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Improving Student Training Through Computer-Based Tutorials

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Introduction

An ongoing challenge in the small academic library is that of staffing resources. Student employees help free professional staff from some of the basic library tasks and allow them to give more attention to the responsibilities they are best equipped to address. Yet, student library workers require training, supervision, and, as they complete their degrees, replacement. The requirements of training students in the systems and procedures of the library can prove to be a time-consuming endeavor in itself. Using electronic tutorials to automate part of this process can relieve some of the time burden that training entails for professional staff, while ensuring uniform, reviewable, and standard training.

Our library recently experimented with using the freeware program Wink to create electronic tutorials which provided guided instruction in using our main electronic databases as well as our circulation programs. I designed the tutorials using Wink and the student employees took these tutorials as part of their ongoing training (for continuing student employees) or as their entire training (for newly hired students) for these aspects of library work.

Design

In order to learn the features of Wink, I viewed a short tutorial which gave instruction in how to use Wink. Wink allows a user to capture screen shots or timed sequential frames. This captured video can then be overlaid with diagrams, buttons, comments, and other features. The steps I followed in creating each tutorial included capturing a series of screen shots which I then saved. It was necessary to plan the order of the screen captures somewhat rigorously in order to ensure comprehensiveness. The screen shots themselves can be copied, deleted, or manipulated in any order during the editing process.

Once the screen shots were captured, I would then edit each frame (the tutorials ran from 25 to 40 frames typically). I added text boxes to identify particular buttons and features or to impart general information relevant to that particular database or program. I added buttons that allowed users to advance each slide at their leisure. In the first tutorial, I included timed advances for variety that would automatically move to the next slide after a set number of seconds. This feature proved disagreeable to some users and I subsequently used only non-timed advances.

The Wink tutorial provided with the program proved useful in learning the basic features of Wink, but it did not address the range of options beyond the more rudimentary ones. It was necessary to discover these through trial and error. By using some of these advanced options, I was able to introduce a degree of variety into the tutorial.

Planning the frame sequence and capturing the frames took about 15 to 30 minutes, depending upon the number of frames. Editing was a much more extensive process and certainly ran into hours rather than minutes. The time needed to edit each frame varied considerably – some took only a minute or two, while others occupied upwards of 15 minutes. Including multiple text boxes, searching for specific effects in Wink, or explaining complex processes were factors that contributed to longer editing times.

After reviewing the initial tutorial myself and having it reviewed by another staff member, I realized that the tutorial remained a relatively passive method of instruction. It seemed best to develop an active learning element to be used in conjunction with the tutorial. This active element consisted of a series of exercises which I designed that explored the features of the databases covered by the tutorials. Each exercise corresponded to a specific tutorial and required the use of modules, tabs, buttons,

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ABSTRACT

The use of computer-based training for student employees was explored through a recent project. Tutorials were designed and created using a free software program, Wink. The tutorials covered use of electronic resources and circulation programs and were used in training newly hired and continuing student employees. Written exercises requiring use of the information covered in the tutorials were administered subsequently. The advantages of computer-based training for aspects of student library employment were contrasted with its disadvantages. Computer-based training was found to be an effective part of training student employees.

resources, or processes which had been explained in that tutorial. An exercise consisted of a series of questions which required a user to find a certain article, determine the number of articles on a particular subject, manipulate results in a specific fashion, or other such skills which reflected the level of database competency and familiarity that was appropriate for that tutorial.

In the end, I created four tutorials which covered the use of our electronic databases and two which covered use of our circulation software. The e-database tutorials typically ran about 25 to 35 slides. The circulation software tutorials were longer and ran about 40 to 45 slides. However, some slides on the circulation tutorials simply showed dialog boxes which appeared and, on the whole, were quicker to move through than the e-database tutorials.

Assessment

Tutorial design proved to be both less challenging and more challenging than I had expected. It was less challenging in that the software I used was reasonably straightforward and intuitive. I found that after only a short time of using the program, I was rather well versed in its basic functions. No doubt much of this is owed to the simplicity of the Wink program. But it was nice not to be limited by the complexity of the software.

Tutorial design was more challenging in requiring a greater expenditure of planning than I had anticipated. It was simply not possible to jump in and do a few screen captures and some editing to create a tutorial. It was first necessary to consider what the scope of a given tutorial should be, to determine what goals to work toward, and to chart a non-recursive path to get there. Invariably, I found that I could frame the order better in the editing process than I had in the screen-capture process. The program allowed slides to be moved around, copied, or deleted so this gave me a great deal of flexibility to correct for shortcomings, dead-ends, or repetition which may have been part of the capturing process.

The editing process itself provided challenges. I found that providing instruction through a tutorial required me to be more precise and direct with my language. Trying to direct a user through text boxes voided the possibility of feedback and the limited space meant that long descriptions were out. It was necessary to attempt to find a balance between too much and too little information. On the whole it was hard to curb the impulse to be fully descriptive, but this ran the risk of not communicating all the information necessary. Sometimes, an additional slide was needed to describe more features on a particular screen or to explain how a specific feature could be used to do something more complex. Generally speaking, for most of the tutorials, I did not worry too much about being overly concise since the basic familiarity of the students with a database or module would likely help them bridge any gaps.

Feedback

Upon completion of the database instruction, I asked the students to give me their impressions of the tutorials. Uniformly, they liked the idea and the format. Using a tutorial to learn seemed to be a natural and familiar way of learning. Most of them, being familiar with basic functions within the database, commented that the first two tutorials were good but they were previously familiar with what they covered. The exception was that some advanced features, such as saving and emailing citations to an email account or printing off an aggregate list of results, were unknown, and the students indicated that it was useful for the tutorials to address this. The third tutorial dealt with new databases (purchased within the last six months). The students seemed to especially appreciate this tutorial and offered comments along the lines of "I didn't know we had these databases."

The exercises accompanying the tutorials meet with varying degrees of success. Some students found the wording to be confusing or were unclear as to what certain questions were asking. They indicated however, that it was very helpful to have the exercises so that they could try what they had just seen demonstrated on the screen. One student commented that it might be helpful to have a pre-tutorial exercise so that users would have an opportunity to experience the database and learn what functions are important, useless, or confusing before viewing the tutorial.

In the weeks immediately following training by means of the tutorials, two student assistants reported that they had used features of the tutorials they had not previously known in order to solve information needs of patrons. These sort of improved interactions highlight the value of the tutorial project. The e-database tutorials were also used to train two newly hired student workers in the use of library databases. One who had had some familiarity with the databases before commented on the usefulness of certain features she had not previously used. The other student had not explored the databases much and was therefore unable to evaluate whether or not they might prove beneficial. For this reason, it may prove best to allow users some exposure to the databases prior to the tutorials, as a way of allowing them to observe what functions are useful and which are not. This may also enable them to begin to develop questions about usage that would engage them more thoroughly in learning through the tutorials.

The circulation tutorials were only applied to two newly-hired student workers. This meant that it was not possible to gauge their effectiveness by a before-and-after comparison. Rather, a subjective impression of how well they were able to use the software after the tutorials is all I have to go on. Both demonstrated a reasonable degree of familiarity with the software in the situations I observed. Some uncertainness was evidenced, but this is typical, even with extensive one-on-one person-to-person training. The complex features – holds and charges – I also reviewed individually with both students, since I didn't have any exercise or opportunity to allow them to try either feature on their own. Overall, there was no appreciable drop-off in competence. Every staff member requires a brief period of adjustment and independent functioning to learn the system well. Both students demonstrated a greater level of competence with specialized functions than students with individual training had demonstrated.

Results

Benefits of tutorial training include more efficient use of time, the capacity to learn-at-your-own-pace, familiar modality, uniform and exhaustive instruction, and flexibility.

The most obvious benefit to me was that of improved time efficiency. The previous model for communicating instruction to students was to work with them one-on-one. This is repetitive for the trainer and may not prove to be the best use of time given the busy-ness that typically describes our schedules. Though time is spent in creating a tutorial (or series of tutorials), this time can be recouped as the tutorial is used by multiple individuals.

Another benefit is that tutorials allow users to learn at their own pace. Instead of being dependent upon an individual communicating the information, the user now is in control of the rate at which information is presented. This allows one to proceed more rapidly through familiar territory, while allowing for a slower pace when the information become more complex or unfamiliar. In addition, the option to learn at an adjustable pace may especially benefit those for whom English is a second language (which was the case with two of our student employees).

A third benefit is that an online tutorial communicates information in a mode that is familiar to contemporary users. This is a model that is common across the board in software and on the internet. Students are comfortable in an electronic environment and with computers and this factors into the purpose for opting to use tutorials in the first place.

Using tutorials has the advantage of providing uniform instruction to a disparate group of individuals. Person-to-person (PTP) instruction has the disadvantage that the information communicated depends on the ability of the instructor to communicate the same information in multiple instances. By using a tutorial and its standardized information, one can ensure that each staff member has received the same instruction. Tutorials also can be used to ensure exhaustive instruction. PTP instruction is dependent upon the ability of the instructor to remember to communicate all of the necessary instruction. The use of tutorials removes this variable. All necessary information can be compiled into a tutorial or series of tutorials.

Finally, using tutorials allows for flexible instruction that is not dependent upon the

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schedules of more than one individual. Tutorial instruction can occur at the convenience of the user and can be interrupted with negligible consequences. And, a tutorial which is networked can be used by anyone at any time as long as an internet connection is available.

Drawbacks include inflexible instruction, limited applicability, and a lack of interactive engagement. Using a tutorial standardizes the instruction, which results in a degree of inflexibility. For example, there is no way for a user to resolve a question that occurs during the process which the tutorial does not specifically address. There is no option for exploring features of particular interest or difficulty beyond what the tutorial covers. The step-by-step format may even prove frustrating to a user who simply wishes to learn one specific feature of step. This would be especially problematic for using a tutorial for patron assistance rather than just staff training.

A second drawback is that a tutorial is valid only so long as the system it describes remains unchanged. Database updates and software updates often result in a new configuration of features. Buttons may be moved to a new location, some functions may be removed, and newer functions may be added. This may render a tutorial obsolete, depending upon the extent of the changes. For frequently updated or modified systems, a different approach would be needed. And for those systems (such as software) which occasionally receive comprehensive modifications, the tutorials themselves would likely need to be replaced.

Tutorials of this sort also face the disadvantage of not providing interactive learning. Interactive learning often is a feature of commercially produced tutorials, but freeware-based tutorials may not be able to accomplish this. PTP instruction is an ideal model for interactive engagement because the instructor can structure, supervise, intervene in, correct, and evaluate any interactive learning as the instruction proceeds. Using tutorials, the staff members viewed slides containing information without opportunity to do and "hands-on" learning. The use of exercises with the database tutorials was an attempt to address this and make the learning process more interactive, but it did not fully capture the nearly spontaneous interactivity of PTP learning.

Conclusion

This project provided insight into design and implementation of tutorials as a training tool. I found design to be more complex and to require more planning than I had expected. Ultimately, the step of planning a tutorial's design is vital to the effectiveness of the tutorial and should receive a great deal of attention. Implementation of the tutorials showed that learning is more complex than the communication of information. Tutorials are most effective when they include, or are paired with, procedures which allow a user to practice what they are learning.

I think there is some room for improvement and exploration. Constructing and administering pre-tutorial exercises would, I think, help provide texture to the tutorials by identifying important features of the databases. This would enrich the learning process and make the tutorials more effective. Another facet to consider is the comparative use of other software for tutorial design. Since I only used Wink, it may be that other software, such as Camtasia, would offer more features or better functions. Designing tutorials in other software may even provide additional perspective on the whole process. Finally, a goal of using these for patron reference or assistance appears to be feasible, but would require quite a bit of refining. Different design and structure is necessary to accommodate the particular needs and aspects of patrons as distinct from staff members. It would require returning to the initial step of designing and spending a great deal of time there.

Overall, I consider the project to have been rather successful. The staff members offered very positive feedback regarding the use of tutorials. In training new student employees, the goals of more efficient use of time and standardized instruction were both met. Incidentally, the new employees are functioning effectively and have demonstrated competency in the operations which they learned through tutorials. I hope to continue to incorporate online tutorials into staff training. �