TrainingNews

THE CBT CRAFTSMAN

Anybody Can't Do CBT

A TEAM APPROACH TO COURSE DEVELOPMENT

Jesse M. Heines

I'm always one of the last to leave the theater after a feature film. As the ushers sweep up the popcorn and my companion proceeds to the car, I feel compelled to stay and watch the credits. It's not that I'm a connoisseur of films or even of the art of filmmaking; I'm a connoisseur of project management. When you consider all the people involved in making a film and their amazingly narrow fields of specialization, you might agree that an on-time, on-budget Hollywood production demonstrates some of the best production management in the world.

When it comes to computer-based training (CBT) projects, however, project management seems to go no further than assigning a single developer to a single project. A large project may be assigned to two or even three developers, but all of these usually have similar backgrounds and skills. They divide the course up into modules, assign a number of modules to each developer, and meet regularly to coordinate their efforts. Though development teams are often discussed among training management, they are seldom used effectively to develop CBT courses.

Part of the blame for this situation must be placed on those manufacturers who claim that their authoring systems make it possible to develop CBT "with no previous programming experience." The larger blame, however, must be placed on those managers who believe that only a single set of skills is needed to produce a CBT course. This simply isn't true.

Producing a CBT course is no less complex than producing a movie, and it's certainly more complex than producing a book. Yet if we look at the book industry, we see that publishers employ designers, illustrators, editors, typesetters, and a variety of other support staff to help authors produce their manuscripts. When one considers the added dimensions of animated graphics and the interaction of students and computers, it appears ludicrous that a CBT manager could expect all of the needed skills to be resident in a single person. Anybody can't do CBT working alone; it takes a number of people with a range of skills.

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Every course development handbook contains a list of steps that must be completed to produce a CBT course. A typical list looks something like this:

1) Training analysis
2) Statement of objectives
3) Delineation of subject matter
4) Instructional design
5) Media design
6) Storyboarding
7) Media production
8) Programming
9) Testing
10) Revision
11) Release

This list includes only one testing and one revision step, but in most cases testing (or at least review) and revision take place after almost every step in the process. To be sure, a considerable amount of editing and review would normally take place between the storyboarding and production steps. The above list is also presented sequentially, but in many cases the work on two or more of the steps can be done concurrently, or work on successive steps can overlap.

No matter how you might alter this list for your company, it should be evident that the set of skills needed to complete the entire process can rarely be found in a single person. Even if you happen to employ such a superman or superwoman, he or she can very seldom deliver the optimum course all alone.

My reasons for the preceding statement are subtle. The super-developer's dire problems arise not from a lack of skill in each individual step, but from the inability to give each step it's full due without the influence of the others. That is, it is extremely difficult to do really creative instructional design while worrying about how hard the design is going to be to program.

Consider, for example, what happens when the subject matter lends itself to a specific instructional design that may be difficult, if not impossible, to implement in the designated authoring system. If the instructional designer is also the programmer, he or she may be inclined to change the instructional design to more closely match one of the interaction strategies anticipated by the authoring system developers. Such a situation limits the designer's effectiveness and often decreases the educational value of the course.

It is better to employ programming specialists who, while they certainly might contribute to the instructional design process, are there primarily to implement interactions as specified on storyboard forms. If this means writing assembly language subroutines to be called from the authoring system, so be it. All good programmers know that any interaction can be programmed given the proper tools and sufficient time. The best programmers, however, are those who can also estimate how long a complex piece of code will take to write. It is then the project manager's responsibility to decide whether the time investment is warranted, based on deadlines and the adaptability of the code for use in other CBT courses.

Frederick Burhaus argued in *The Mythical Man-Month* that two people can sometimes do twice the work of one, but four can seldom do twice the work of two. Coordination and communication problems act as strong resistors to productivity, and they multiply at an ever-increasing rate as the number of people on a project increases. Yet when multiple skills are involved, it is virtually impossible for a single worker to produce a truly creative product.

Managers must strive to balance their project teams with respect to the number of people they contain and the heterogeneity of their skills. The best teams are those in which each team member's responsibilities are discrete, yet each member's product builds on the work of the others. While anybody can't do CBT with this approach, everybody can. □

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