Report for a Faculty Reassignment Award for Spring 2014

Thank you for awarding me a Faculty Reassignment Award in the form of a reassignment from a 3-credit-hour class ART 190 in the Spring 2014 semester. It enabled me to increase my time for research and progress in creating an interactive project “Carbon: a Gem, a Mineral, and a Heart of Nanotechnology: The Integration of Art, Nature, & Science Project.”

Activities done during the Reassignment period

This interactive project about carbon was a continuation of my long lasting work on integration of the Art/Science/Computer Graphics areas. This project supports my research, teaching, and development of my own creative work also aimed to test the content material before I hand it to my students. I have been working on the projects about carbon, visual and written, which is a basis for organic chemistry and all life on our planet. The topic links art with nature, science, and technology related themes. I conducted research on the scientific, artistic, and educational points of view through inquiries about the technology related means of presenting data and information. Materials developed between art, natural sciences, technology, and computer art graphics were used for student taking Introduction to Visual Communication Design, and Computer Graphics classes. The outcomes have been posted on the related website, sent for publications and conference presentations.

The outcomes

– Assignments for students. The Faculty Reassignment Award allowed me to write and develop a set of knowledge-based projects, which merge science with computer art graphics. I instantly assigned them to my students, who were learning to integrate information about science and technology with computer art graphics, utilizing their knowledge about carbon at the nano, micro, and macro scale on three levels:
  (1) Carbon as mineral (coal): carbon in fossil fuels, sources of energy, mining and surface mining in the United States, the environmental cost of surface mining
  (2) Carbon as a molecule: the carbon cycle, issues related to carbon monoxide (CO)
  (3) Carbon as soft matter: carbon in computers, biologically inspired models for computing.

Value and potential impact of the research project to the discipline

- An exhibition “Anna Ursyn and her Students” took place at the Turkish-American Association in Ankara, Turkey in 2013.
An interactive website with computer art graphics, of my students refers to carbon-related materials on aspects of visualization. It allows deepening the scope of knowledge visualization techniques. Website can be found at https://Carbon.Ursyn.com. This attempt to introduce interactivity will allow students learn from, get inspiration from, assess, critique, interact, and discuss knowledge visualization based works, some with social networking.

Future plans related to the project

– An exhibition of student interdisciplinary artwork produced by students taking Computer Graphics and Computer Art along with my work has been scheduled by the School of Art and Design at the Oak Room Gallery and the Arts Annex Gallery, and will be offered October 27-December 9, 2014.
– Some information related to this grant will be used in the book under contract: “Maximizing Cognitive Learning through Knowledge Visualization.” due in 2015.
– I submitted a proposal to present at the 28th Annual National Conference on Liberal Arts and the Education of Artists in New York City scheduled for October 2014.
– I will continue with my own artwork related to this theme.
– I will keep working with my students in order to develop more scientific illustration related concepts.

The Use of the Results

The importance of this project results from combining the scientific, artistic, and educational visual presentations with rich communication technologies available to instructors and learners. This project may be considered an important addition to the existing practices in art-science instruction. The project is designed to contribute to the existing base of knowledge and experience in instruction and integrative approach to studies in visual arts and instructional design. The problem being addressed is related to the mission of the School of Art and Design and relates to academic, research, and professional strength and is in accordance with the STEM (Science, Technology, Engineering, and Math), to STEAM (Science, Technology, Engineering, Art, and Math) transition movement.

Further Recommendations

In cases when the time factor is involved, movies and animations and also also 3-D printing, immersive virtual reality, performance, large-scale installations and interactive exhibitions, both happening physically or virtually, on-stage or online would be a logical way to follow up. Also more research on macro-, micro- and nanotechnology related concepts would deepen the scope of knowledge visualization, presented as posters, photographs, and diagrams, infographics (visual representations of information, data, or knowledge, and art works.)