

**“Providing Critical Safety Training via Innovative Streaming Media”
Best Practices**

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Abstract

Disseminating information is a key concept in transportation planning. The University of South Florida in cooperation with the Center for Urban Transportation Research identified a critical transportation issue on its campus, that of golf cart safety. With approximately 400 golf carts on four regional campuses accommodating 39,000 students and more than 4,000 faculty and staff, the need for training in the proper use of the carts was vital. Incidents involving golf carts and pedestrians or automobiles were occurring often.

CUTR and USF's main goal was to develop a golf cart safety-training program that was accessible to and effective for all golf cart users, which included hundreds of people on five regional campuses. On-line, course-based training (CBT) appeared to be the best solution, but there were a number of obstacles to overcome--firewalls, bandwidths, hard drive space, and software issues.

After researching these obstacles, an on-line, streaming CBT program that could be disseminated to all the campuses was developed. By integrating digital imaging and a number of software programs including Adobe Premiere, Fluition, and Cleaner 5, a user-friendly product was developed that integrated CBT with Real Media technologies.

The resulting product is a cutting-edge training video delivered via the Internet that has proven to be both effective and efficient.

Introduction of the Organization

The University of South Florida (USF) is the second largest university in the southeast and among the top 20 largest in the nation. Located in the thriving Tampa Bay area, USF serves its approximately 39,000 students on campuses in Tampa, St. Petersburg, Sarasota-Manatee, and Lakeland, as well as its centers in Downtown Tampa, New Port Richey, and Northern Pinellas County.

With large, spread-out campuses, golf carts have become a widely-used means of transportation. More than 400 golf carts are in service on the four regional campuses. However, with 39,000 students, more than 4,000 employees, and a vast number of automobiles, golf cart safety has become a significant issue. On average, one golf-cart-related incident is reported monthly on USF's campuses.

USF administrators asked the Division of Environmental Health and Safety, Department of Risk Management to develop training procedures and a method to effectively deliver training to the golf cart users on all the USF campuses. With expertise in transportation safety as well as training, CUTR partnered with the Division to meet these needs by means of an innovative, technologically-advanced method to deliver the training.

Through the use of streaming technology, an on-line, interactive, course-based training video was developed that integrates the concepts of safety and training. It is available to anyone who needs it and requires no software downloads or special computer skills. In addition, employees can view it at their own pace and, after the video concludes, can

print out a certificate of completion form that can be printed and automatically e-mailed to the appropriate authorities as required.

This “best practices” technology has proven beneficial to USF and the transportation industry by providing critical safety training both effectively and efficiently to hundreds of employees. Utilizing the Internet in conjunction with this new technology, USF employees have been able to obtain safety training 24 hours a day, 7 days a week from the comfort of their office or home PC. The majority of on-campus golf cart drivers have completed the on-line training video successfully, and, in the months following the release of the training program, USF has seen a decrease in the number of reported golf cart incidents on its campuses.

The transportation industry has also benefited from this model approach to information sharing. This model has been copied and applied to other areas of transportation such as transportation research, maintenance and operations training, and transportation disadvantaged public notification.

Statement of the Problem/Initiative

Providing essential safety training to hundreds of university employees on four regional campuses in an effective and efficient manner was the primary issue. The training needed to be fresh and innovative, available to users at multiple locations and with varying skill levels. While classroom training generally proves to be the most effective, it is not the most efficient in this case, since it can be costly and time intensive. Training

by means of training on a compact disc (CD) was investigated, but hardware issues were a concern, since not all USF computers are equipped with CD drives. Additionally, CDs can be flawed, and if scratched, render the video useless.

Design

When designing web-based training, key issues included identifying the audience and analyzing how that audience will access the training, since there is a substantial difference in producing a web-based training video that will be pushed over a standard modem telephone line and one that will be used on a high-speed broadband connection. The audience in this case was identified to be using local area networks (LAN) high-speed broadband connection to access the video; therefore, video compression, file size and rendering were not necessary considerations. Expertise in shooting the video as well as performing digital non-linearly editing (NLE) and other technical assistance were necessary to the project.

Real Media Player was the delivery system of choice, since it is readily accessible and free to download. Real Streaming Media Server Software was purchased to install on the web-server at relatively nominal cost, considering the size of the audience. Additional server storage space was required to accommodate the server software and the large video file.

The video was developed using Adobe Premiere . This program's non-linear editing capabilities were instrumental to this project, allowing the incorporation of PowerPoint

slide JPEGs and providing the flexibility of multiple audio and video tracks. Although this was an expensive piece of software, the cost was built into the budget and it could be used for all other subsequent videos. After editing was complete, the quality of the finished video was poor, with pixilating and fuzziness. To address this, a new software package, Cleaner 5, was purchased and applied to improve the quality of the video but also to reduce the file size. The frame to house the video was investigated; “Real” offered a standard frame but was not very customizable. An inexpensive software called Fluition, essentially an SMIL (Synchronized Multimedia Integration Language) equivalent of a WYSIWYG editor, was purchased and applied that enabled incorporation of hyperlinks and command-seek prompts and allow the creative freedom to manipulate the frame set in numerous ways.

This project required significant effort and dedication from a number experts and USF employees. Cliff Knox, Coordinator of Environmental Health and Safety Risk Management, was primarily responsible for overseeing his department’s funding of the venture. Additionally, he played a lead role in the development of the safety rules and standards and was lead consultant for the script, storyboard, and on-site video shooting. Jennifer Hardin, Research Associate at the USF Center for Urban Transportation Research, served as Project Manager. Linda Callejas, Graduate Research Assistant at the USF Center for Urban Transportation Research, researched golf cart safety requirements nationally and helped draft USF’s safety standards as well as the audio script. Amber Reep, Research Associate at the USF Center for Urban Transportation Research, was primarily responsible for melding the vision of a golf cart safety program with the

technology necessary to accomplish it, producing the majority of the film footage and conducting the technology research and implementation. Keith Thomas, Production Technician at the USF Center for Urban Transportation Research, researched new technologies, edited the video, and posted it online. He was also instrumental in developing the auto-launch certification form. Martin Catalá, Research Associate at the USF Center for Urban Transportation Research, collaborated on site design and was instrumental in filming the footage.

Implementation

Most of the obstacles encountered were in the development stages of the product; implementation of the project went smoothly in that the final product was simply posted to the web page and an e-mail notification was sent to all USF employees. The only implementation problem involved the number of available simultaneous streams, since, at any given time, there were on 25 streams available. However, this issue only occurred once and was resolved.

Benefits

There were many benefits associated with implementing this best practice:

Cost Savings: Although many staff hours went into the development of the product, the end result was less expensive than outsourcing the work to a professional production company to mass-produce VHS tapes. Additionally, this form of communication has been utilized in several other venues.

Efficiency: Providing course-based, streaming safety training proved to be very efficient, since multiple individuals in remote locations are able to train on the product at anytime

Performance: Although no quantifiable analysis has been performed, it is believed that golf-cart-related incidents have decreased campus-wide as a result of the cart safety video.

Teamwork: This project required close collaboration among researchers, students, and clerical assistants within and among departments at USF. This diversity was one of the key factors of the video's positive reception campus wide. Every person involved was instrumental in the successful completion of the product, each knowing they contributed to an innovative product.

Additional Work: This best practice showcased the talent and capabilities of the project team, which has already been awarded additional work based on the demonstration.

Retrospective

This project has been, in almost every aspect, a great success. It has certainly been a tremendous learning experience, providing number of lessons learned to be applied to future projects. First and foremost, clear statements of the job duties and a definitive time line for completing those duties would have aided greatly in completing the project sooner. Second, a more realistic budget would have been helpful. Because this was the first time the team had worked on this type of project, the budget was simply an estimate, with approximately \$17,000 budgeted, but \$27,000 actually required to complete the project. Finally, delivery of this technique should have been discussed at the outset, with

attention given to copyrighting and charging for copies request beyond the scope of the project.

In all, this was an especially successful project in a number of ways, from the delivery of an efficient and effective product to the vastly-increased knowledge of all on the project team. To be recognized for this work is indeed unexpected and a great honor.