

# **The Online ETD Tutorial: Supporting Students' Transition from Traditional to ETD**

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## **ABSTRACT**

The Ohio State University, Adobe Systems Incorporated and NDLTD partnered to produce an online ETD tutorial for student authors that takes advantage of Adobe Acrobat's rich feature set that supports intuitive navigation, integrates multimedia, promotes user interaction and provides support for users with special needs. The Online ETD Tutorial is a modular-based training program that steps student authors through a series of lessons designed to instruct them on how to use Adobe Acrobat to produce PDF versions of ETDs. This paper describes how the design team determined the need, designed and produced the tutorial, managed a collaborative design review process, conducted a formative evaluation, disseminated the end results, and plan to make improvements on future versions.

## **1. INTRODUCTION**

### **1.1. Background**

The Ohio State University is one of the largest public universities in the United States, with an enrollment on its main Columbus, Ohio campus of over 50,000 students, 10,000 of whom are graduate students. The University grants about 600 research doctoral degrees each year, almost 2% of all the doctorates awarded annually in the United States, as well as some 2,500 masters' degrees. For an enterprise of this size, there are significant advantages to replacing the traditional paper format of the masters' thesis and doctoral dissertation with digital versions. Electronic versions are easier to search and more accessible to a wider audience. Research results reported in theses and dissertations are becoming progressively more complex and, in many cases, incorporate multimedia and other digital resources. In 2002, The Ohio State University made the decision to require all doctoral dissertations to be submitted in electronic form only. Since that time close to 1,500 ETDs have been disseminated through OhioLINK, the State of Ohio's library information network that hosts Ohio State University's ETD site.

## **1.2. Identifying and addressing the need**

Converting a Graduate School like Ohio State's to ETDs brings with it a number of significant issues. First, at The Ohio State University there are more than 120 different graduate programs, in disciplines as diverse as materials science, East Asian languages, dance, accounting, and linguistics, to name only a few. Of these 122 graduate programs, 100 offer doctoral degrees. Some of these programs have a very strong technology base, while others lack even basic technological expertise. Even though the graduate students were provided with several training options through the library and the Graduate School, many had difficulty preparing the mandated electronic version of their dissertation.

The Graduate School requires that all student authors convert their text document into a PDF file for uploading to OhioLink's server. Almost all of the students choose Adobe Acrobat to handle the conversion process. While Adobe Systems Incorporated Website provided support for the business use of Acrobat, it lacked directions on how to use the software for academic publishing. Not only were students (and faculty advisors and support staff) having difficulty adapting Acrobat for this purpose, but they also were overlooking the application's rich feature set that supports intuitive navigation, integrates multimedia, promotes user interaction and provides support for users with special needs.

To address this problem, Adobe Systems Incorporated, in collaboration with the NDLTD, partnered with The Ohio State University's Technology Enhanced Learning and Research unit (TELR) to design an online ETD tutorial. This project required support from a large, interdisciplinary team comprising Ohio State University's Deputy Chief Information Officer, the Technology Enhanced Learning and Research (TELR) unit's visual designer with other design professionals, the Associate Dean of the Graduate School, university librarians, NDLTD association faculty members representing institutions nationally and internationally, and Adobe Systems Incorporated staff.

## **1.3. The Product**

The Online ETD Tutorial is a modular-based training program that steps student authors through a series of lessons designed to instruct them on how to use Adobe Acrobat to produce PDF versions of ETDs. The tutorial itself is in PDF format and incorporates text, images, audio files and movies to guide authors through lessons ranging from specifying document properties to incorporating navigation clues and multimedia files. Each lesson comprises interactive exercises linked to corresponding movie demonstrations.

## **2. METHODS**

### **2.1. The Design Brief**

The design brief called for creating an online tutorial instructing student authors to use Adobe Acrobat for Windows to produce a PDF version of their thesis or dissertation. In most instances, the differences between Acrobat for Windows and Macintosh were insignificant and the instructions were directly transferable. Specifications required that users have access to Adobe Acrobat Professional to view the tutorial and to effectively apply what they learn. Additionally, users needed the latest Macromedia Flash plug-in to view demo movies. The online tutorial was modular based. It consists of 5 lessons, each containing from 2 to 7 exercises for a total of 22 exercises.

### **2.2. The Review Process**

An Adobe Systems Incorporated educational consultant worked with The ND LTD to assemble a quality assurance review team comprising Ohio State and ND LTD faculty and library staff members and Adobe Systems Incorporated staff. The reviews were held electronically. The Ohio State design team uploaded draft PDF files to the web site where the review team members were able to download them locally. Content was edited directly within the PDF files by highlighting, adding notes and making text edits using Acrobat's commenting tools. All of the revisions were combined into one document, which served as the master file for any changes.

Each lesson underwent 5 reviews, which aligned with the following milestones:

1. Choosing the lesson exercises
2. First tutorial including screen shots (no demo movies) for each lesson
3. First revision of tutorial including screen shots and demo movies for each lesson
4. Second revision of tutorial including screen shots and demo movies for each lesson
5. Final tutorial review

The design team found the review process extremely helpful in improving the overall final product. Based on the reviewer's recommendations, additional steps were added to exercises to clarify procedures and entirely new exercises were added to provide additional functionality.

### **2.3. Usability Testing**

The Ohio State design team conducted informal usability testing with undergraduate and graduate students. One group of students was asked to complete the entire tutorial and perform specific tasks. A second group of students was assigned individual lessons and asked to perform specific tasks based on the exercises within the lesson. The testing resulted in the designers adding additional tips and increasing the number of instructional steps within select exercises.

The Ohio State University's Web Accessibility Center (WAC) tested the tutorial to confirm that the content in the PDF documents was accessible to users with disabilities and special needs. Adobe Acrobat's built in functionality allowed for the tutorial to be read out loud directly from the PDF file. WAC staff tested compatibility with third party screen reader software such as Freedom Scientific's JAWS<sup>®</sup> for Windows. Based on WAC's findings, the tutorial was optimized to take advantage a speech synthesizer's read out loud feature. Unfortunately, JAWS experienced some difficulty with more advanced functions like tabbing through the document paragraph by paragraph. To further support accessibility, the PDF file served as a written transcript for the audio embedded within the movie files.

## **3. THE PROCESS**

### **3.1. Source Content**

The Online ETD Tutorial was based on an existing dissertation titled, "Applying Natural Horn Technique to Modern Valved Horn Performance Practice" (Wick, 2001). The Ohio State University Doctor of Musical Arts candidate Heidi A. Wick published this dissertation electronically in 2001. Dr. Wick had incorporated audio clips (AIF formatted files) into her ETD to demonstrate her auditory-based research findings.

### **3.2. The Design Team and Technical Specifications**

The Online ETD Tutorial was designed and produced by Ohio State's Technology Enhanced Learning and Research (TELR) unit within the Office of the Chief Information Officer. The lead author of this article, a senior visual designer, led the project team and envisioned, designed and produced all of the lessons, inclusive of the exercises. She commissioned the work of an in-house writer specializing in user documentation and a videographer to edit the video clips. She also hired a professional announcer, employed by the University's public radio station, to narrate the audio tracks.

The tutorial was designed using Adobe InDesign and exported as PDF files. Navigation, audio clips, movie clips and links to the demo movies were created in Adobe Acrobat. Qarbon's ViewletBuilder4 was used to capture the screen shots. The audio files were edited in Apple's Final Cut Pro. The designer imported the screen shots and audio clips into Macromedia Flash to program the animation. The completed Flash files were imbedded into HTML files created in Adobe GoLive.

## 4. THE PRODUCT

### 4.1. Using the Online ETD Tutorial

The Online ETD Tutorial can be downloaded in one PDF file labeled, "Use Adobe Acrobat to create an ETD" or as individual, stand-alone lessons. The tutorial consists of five lessons:

- Lesson 1: Read an ETD (PDF: 623K)
- Lesson 2: Create a PDF File (PDF: 304K)
- Lesson 3: Modify a PDF File (PDF: 645K)
- Lesson 4: Add PDF Navigation to an ETD (PDF: 1.3M)
- Lesson 5: Add Multimedia with Acrobat Professional (PDF: 1.3M)

Each lesson begins with an introduction explaining how the features demonstrated within the lesson apply to ETD production. Each lesson contains a series of exercises with step-by-step instructions illustrated with screen shots visually reinforcing the content. Icons provide visual cues to locate specific tools. Useful tips are arranged within a consistently positioned sidebar (Figure 1).

**Exercise 5 – Add Page Links** [View Demo](#)

When you move the mouse over linked text in a document, the cursor changes to a pointing finger. Just like on a web page, clicking a link provides a quick way of moving to a specific location within your document. In this exercise you will see how to create new page links.

1. Navigate to your table of contents. For this exercise, you will create a link from one of the entries to an associated page within your document.
2. Click the **Zoom** tool in the Acrobat toolbar and then click an entry to the link (for example, "Abstract").
3. Click the **Link** tool in the Advanced Editing toolbar. Notice that your cursor changes into a cross-hair pointer. Draw a rectangle around the text to create the link.

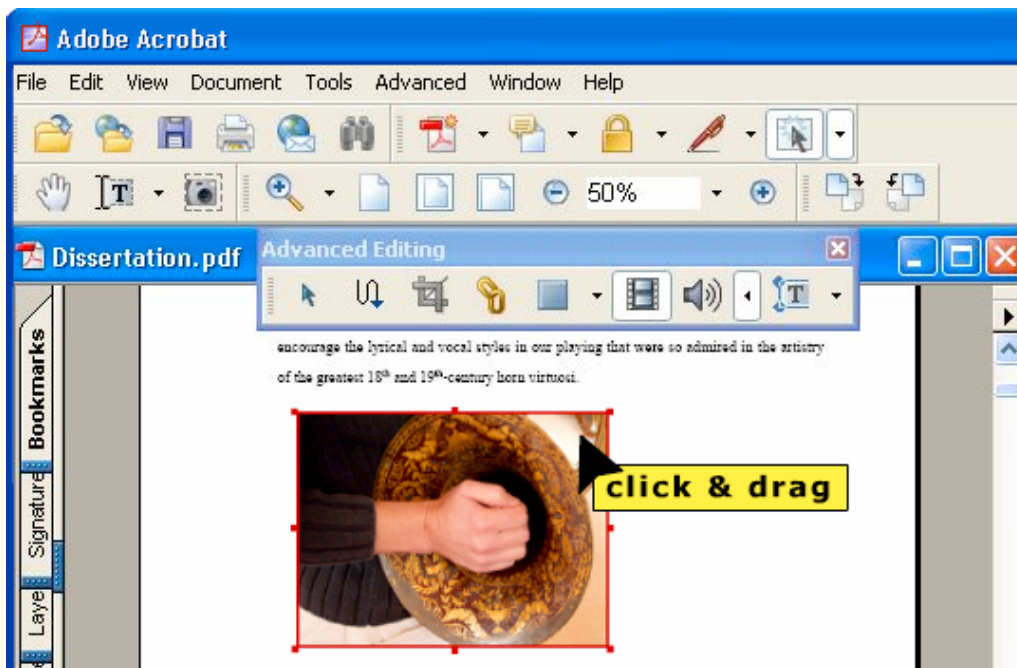
**Tip**  
If you don't see the **Link** tool, open the **View** menu and choose **Toolbars** and then **Advanced Editing**. Alternatively, choose **Tools > Advanced Editing > Link Tool**.

**Bookmarks**

**Links**

*Figure 1 Step-by-step instructions, tips, screen shots and button icons assist users in learning skills needed to create an ETD. Bookmarks direct users to lessons, exercises and demo movies. Links point users to related content within the document, to the OhioLink ETD Repository and to the demo movies.*

Altogether there are 22 exercises spread across the 5 lessons. Each exercise links to a corresponding movie demonstration. Student authors may access the movies by clicking the appropriate bookmark or by clicking the button beside the exercise title. The movies have audio narration, include a brief introduction and step-by-step instructions (Figure 2).



*Figure 2. The movies demonstrate exercises with audio narration and visually reinforce mouse and keyboard actions.*

The Acrobat bookmarks panel is automatically displayed and available throughout the tutorial to assist with navigation. Each bookmark points to a specific location within the PDF file or to a demo movie, serving as an interactive table of contents. Within the document, links point to related content within the document as well as external links such as OhioLink where Wick's actual dissertation is stored.

The designer purposely used the Adobe Acrobat PDF navigation schema and multimedia features within the design of the tutorial to demonstrate their functionality and to reinforce learning. By experiencing these functions first-hand, student authors might be stimulated to add multimedia and interactivity into their own ETD.

#### 4.2. Dissemination

The tutorial has been widely disseminated and can be accessed at the following sites:

- Adobe Systems Incorporated: <http://www.adobe.com/education/etd/tutorials.html>

- The Ohio State University Graduate School:  
[http://gradsch.osu.edu/Depo/ETD\\_Tutorial/etdtutorials](http://gradsch.osu.edu/Depo/ETD_Tutorial/etdtutorials)
- Virginia Tech (NLTLD's link): <http://etd.vt.edu/etdtutorials>
- ProQuest: <http://dissertations.umi.com/tutorial.html>

#### 4.3. Expanding Functionality

Currently the Ohio State design team is developing a version of the Online ETD Tutorial that reflects the screen design and functionality changes in the recently released Adobe Acrobat 7.0 Professional. This upgrade will be complete and available online by Fall 2005. In addition to making the updated tutorial freely available on the web for student ETD authors, Adobe Systems Incorporated plans to use it as a marketing tool and will translate portions of it into Japanese for their overseas workforce.

The Ohio State University also is researching options for adding a sixth lesson to teach student authors how to produce ETDs that are accessible to students with special needs. The lesson would provide instructions for authoring accessible PDFs and demonstrate how to follow the conventions of universal design for learning (UDL) that calls for designing online documents that are accessible to all users by providing multiple means of representation, expression, and engagement (CAST, 2005).

While the project has been met with positive response from student authors using the tutorial and from the corporate and association sponsors, the design team plans to develop and administer an electronic questionnaire to collect formal feedback from users. This data will be used to document use, assess success, and to ultimately improve future iterations.

#### 5. CONCLUSION

Based on the usage pattern and comments from local student authors, this project has met the need of providing an easy to use and easily accessible tutorial for using Adobe Acrobat to create ETDs. Additional research needs to be conducted on whether student authors who have used the Online ETD Tutorial are more competent at converting their theses and dissertations to electronic formats. Even more telling will be the collection of data indicating whether future ETDs will offer intuitive navigation, integrate multimedia, promote user interaction and provide support for users with special needs.

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