

“Developing 3d design education for Continuing education and professional students”

1. Introduction

The purpose of this document is the analysis and reexamination of the pedagogical objectives in developing a design education curriculum for conceptual and practical topics in 3d and visual effects. As a set of guidelines for both success and failures in topics covered, we will be using the prior research from *Theresa Amabile*¹ on creativity in managerial business practices. Our theory is that these same practices can be applied in the conceptual understanding of teaching and developing curriculum of 3d design education when referenced to the success or failure of inspiring creativity. The uniqueness of this research will be to examine these practices in reference to the dissemination on continuing education and professional students. Our sense is that this is an emerging market for the education of 3d computing in both graduate and professional studies. The case study that we will examine is the e-21 course series developed at the Harvard University Extension School for continuing education students. This background will give educators and university administrators an insight into the complexities, achievements and failures in developing teaching and organizational practices for this particular segment.

2. Background on Harvard University Extension School

1. About DCE

The Harvard Extension School offers part-time study in the evenings on an open enrollment basis. Its vigorous and challenging environment annually attracts more than 13,000 students of many ages from every New England state. They come from all walks of life and academic backgrounds, holding a variety of degrees--from doctorate to associate's--or no degree at all. Most Extension School students take one or two courses to learn something new or to enhance job skills. The varied curriculum also meets the needs of students who wish to complete unfinished degrees or begin study for new degrees, graduate certificates, and diplomas.²

2. About E-21: Intro to 3d design, DV and Special Effects

Featuring FormZ, Maya, and FinalCut Pro, this course integrates the use of 3D design, animation, and special effects with digital video. Topics such as storyboarding and narration, modeling of 3D space and objects in virtual environments, and project management are covered in the first few weeks. Students will then extensively use the advanced 3D application Maya as a tool for 3D modeling, animation, rendering, lighting, and texture mapping. By the end of the course, students will learn how to produce digital video composites with work generated in Maya. The topics covered in this course have direct relevance to architectural modeling, digital animation, product development, and interactive multimedia. Homework assignments are designed

for students to develop portfolio pieces, and students are required to produce a final project of professional quality.

3. Managing creativity from business to education

1. Background of Hext E-21

The e-21 curriculum was created out of the previous academic experience from Adrian Mendoza's coursework for Introductory 2d/3d computing classes at the Harvard Graduate School of Design. This course work highlighted the connection of presenting conceptual 3d topics directly to a path of practical application. The intent was to create an introductory curriculum that would focus in ramping up students through computing course work yet still presenting the necessary concepts for a background in architecture. In the case of the E-21 curriculum it was important to take into account the attributes of potential students that were to take the course³. Knowing that the audience would be varied, this intention of the new course work would have to be adjusted compared to its prior iteration for graduate students. A primary definition was the lack of a studio environment and medium level of known computing experience. Knowing that this would be an issue for scheduling and presentations, the course designers focused on creating a lab time; which is unusual for an extension school course. The syllabus and curriculum were rearranged to try to take advantage of this opportunity in trying to create a flow to the presentation of required concepts for this course without creating too much time between class sessions. This was the first step in learning to develop this curriculum and a teaching environment for design computing at the extension school.

2. Relating three components of business creativity for continuing education

The intent of this analysis was to find a common mean in order to gauge the success and failure of this coursework as applied in the past 2 years. It seemed apparent to look at prior references of creative research in education. Yet the fact that the complexity of dealing with the extension schools continuing education curriculum and student base varied the ability to design and reference this course to traditional design education. As in tradition design school, where a course has a set amount of students, education levels and related past experience; the extension school students were completely varied in everything from education, age, and intent⁴. It was suggested by professor Mendoza to look at the creatively research for business practices that was being studied at Harvard Business School. A direct connection could be made by looking at the creation and continuance of this course as a business and managerial experience compared to the traditional route of a set undergraduate or graduate school agenda. While the E-21 course was accepted by the university and funded, the students would not be provided by the school; rater it was up to the teaching faculty to provide potential students with the means of learning about the

¹ **How to Kill Creativity**

By *Theresa M Amabile*

Harvard Business Review; Sept-Oct 1998, pgs. 77-87

² www.extenion.harvard.edu

³ Harvard Extension school Annual Report 2003

⁴ Stats from annual report

class content to get them interested in participating. As extension school students are paying per class it seemed apparent to look at them as potential customers. As this is not a necessary intent within a traditional program, the idea became to focus on marketing and presentation to the surrounding academic community and professional organizations. It was intended to present this class as a potential recourse for both academic personal and working professionals who were looking to expand their knowledge of high-end visualization, visual effects and their incorporation into digital video. In this aspect the idea of having to do intense marketing of a course as a product and experience became a primary motivation before any of the course work was presented.

Secondly the same energy in the focus of marketing and creation of interest had to be continued to make sure that students would complete the course while still giving the chance that they would be potential customers for other extension school course work or for a continuation of the classes next iteration. By having these secondary motivations aside from the actual teaching experience, the relationship to the managerial creative practices became a more apparent fit for the medium that we had been looking for in presenting the development of this course to the academic community.

3. Description of HBS creativity research

The research that we looked at to evaluate our process was best summated in the article "How to Kill Creativity" published by Theresa Amabile in the Harvard Business review. The overall concept of this article is to state: "creativity is undermined unintentionally... to maximize business imperatives such as coordination, productivity, and control."⁵ Her research has defined that there are 3 components to creativity; Creative-thinking Skills, Expertise, and Motivation. It is necessary to define a stable balance off all 3 components in order to foster creativity of both individuals and groups. The intent is to address the idea that managers can influence creativity by understanding the methods and approaches in which they deal with their employees. In the case of this document we will make the comparison that the business manager has is a direct relationship to a professor's role in defining similar creative goals for continuing education.

9. References:

How to Kill Creativity

By Theresa M Amabile

Harvard Business Review; Sept-Oct 1998, pgs. 77-87

Syllabus 2003 – CSCI E-21

Harvard University Extension School

10. Contributors:

Adrian Mendoza

A graduate of Harvard's Graduate School of Design in Cambridge, Adrian has lectured at the design school and has been

an invited guest critic for digital media courses. His involvement is centered on the development of digital media in the design profession and in working with 3d visualization and narrative structure in defining the exploration of space and surface. His involvement in new media has led him to lecture at the USC School of Architecture in Southern California.

In Summer 2001, Adrian was invited by the Division of Continuing Education at Harvard University to develop a computing course in pursuing the development of stronger narrative based storytelling with the usage of new media and high end visualization tools.

⁵ "How to Kill Creativity" Harvard Business Review, page 77