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ABSTRACT

The instructional design that is imperative towards the design and development of a Web-based course environment is of primary consideration when a graduate-level course is the focus of attention. Further, a multimedia course that incorporates the theoretical as well as hands-on elements that must be consistently focused upon and updated is of further concern. What is the most productive way to constantly maintain the most recent knowledge within the multimedia genre, as well as offer a wide scope of multimedia environments through which to offer the learner a full scope and sequence of curricular events? The analysis, design, development, implementation, and evaluation of two significantly distinct Web-based learning environments offers a clear progression through the initial instructional design phase, clear feedback offered by the learners which drove the second instructional design phase, and the results of the second implementation and evaluative efforts pertaining to the course. (Author/AEF)

Web-based Multimedia for Educators Course

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Abstract: The instructional design that is imperative towards the design and development of a Web-based course environment is of primary consideration when a graduate-level course is the focus of attention. Further, a multimedia course that incorporates the theoretical as well as hands-on elements that must be consistently focused upon and updated is of further concern. What is the most productive way to constantly maintain the most recent knowledge within the multimedia genre, as well as offer a wide scope of multimedia environments through which to offer the learner a full scope and sequence of curricular events? The analysis, design, development, implementation and evaluation of two significantly distinct Web-based learning environments will offer a clear progression through the initial instructional design phase, clear feedback offered by the learners which drove the second instructional design phase, and the results of the second implementation and evaluative efforts pertaining to the course.

Introduction

Within the revisionist's redesign of the course, the curricular scope and sequence shifted, the access to the knowledge and interactive elements shifted, the flow of the course significantly changed and the learner's feedback on the newest course structure is intriguing. Educators must have the opportunity to delve into the graphic design basics, pertaining to textual layout as well as the importance of using type styles within distinctly different environments, have a clear understanding of instructional design basics, focus upon flowcharting and storyboarding a multimedia product, remain sensitive to human/computer interface issues, and remain closely tied to the formative and summative evaluation stages of the development stage. Further, a shift in the Web-based mentality impacted the outcomes of the learner's level of understanding through out the course; this Web-based versus Web-enhanced structural shift offered opportunities to the learners that eased self-regulation issues as well as community-building concerns.

History of the Multimedia for Educators Course

The graduate-level Multimedia for Educators course had historically been taught by adjuncts within the specialization area; therefore, there was no significant standard in place for the course's instructional design. When the author became a member of the Instructional Technology team and took the responsibility to standardize and maintain the course, a significant shift towards meeting the International Society for Technology in Education (ISTE) standards (International Society for Technology in Education, 2000; International Society for Technology in Education, 2001) was continuously integrated, implemented and updated.

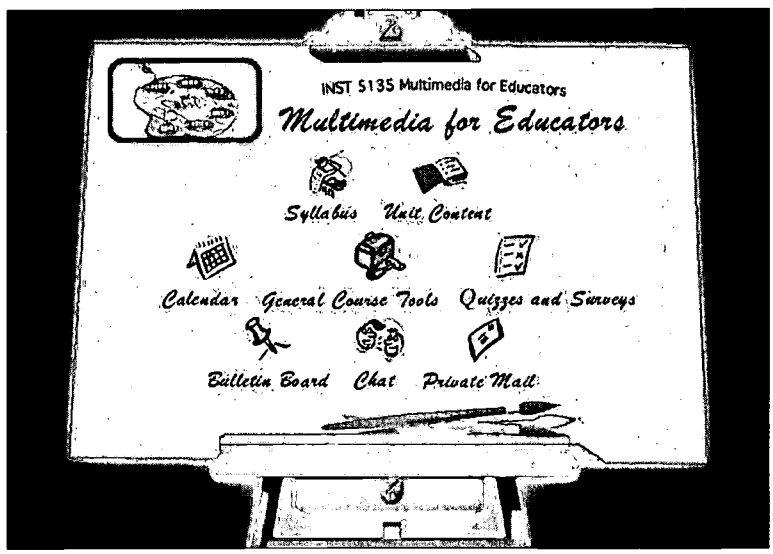
As the standardization process for this course was under way, the university developed a plan of action towards the support of the World Wide Web-basing of coursework. The instructional technology specialization area was one of the areas focused upon as an initial area of focus; therefore, the Multimedia for Educators course was one of the initial courses chosen to Web-based. As such, the course structure was as follows:

- Course Introduction
- Unit One: Introduction to Multimedia
- Unit Two: Developing Multimedia – The Basics
- Unit Three – Designing with Images

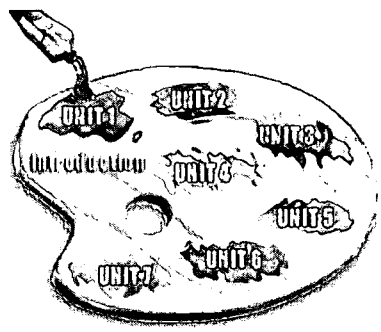
- Unit Four: Designing with Type
- Unit Five: Linear/Asynchronous Media
- Unit Six:: Nonlinear/Synchronous Media
- Unit Seven: The Future of Multimedia

Each of the course units maintained their own separate unit objectives, which directly identified with the course objectives that were previously identified through the Texas Essential Knowledge and Skills (TEKS) (TEA, 2001) and ISTE standards (International Society for Technology in Education, 2000; International Society for Technology in Education, 2001).

The course interface created a metaphoric representation so as to aid the learner towards the conceptual framework development and understanding. A metaphor surrounding the creative artist metaphor was decided upon, as multimedia is an artistic form of expression that integrates instructional design, imagery, designing with type, video, audio and numerous other interactive entities. Following is the initial interface for the course:



The artistic metaphor was simulated from the home page of the Web site. As the course was developed using a packaged course development software, the iconic representations were integrated from the course development software. Further, the course metaphor was further integrated through out the course structure as image maps simulated in the unit overview section of the course:



The course layout was one wherein all the textual and graphic information was scripted using HyperText Markup Language (HTML) so as to fit within the confines of the packaged course development software, as well as take advantage of the interactive activity capabilities available. Each of the seven Units of Instruction, as well as the Introduction and Syllabus sections, consisted of seven to fifteen pages of

instruction that the learners needed to access. Within the pages, there were numerous hypertext links to either interactive activities or outside-of-course hypertext links to Web sites of importance.

Concerns With Original Instructional Design and Layout

The feedback from the learners was mainly positive, as the Web-based course was given to numerous hours of thought and planning before any specific design or development was undertaken. Following are the aspects that the learners noted as being positive within the course structure:

- Course metaphor
- Units of Instruction were color-coded
- Navigation
- Unit of Instruction overviews
- Unit objectives
- Unit Summaries
- Table of Contents at end of Unit of Instruction
- Clearly delineated assignments
- Clearly delineated assessment rubrics for each assignment

However, there were a few areas within the original course that the learners noted as being either difficult or negative aspects:

- Amount of information that the learners needed to review
  (As an aside, the learners printed out every Unit of Instruction page for ease of review)
- Some hypertext links to outside Web sites were "dead" links

As these negative aspects were serious considerations for the course instructional designer, the course was revised the following semester.

Revisions to the Course

Revisions to the Multimedia for Educators Web-based course were undertaken over a semester's time period. Several significant shifts in the instructional design and interactive layout were to occur and a significant period of time was necessary in order to accomplish this. Following are the changes that the course embarked upon:

- Shift the Units of Instruction
- Revise the Online Quizzes
- Change each of the Unit of Instruction's Layout
- Integrate the instruction within each Unit of Instruction into a downloadable Portable File Document (PDF)
- Integrate audio downloads
- Integrate video downloads
- Integrate PowerPoint presentation overviews for each Unit of Instruction

Following are short explanations of the above revisions to the Web-based course, so as to further emphasize the necessary elements under consideration.

Units of Instruction Shift

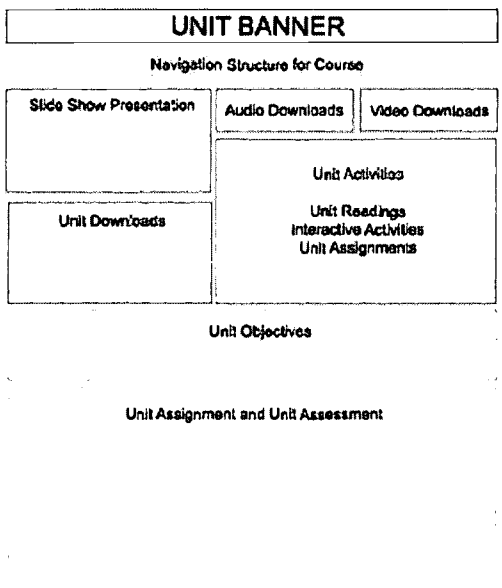
The instructor desired to integrate a more advanced multimedia software package into the course which, therefore, mandated a shift in the instructional design of the course. Following is the revised course structure:

- Course Introduction
- Unit 1: Introduction to Multimedia – The Basics
- Unit 2: Designing With Images and Type
- Unit 3: Multimedia into the Learning Environment: The Instructional Design Process
- Unit 4: Linear/Asynchronous Media
- Unit 5: Nonlinear/Synchronous Media
- Unit 6: High-End Multimedia Environments
- Unit 7: The Future of Multimedia

Some of the previous course elements were integrated into one Unit of Instruction and additional Units of Instruction were added, such as Unit 6: High-End Multimedia Environments. Further, the knowledge-level online quizzes for each Unit of Instruction were revised to reflect the shift in subject matter.

Unit of Instruction's Layout Shift

The layout for each Unit of Instruction was meant to allocate more space to the areas of greatest importance within each Unit, as the majority of the instructional information would be included within the Portable File Documents (PDFs) for each of the Units. Following is a simplistic layout example for a generic Unit.



Each of the Units of Instruction included each of the elements included in the layout delineated above. Therefore, the significant difference between each of the Units of Instruction would be the color allocated to each Unit of Instruction, as well as the Unit Downloads and Unit Activities made available. Further, the Unit objectives and Unit assignment and assessment rubric would be available for the overview of each Unit of Instruction. As well, each of the Unit of Instruction slide show presentations, audio and video downloads would be appropriate to the Unit in question.

Portable File Document (PDF) Instruction Access for each Unit of Instruction

Each Unit of Instruction consisted of its own portable file document (PDF) that organized the unit knowledge into an appropriate instructional design format to emphasize the materials to be integrated into the learner's knowledge base as well as to designate the interactive activities that would offer the opportunity towards higher order thinking skills. The PDF format was chosen due to its portability factor and the ability to designate a page layout for each presentation of the content. The content contained within

the PDF document offered an ease of instructional shift for the faculty member due to the lack of HTML scripting that was previously necessary. Quickly changing the document, saving it as a PDF, and uploading the file to the server was all that was necessary to revise the course content.

Integrate PowerPoint Presentation Unit Overviews, Audio and Video

Each Unit of Instruction offered a PowerPoint presentation as a Unit overview, as well as audio and video files of the instructor stating the main objectives of the Unit. The audio and video files were meant to test the perceived learner-instructor relationship that occurs within a face-to-face course yet may not occur to as great an extent in a Web-based course learning environment.

Learner Feedback

The new layout of the course was tested the next semester, with student feedback noting significant elements of interest:

- The High-End Multimedia Environment integrated into the course, although significant support information was available to the learner, was overwhelmingly disliked due to the steep learning curve over a short allocation of time. The learners noted a desire that a high-end multimedia environment with a less steep learning curve be considered as a replacement.
- The students stated their approval towards the PDF documents for each Unit of Instruction. They noted that it was easier to print out the information, if desired, as well as the portability factor was desirable when they moved from computer to computer through out their daily activities. They disliked accessing the course Web-based site constantly for other courses and enjoyed the ability to manipulate their learning environment through the portability of the PDF documents for each Unit of Instruction.
- The students noted a lukewarm attitude towards the slide shows available for each Unit of Instruction, although they all noted that they reviewed each one available for each Unit. The audio and video files were not available at the time of review, so the learner feedback was unavailable for the audio and video file level of success.
- The students stated that they strongly supported the "cleanliness" of the Units of Instruction. The layout was easy to access and review, as well as printing out the information available aided them in their motivation and time allocation.

Conclusion

The instructional design that is imperative towards the design and development of a Web-based course environment is of primary consideration when a graduate-level course is the focus of attention. The interactive elements of a Web-based course is also of significance through out the instructional design process with the focus being allocated towards the learning environment, the ease of information and activity access, and the clear layout of each Unit of Instruction.

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