto* dominated the pose artists chose for standing male figures in sculptures [including Michelangelo's and Bernini's later sculptures of David), and painted portraits. Trying to explain the three-dimensional serpentine line and the exquisite balance of human weights essential to this classic stance has challenged every art historian.

In 1410, when Filippo Brunelleschi (1377-1446) returned to his native Tuscany, he designed a dome to cover the 138-foot-wide hole of the octagonal drum of the *Duomo*, Florence's Gothic-style Cathedral. Although Brunelleschi preferred the visual and geometric perfection of the hemispherical domes of the Romans, he had neither their

technological experience nor their materials (concrete), and so, designed a steeper profile. He solved the problem of raising such a large dome with an ingenious method of horizontal bands which interlocked the eight vertical ribs at the corners of the octagon with sixteen smaller vertical ribs, and, also, at right angles, to the twenty-four ribs of the inner shell of the concentric dome parts. These two shells were stronger but weighed less than a single one.

We selected these three pioneering Early Renaissance artists and their masterworks because they were contemporaries who knew each other, worked synergistically with each other, and, together, changed the face of European art for the ensuing centuries. In some small way, we see ourselves collaborating to develop revolutionary methodology in teaching art history. Art History, a very young discipline in the humanities which emerged in the curricula of a few universities during the early twentieth century, is ripe for change in its presentation as well as in its content.

3 Conclusions and Future Work

The most dramatic and original contributions to 20th-century art and culture involve digital media not only in the creation of art, but also in the communication of art history. Forty years after 35mm color transparencies replaced 4" x 4" black-and-white glass slides as the standard for presenting images to art history classes, and twenty years after videos were added to Art Historians' baskets of presentation tools for both lecture hall and seminar room, computer animation has the potential for revolutionizing the teaching of art history.

Several of the student animators will be present to add their insights to the dialogue between presenters and conference participants. Although audience members will have their own queries, the presenters are interested in feedback from their peers and others who witnessed the presentation of this project. We are curious to know whether or not these didactic animations more effectively explain principles of Art History than traditional methods of lectures, slides, and videos. How can computer animation be used for didactic purposes for Art History and other fields of study? What are the optimal educational levels [K-12, college, or what?] for adapting animated sequences on videos or CDs for teaching? How would you modify what we have achieved for a better product?

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