Chapter 19
Educational Implications

ABSTRACT

An integrative art-science approach to teaching is described, involving imaging concepts about science, with three approaches to integration of art and science: 1) visual presentation of scientific concepts, 2) creating art by finding inspiration in a science-based topic, 3) learning visually for other courses taken concurrently by arranging data into a structured whole. The next part of the chapter is about several dimensions that seem important in blended and online learning regarding social networking and the collaborative virtual environments. Virtual education in a first life and a Second Life classroom environment is discussed next.

INTRODUCTION

In the process of learning, visual computing may help to recognize configurations and relationships described by formulas. The impact of visuals on learning as a cognitive activity gains attention because of a facilitating effect of visual materials in the process of communication. It seems, the same way as we may list three basic elements of communication in the arts: the artist as a sender of a message, art media, and a viewer as the receiver, we may translate these elements in educational terms: the teacher as a sender, visual educational materials, and the student as the receiver. In terms of pedagogical constructivism, learning is an interpretive process leading to the construction of the individual's subjective reality, not identical with the knowledge of the teacher. The

value of computing for the arts used as of visual educational materials might be in their emotional impact that might bridge the distance between the object and the viewer. Thus cognitive and expressive meanings conveyed through the shared media art containing signs, symbols, and metaphors may improve the capacity for learning. Using visual thinking and learning with relation to semiotic practices seems rare. The creation of illustrated and annotated web resources would provide materials for visual learning. In educational terms, by supplying an access through the new media art to the images and artists' approaches to their work, it is possible to develop the curricula for teaching contemporary art with the core based on semiotic analysis of the art content and the technological thought, not just historical chronology. When students learn to apply visual signs, symbols, and meanings in relation to any subject matter under study, they can extract more information from data they collected. Instruction in computer

art graphics and new media art serves a tool to facilitate students' learning in other disciplines and their growth in artistic creation. Through art inspired by science-related concepts it is possible to visually present these concepts and discover the power of their visual forms.

APPLICATIONS OF TECHNOLOGICAL THOUGHT

Computers as tools for creating models of realistic situations serve well for developing higher cognitive strategies for problem solving and decision-making. Specific software for the curriculum helps the teachers to teach an action-oriented and problem-solving material. Someone has compared the computer to the cart and knowledge to a load transported on the cart. A need for developing cognitive abilities has been already recognized by science and mathematics teachers, but this integrative function of intelligence cannot take effect without understanding visual messages, imaginative approach in exploring conceptual structures and scientific problems, spatial abilities to visualize configurations and relationships described by the formulas. Education in computer art graphics may support students' progress and achievement in science, mathematics, and also in the learning of computer art with illustrated and annotated resources. Unlike the history of science of technology, art history cannot simply report facts by putting them into chronological order. The challenge lies in interpreting the meaning of the artwork, in hazarding a guess about how the work will be seen and referred to 50 years form now, which works will fade away, and in relating the work of computer artists to the rest of the art world and the cultures in which they were created. Although some large museums curate computer shows, a historical understanding of the field often seems lacking. Just as Clement Greenberg brought Abstract Expressionism into the art canon with his seminal essays in the 1960s, so the critics and historians may help the museum-goers

understand the vital role the computer plays in visual image creation. All we know is that there is an audience waiting.

The Emergence of Cross-Disciplinary Efforts

A number of new journals, academic degree programs, and software applications mark the dominance of visual technologies and their role in creative thinking, problem solving, and visual communication. A change towards increasing interdisciplinary approaches is evident on a variety of fronts. New journals, books, interdisciplinary degree programs, teaching strategies, conferences, technologies, and domain taxonomies have surfaced. Examples of cross-disciplinary and visually oriented journals may include the International Journal of Creative Interfaces and Computer Graphics, Digital Creativity, Leonardo, Journal of the International Society for the Arts, Sciences, and Technology, and many other periodicals. A great number of books merge art and science, such as "Digital Creativity: Techniques for Digital Media and the Internet" by Bruce Wands (2001) and "Art of the Digital Age" (2007) by the same author, "Digital Creativity: a Reader (Innovations in Art and Design) by Colin Beardon and Lone Malmborg (2010), "Creative Code" by John Maeda (2004), or Daniel Pink's "A Whole New Mind: Why Right-Brainers Will Rule the Future" (2006). They all emphasize the importance of developing creative thinking for career survival.

Currently, a great number of artists possess a substantial knowledge of computer technology, business, and other areas. Many galleries, festivals, and shows are re-orienting to media arts. University colleges are changing to Art and Media rather than Art and Design and prepare students to meet job market expectations. Job positions for visual artists and graphic designers are still open, but better opportunities have arisen for interactive media developers who don't hesitate to explore possibilities. Job opportunities increasingly re-

Related Content

Computational Design and Built Environments: The Quest for an Alternative Role of the Digital in Architecture
Marco Filippucci, Fabio Bianconiand Stefano Andreani (2016). *Handbook of Research on Visual Computing and Emerging Geometrical Design Tools (pp. 790-824).*
www.irma-international.org/chapter/computational-design-and-built-environments/149330

Urban Interior Design: A Relational Approach for Resilient and Experiential Cities
Barbara Di Prete (2020). *Cultural, Theoretical, and Innovative Approaches to Contemporary Interior Design (pp. 130-153).*
www.irma-international.org/chapter/urban-interior-design/249455

How Do We Communicate
 (2020). *Graphical Thinking for Science and Technology Through Knowledge Visualization (pp. 104-211).*
www.irma-international.org/chapter/how-do-we-communicate/245615

Critical Compound Objects Modelling Using Autodesk
Ritwika Das Guptaand Daksh Agarwal (2022). *3D Modeling Using Autodesk 3ds Max With Rendering View (pp. 1-30).*
www.irma-international.org/chapter/critical-compound-objects-modelling-using-autodesk/304669

The Nodal Closet
André Alvesand Wyatt Niehaus (2011). *International Journal of Art, Culture and Design Technologies (pp. 38-43).*
www.irma-international.org/article/nodal-closet/60662