Multimedia: A New Look at HIM Classroom Instruction

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It is obvious that the HIM field will be affected by the implementation of the computerized patient record, but what can HIM professionals do to prepare? To effectively impact healthcare delivery of the near future, HIM practitioners must be computer literate and feel at ease with computers. To achieve these goals, HIM educators have begun using teaching methodologies that incorporate computerization techniques.

In order to adequately prepare individuals for the healthcare work force, today's education must utilize technological advances. Instructors must be equipped to deliver effective teaching methodologies to increase student success. The inclusion of computer-assisted instruction into HIT and HIM programs is multi-purpose. While training students to number and file paper-based medical records, it teaches them computer skills that will prepare them for computer-based patient records. In addition, many experts believe that adult students achieve at a higher level when they are active, self-directed learners—multimedia or computer-assisted instruction allows for this activity.

In order to create such a learning atmosphere, HIM and HIT program directors must identify effective teaching methods to assure student proficiency of entry-level competencies. Since technology has such an impact on students' achievement and outcomes, its utilization must be reviewed and analyzed for effectiveness. At the HIT program of the Houston Community College System in Texas, our efforts went into the development of a compact disc (CD-ROM) that teaches numbering and filing systems.

Development of a Multimedia Presentation

A health information educator interested in implementing computer- assisted instruction (CAI) into his or her course has various options. A good place to begin is the instructional technology (IT) department at your academic organization. This department can assist with the technical development of the project—including audio, video, and animation—while the educator provides input on course content. Another option an educator has is to develop the programmed instruction or CAI with the assistance of authorware.

Authorware offers a range of features, including the ability to:

- create, edit, and import graphics and text
- connect text and graphic information with related concepts through the use of hypertext and links
- track students' progress and program branching
- manipulate data
- use scripting language for control of more advanced program features[1]

Before selecting an authorware program, be sure to research the market. Some selection criteria to think about include, but are not limited to:

- product support and access to technical services
- the program's ability to import graphics, text, video, and sound
- ease of use
- control over a variety of laserdisc players
- the ability to extend the program's capabilities through the creation of custom variables, such as customized databases
- the ability to create run-time software that can be used on a network
- any royalty obligations
- the demonstrated willingness of the software corporation to invest in research and development
- the ability to create courseware on both Macintosh and MS-DOS platforms[2]

Some available authorware products include:

MACINTOSH FORMAT	IBM FORMAT
Course Builder	Toolbook
Authorware Professional	HyperWriter
Director	Guide
Hypercard	ImageQ
Magic	Linkway Live

Creating an Instructional CD-ROM Program

The call for proposals to develop instructional computing projects was an opportunity to incorporate CAI into the HIT program's curriculum. Basically, the project was implemented in the following phases: project proposal, project development, product refinement, and product evaluation and dissemination.

Project Proposal Phase

This phase was the beginning of what is now the Health Information Numbering and Filing Systems CD-ROM. The intent of this stage was to identify the purpose, goals, and objectives involved in creating the final product. But first and foremost, we needed to recognize why this instructional software would be valuable to educators and students. Ensuring that these elements were specific, and clearly establishing a solid foundation for the remaining stages of the project, were also important stages in creating an effective proposal.

The proposal showed that our team's purpose was twofold:

- To provide students with an opportunity to develop and enhance knowledge and skills in numbering and filing systems
- To provide for incorporation of computer-assisted learning technology into the curriculum. This would assist in building the students' confidence levels with computers. It also helped the program meet the industry request to include more computer training and exposure in the program

The goals and objectives of the project provided support that warranted the CD-ROM's creation. Basically, it was found that students have difficulty absorbing and comprehending these practical skills in the classroom. Since medical records numbering and filing are practical areas that are undergoing great changes, it is imperative that the students fully understand records numbering and filing systems.

It was proposed that, assisted by the the computer-based program, students could master practical skills such as the numbering and filing systems—while still in the classroom. Accomplished through the tutorial and practice sessions of the instructional software, we proposed that by achieving this goal, students would be more prepared to enter the working world.

Project Development Phase

This beginning effort led to the development of the first segment of the product, Medical Record Filing Systems. Consequently, a second proposal was submitted, which led to the second portion of the program, Medical Record Numbering Systems. The project was completed in one year.

The envisioned end result was a multimedia computer disk that would include animation, video, audio, text, hypertext, practice sessions, and self tests. The programming software used was Macromedia Director, and graphics and animation were produced by Photoshop and Illustrator graphic design applications. The audio was created with Sound Edit 16 and the movie segments with the Premiere and Quicktime programs.

The project team consisted of a team coordinator, a programmer, two graphic designers, two audio/visual specialists, and two instructional designers (filled by HIT program instructors).

The product evolved in a step-by-step process:

- schedule development

- development of title screen
- development of purpose screen
- development of main menu screen
- development of content
- development of practice sessions
- preparation of final program draft
- program edits, revisions, and refinements
- final product testing and development

The project team met once weekly and abided by these steps.

Product Refinement Phase

Editing, revision, and refinement were the main goals of this stage. A critical analysis was performed to identify errors in instructional text, graphics, animation, and audio. Also during this phase, the two segments of the system were consolidated, resulting in the final product, The Medical Record Numbering and Filing Systems. More testing took place to assure that the purpose, goals, and objectives were met and to check for quality and user friendliness.

Product Evaluation and Dissemination

During this stage, the CD-ROM underwent evaluation of the real critics—the students. In order to assess the product's ability to increase students' comprehension levels of numbering and filing systems, we needed an analysis of students' numbering and filing systems test scores. The product was analyzed through a post-test, control group design. The experimental group used the CD-ROM program in addition to traditional teaching methods. The control group received only traditional teaching methods. A t-test was used to analyze the significant differences in students' numbering and filing systems test scores. The results of the t-test demonstrated a significant difference in the test scores of the two different groups, with the experimental group scoring significantly higher than the control group.

Overall evaluation was positive. Currently, the faculty uses the program during classroom lectures, after which the student can use it to review the theories on their own and test their knowledge.

In order to produce and further disseminate the CD-ROM, the project team is working with the Health Sciences Consortium, of Chapel Hill, NC.

Notes

Notes 1-2. Forney, K. S. "Grow your own Multi-media." American Association of Community Colleges, Oct/Nov 1993.

References

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Definition of Terms

Computer-assisted instruction (CAI)—Learning products that enable the development, distribution, and management of interactive courseware over the Internet, Intranet, LANs and CD-ROM. It includes the integration of multiple information formats (multimedia) such as graphics, audio, text, and video.

Instructional media—The audio/visual technological equipment and materials used in the process of communications between the instructor and student. It includes technological means of carrying out the instructional process without the physical presence of an instructor, and uses material such as transparencies, videos, programmed instructional devices, filmstrips, slides, and charts for instructional media.

Hypermedia (also called multimedia hypertext)—Hypermedia and hypertext tend to be used interchangeably. Media other than text typically includes graphics, sound, and video.

Hypertext—Text which is not constrained to be linear in nature.

Authorware—Software that enhances the production of multimedia products.

Run time—The time at which an object program is executed.

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