Meeting Instructional Faculty Needs: Training Faculty with Screencasting

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Abstract: This instructional design project evaluated a video based instructional module created with Jing, a screencasting software, and its effectiveness of how images and videos of detailed travel procedures can enhance learner’s knowledge in completing online travel authorization forms using the University of Hawai`i eTravel website. Furthermore, this study evaluated how presenting verbal and visual explanations together in a coordinated way were more effective than providing written step-by-step instructions. Post-secondary faculty members from various academic departments at the University of Hawai`i – West O`ahu (UHWO) participated in this study. Literature reviews discussed the uses of screencasting in higher education libraries and a large organization, and how libraries were creating screencasting video and images to enhance their search strategies and reference services. Based on a pretest/post test experimental method, and a post attitudinal survey, instructional faculty found use of screencasting helpful in illustrating complex travel instructions to complete the online travel authorization forms. Further research will need to be conducted to determine if screencasting is an effective learning tool for instructional faculty, as well as for other eTravel users, such as support staff in the organization.

Introduction

Living in a visual age, telling someone about how to perform a task is not as compelling as showing them. One of the best ways to do this is by creating vivid images using today’s multimedia tools. Multimedia is a woven combination of text, graphic art, sound, animation, and video elements. Screencasts offers a compelling way to visually demonstrate technical tasks. A screencast is a video that captures the actions performed on a computer screen, including mouse movements, and usually accompanied by audio narration (Carr and Ly, 2009). It can consist of any piece of explanatory video that strings together images or visual elements. The purpose of this instructional design project was to develop and evaluate a video based instructional module created with Jing, a screencasting software (Small, 2010), to enhance the level of understanding of faculty using the University of Hawai`i eTravel website.
To achieve this purpose, the study examined whether video-based instruction affected student learning (i.e., comprehension and retention) and motivation (i.e., attention, relevance, confidence and satisfaction) by comparing learners’ performance results in an online context-based learning situation. The study examined content and design of the module as the approach to an effective video instruction.

**Background**

The University of Hawai`i (UH) recognizes that employees may be required to travel while conducting University business. When this occurs, the employees should be allowed to travel in accordance with the University policy. This policy is known as “UH Travel Policies and Procedures”. Before planning any travel, all official University travel should be properly authorized, reported, and reimbursed. Proper authorization requires completing the Travel Request Form online using the University of Hawaii’s eTravel website. However, a number of employees who travel resist completing the online travel form due to its complexity, yet, due to their busy schedules, traveling to another campus to attend a training class can be arduous. Although the existing step-by-step instructions for completing the eTravel forms were available both online in static image and in print format, the information was not necessarily accessible.

Consequently, a supplemental teaching approach was explored as a means to train faculty how to complete the travel forms online. This approach is the provision to share information visually and aurally; allowing enhanced understanding and learning through video, with the incorporation of a screencast (Educause Learning Initiative, 2006). Furthermore, studies suggest that demonstrating how something works and providing additional explanations from a computer screen is helpful for employees (Brown-Sica, Sobel, & Pan, 2009).

**Literature Review**

When learners have trouble following written step-by-step instructions, the use of images can alleviate these visual barriers (Carr & Ly, 2009). In a study conducted by Small (2010), the use of screencasts enabled students to understand library processes much more easily. This implies that screencasting can be helpful in illustrating both simple and complex concepts. Moreover, screencasting has been used in educational settings to visually illustrate difficult concepts, specifically step-by-step instructions (Carr & Ly, 2009). Thus, research indicates that using images to represent sequential instructions illustrates the relationships better than text. Furthermore, learners enjoy video instruction, including the fact that they could view the recording as often as needed to be successful in attaining the level of skill they desire (Small, 2010).

Finding technology tools that will enable learners to capture key concepts and facilitate learning in a visually engaging way is important (Netteland, Wasson & Morch, 2007). When planning for video-based instruction at a distance, content development are integral parts of creating effective online tutorials (Betty, 2008). Studies suggest that it is essential to take the time to plan and organize the learning experience when engaged in
teaching at a distance as the focus of the instruction shifts to visual presentations. Moreover, learners receive greater value with the online tutorials when authors sacrifice perfection and respond promptly to distance learners needs (Brown-Sica, Sobel, & Pan, 2009).

There has also been considerable interest in formulating best practices in the application of new technologies used for video instruction (Simonson, Smaldino, Albright, & Zvacek, 2009). As such, the use of scripts should be considered for structure and clarity to online tutorials (Betty, 2008). Meanwhile, recent studies conclude that new pedagogies for online tutorials have taken into consideration two characteristics that are common in visual learning – interaction with the media and the multiple sensory perceptions used to comprehend content (Tempelman-Kluit, 2006). Hence, studies indicate that multimedia instruction must be well designed to mimic the best teacher, by combining in its design the various elements of the cognitive processes and the best quality of the technology.

Method

Purpose of Instructional Design Project

The purpose of this instructional design project was to develop and evaluate a video based instructional module created with Jing, a screencasting software, to enhance the level of understanding of faculty using the University of Hawai`i eTravel website.

Site and Participants

The target audience for this study was instructional faculty at the University of Hawai`i – West O`ahu. UHWO is a baccalaureate degree granting institution which offers degrees in the liberal arts and professional studies. The faculty at UHWO has had experience offering courses via the Internet, and has used varying technologies to enhance their teaching. Hence, faculty who were selected to participate in the study were equipped with technology skills at varying levels. The population for this instructional design project consisted of post-secondary faculty members at the University of Hawai`i – West O`ahu in the state of Hawai`i. The sample population (N=9) was randomly drawn from four departments - Social Sciences, Professional Studies, Humanities and Education department. Their ages ranged between 29 and 48, with a median age of 39.

Module Design

Various tools were used to create this web-based instructional module. The module was developed using a free building and hosting website Webs.com, with module located at http://otec690.webs.com/. Meanwhile, the pre-test/post-test questions and optional post survey were created on SurveyMonkey, website http://www.surveymonkey.com/. Three asynchronous instructional videos were created using the screencasting software Jing, then uploaded to Screencast.com, website: http://www.screencast.com/. Screencast.com is a hosting site used by Jing to securely host users content.

The “ADDIE” model (Gagne, Wager, Golas, & Keller, 2005), the systematic approach to the instructional design process, consisting of a five-step process: analysis, design,
development, implementation, and evaluation, was used to develop the web-based instructional module to ensure that the instructional products are effective and that the creative processes are as efficient as they can possibly be. Finally, the objectives for this module were observable and measurable in order to achieve the goal of instruction, which stated, “Faculty will have the skills necessary to prepare the online Travel Request Form at a competency level required to comply with travel procedures using the University’s eTravel website”. In total, there were three entry-level (EL) objectives and fifteen main objectives.

Module Content
A web-based instructional module consisting of a consent form to participate in a research study, pre-test/post test multiple choice questions, three video modules, and an optional post survey questionnaire was developed for this study. The eTravel module content was designed to visually illustrate difficult concepts, specifically the step-by-step instructions of how to complete the travel forms on the eTravel website. This module was comprised of six parts. Part one consisted of a module pre-test that ascertained faculty’s knowledge of the travel procedures, while concurrently establishing their knowledge baseline. The pre-test comprised of ten multiple choice travel related questions. Part two is the first video module illustrating How to Log in to eTravel and Profiler. This learning module demonstrated how to create a user profile before utilizing the eTravel. Part three highlighted How to Create a Travel Request. It outlined the requirements prior to travel. Part four demonstrated How to Create a Travel Completion. This learning module highlighted the requirements to receive a travel reimbursement. Part five comprised of the module post test. Upon completion of the modules, learners were instructed to take a multiple choice test with ten questions. Part six consisted of a voluntary post attitudinal survey with 15 Likert Scale questions divided into three categories: Instructional Delivery of the Video Module, Content of the Video Module, and Organization of the Module. Learners were asked to indicate a degree of agreement and disagreement with each of a series of statement. Each scale item has 5 response categories ranging from strongly agree and strongly disagree. Finally, two open-ended questions were provided to solicit detailed feedback and comments.

Assessment of the overall effectiveness of the module was measured by the data collected from the module pre-test, post-test, and post survey questionnaire. Both quantitative and qualitative analysis was used to evaluate the effectiveness of the module. Quantitative analysis was applied to the data collected from the pre-test and post test. Similarly, the post survey questionnaire allowed qualitative analysis to measure perceived learning and motivation of the module. The open-ended questions were developed to gather detailed feedback.

Module Implementation
Participation in this study was on a voluntary basis and completely anonymous. After determining the target audience, an informed consent document, together with the instructional module, was sent to a total of 16 faculty. However, only 9 faculty reviewed the instructional module and completed it in its entirety.
Results

*Module Quantitative Analysis*
Quantitative analysis approach was used to compare the data collected from the module pre-test and post test. Comparison between participants test scores with respect to specific test questions determined module effectiveness by the degree of change occurring as a result of the implementation of the module.

Table 1 illustrates that learners pre-test scores initially lacked in-depth knowledge required to meet the goal objective. Nonetheless, results show that learners managed to score an average of 100% on Questions 3, which asked them to identify the main function of eTravel. Identically, learners also scored an average of 100% on Question 5, which asked them to identify a requirement prior to taking a business trip. Learners average on the pre- and post tests for the item related to Questions 3 and 5 remained constant at 100%, indicating that this concept could have been an entry level objective instead, and eliminated from the instruction.

Meanwhile, learners scores significantly improved on the post test compared to the pre-test. Post test results show that learners scored an average of 100% on all the questions with the exception of Questions 4 and 7. Question 4 asked to identify the main function of Profiler, which resulted in an average post test score of 85%. Similarly, Question 7 asked learners to identify which button to click to make the document electronically available to the VCAA’s office, also resulting in an average post test score of 85%. Lower scores for these two questions could have been partially attributed to the phrasing of the sentence.

In summary, the average score for the pre-test was 86% and the post-test was 93%, suggesting that the instructional video module was effective in meeting its goals of delivering step-by-step instructions to faculty. There was a 7% increase between tests indicating, though not significant, that learning occurred from the instruction. Success on the culminating post test could have been partially attributed to the test being administered upon completion of the video-based module.

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<thead>
<tr>
<th>Table 1. Pre-test vs. post test results</th>
<th>Test Question</th>
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<tbody>
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<td>Post Test</td>
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<td>100</td>
<td>120</td>
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Pre Test  Post Test
Module Qualitative Analysis

Overall, the post attitudinal survey responses illustrated that faculty found video to be an effective format of informational delivery. (See Table 2). None of the learners rated any of the statements “strongly disagree” or “disagree”. In fact, 100% of the faculty strongly agreed that the module was easy to read, thus indicating satisfaction of the organization of the module. Most of the criteria covering these particular pedagogical strategies were rated at least an average of 90% or higher in terms of enhanced understanding of the instruction. However, the statements, “The length of the video module was ideal” and “I now have a better understanding how to complete and submit the eTravel authorization form”, both was rated 33% as a low. Results revealed that the length of the video was slightly too long, while learners are still not confident with the travel process.

Slightly more encouraging are the post attitudinal survey feedback on the module’s design. Feedback from the learners alike were unanimously positive. When asked what participants liked most about the video module the following statements were denoted:

- The video tutorials were very helpful…made using eTravel a lot smoother
- If you didn’t understand part of the instruction you could replay the video
- Learned a lot of valuable information through the video
- Nice to learn at your own pace
- Video demonstration is better than reading my travel notes

No comments were added to the question asking what participants like least about the learning module.

Table 2. Attitudinal Survey Results

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<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
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<tbody>
<tr>
<td>Understand Better</td>
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<td>Length Ideal</td>
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<td>Better Learning</td>
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<tr>
<td>Content Clear</td>
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<td>Logically Organized</td>
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<tr>
<td>Easy to Read</td>
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Values represent percentage of respondents
Discussion or Implication

Based on the results of this instructional design project, video-based learning was an effective method for delivering step-by-step instruction in completing the Travel Request Form using the UH eTravel website. Visual synchronized with voice narration complemented one another and helped with the complexity of this task.

Majority of the learners shared that the merits of using images and learning through video was the ability to see the sequential instruction being demonstrated. Learners also found value in the verbal explanation along with the ability to re-play sections of the video as necessary. Least encouraging is the indication that 11% of the learners didn’t feel they had a better understanding how to complete the eTravel forms. This outcome can be attributed to the content organization of the video. Consequently, results showed a low score that indicated learners didn’t enhance their learning implies that module content should be critically examined taking into consideration the context and sequence of information.

While this study examined the learning of instructional faculty in general, other specific factors should be examined in future research: level of technology skill, characteristics of learners and prior knowledge. The target audience in this study were instructional faculty from a higher education institution with terminal degrees. However, there is opportunity for further research to include support staff and administrators in the organization. In order to foster enhanced learning for the faculty, further studies focusing on video as a tool for training must be conducted.

Conclusion

Results confirm that video-based learning appealed to the learning preference of faculty. The process of planning and organizing instruction can be critical. Components to consider in an instructional design are the learners, the content, the method and materials, and the environment, including the technology (Simonson, Smaldino, Albright, & Zvacek, 2009). When designing a module for faculty, it is vital to determine what works and what needs to be improved. Furthermore, emphasis on planning and revising helps secure the final outcome of helping faculty perform at their optimum.
References


