An Exploratory Study of the Process Senior Undergraduate Students Follow to Design an Interactive Multimedia Application

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ABSTRACT
This paper deals with the process followed by undergraduate students in designing an interactive multimedia application during their final capstone course “Multimedia Software Development Project” at Deree College. It focuses on the steps taken in the design of this application, the information technology used, the problems they faced as well as the solutions offered.

Keywords: Application, Design, Information Technology, Interactive Media, Student Process

INTRODUCTION AND LITERATURE REVIEW

I have taught the “Multimedia Software Development Project” course at Deree college for more than 7 years. It is the capstone course students take for their bachelor’s degree on computer information systems major with an emphasis in multimedia design. This course is related with the development of a full interactive multimedia system which can be delivered either as a standalone or as an online program (web–based).

“Multimedia is an umbrella term generally referring to the seamless integration of text, sound (such as spoken words, music, or sound effects), visual images (such as still photographs, motion pictures, or animation), or electronically represented information under computer software control.” (England & Finney, 1996; Baek, Liebowtiz, & Lewis, 2000)

Most multimedia and web projects must be undertaken in stages. Some stages should be completed before other stages begin, and some stages may be skipped or combined. “The four basic stages in a multimedia projects are: a) Planning and Costing, b) Designing
and Producing, c) Testing, and d) Delivering” (Vaughan, 2011).

The effectiveness of a multimedia project depends mostly on the design process students follow. “A multimedia designer considers the freedom to create innovative content and behavior to be what makes multimedia, “multimedia” and a multimedia design company considers the creativity of its designers to be a competitive advantage” (Bailey, Konstan, & Carlis, 2001).

Therefore, I decided to conduct a research by recording the processes undergraduate college students use to design their application. This also includes the information technologies they use to create their design tools, the problems they meet in the process as well as their solutions. My research will be used to both evaluate the syllabus and the assessment methods of the course as well as to guide prospective senior students at the college.

Students have to use three different tools at the design stage of their interactive multimedia application project. These tools include a storyboard, a navigation map diagram and a prototype. All these tools have been presented in class sessions not only in this course but also in the prerequisite course called “Interactive Multimedia Systems.”

A guideline document is given at the beginning of the semester indicating all the steps students should follow. It includes the phases required for the development of a multimedia system (Planning and Costing, Designing and Producing, Testing, and Delivering), a time plan, design screen and user interface tips and a list of technologies (offered by the college or selected freeware applications) to be used for the creation of the tools the media, and the final application. Students are also allowed to use other types of software not included in the list (for example a specialized application for Mac OS) if they get the approval from the instructor.

In addition, the Blackboard E-Learning platform is used in all college courses. One of the tools offered by the platform is the creation of forums. Threads for all multimedia projects have been created and students were allowed to exchange their thoughts not only with their team member for the components of a project (storyboard, navigation map diagram, and prototype) but also with members of other teams. Additionally, as the tutor of the course I moderated the discussion.

Based on the aforementioned, I reached to the following research questions for my study:

- Which is the procedure students follow to design an interactive multimedia project?
- What Information Technologies did they use in their design process?
- Why have they used these technologies?
- What problems students met in the process?
- How did they solve these problems?

A similar study was conducted by McKenna, Mongia, and Agogino (1998) for the Department of Mechanical Engineering, University of California at Berkeley. They focused on the process of teamwork and the interaction among undergraduate multimedia engineering design class students by developing an original web based multimedia case study of an engineering design – four group case study (McKenna et al., 1998). The data presented in the paper came from various methods as interviews, observations, a designed questionnaire and a specialized software tool called SpeakEasy. The final cases were grouped based on the different methods to triangulate the results.

One of the most important tools in multimedia design is the storyboard. As Seung mentions, “Storyboard is a visual representation of content, the spatial layout of that content, and behavior.” (Baek et al., 2000)

Storyboard is used to keep your project organized. It is the tool to visualize the media element(s) for each screen you design. Storyboards may have different uses in multimedia systems. A movie maker may need a totally different board from an interactive multimedia designer. Moreover, storyboards can be developed by using simple pieces of paper and a pencil to draw sketches of your media elements,
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