

# **Design and Development of Computer Based Instruction**

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December 16, 2004  
IDE 755 Fall 2004  
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# Design and Development of Computer Based Instruction

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# Design and Development of Computer Based Instruction

## Introduction

This document outlines the design and development process of my IDE 755 project. I currently work with the Transactional Records Access Clearinghouse (TRAC) research group at Syracuse University. I was awarded a graduate assistantship to design instruction for the TRAC website. I will use this opportunity to design a portion of the instructional product for this project.

## The Instructional Multimedia Design Model

Following research on various instructional design (ID) models, I created an Instructional Multimedia Design Model (IMMDM) for the TRAC research group. This model incorporates the key areas of analysis, design, development, implementation, and evaluation (ADDIE), the target audience in each phase, and the deliverables (see Figure 1).

This entire ADDIE process will encompass a full year of work. For the purposes of this project, I will complete a small *quickstart* tutorial using the *Authorware* software.

	<b>Process</b>	<b>Involves</b>	<b>Deliverables</b>
<b>analysis</b>	<ul style="list-style-type: none"> <li>· Conducting needs assessment</li> <li>· Preparing audience assessment</li> <li>· Determine overall content and goals</li> <li>· Specifying authoring systems</li> <li>· Selecting delivery systems</li> <li>· Planning project</li> <li>· Planning evaluation strategies</li> </ul>	<ul style="list-style-type: none"> <li>· Instructional Designer</li> <li>· Subject Matter Experts</li> <li>· Programmer(s)</li> </ul>	<ul style="list-style-type: none"> <li>· Needs assessment report</li> <li>· Learner profile</li> <li>· Content outline</li> <li>· Learning hierarchy</li> <li>· Instructional objectives</li> <li>· Authoring system specs</li> <li>· Delivery system specs</li> <li>· PERT chart</li> <li>· Project timetable – Gantt chart</li> <li>· Evaluation plan</li> <li>· Design approach</li> </ul>
<b>design</b>	<ul style="list-style-type: none"> <li>· Specifying instructional interactions</li> <li>· Graphical/Screen design</li> <li>· Flowcharting</li> <li>· Storyboarding</li> <li>· Prototyping</li> <li>· Writing script specifications</li> <li>· Formatting screens templates</li> <li>· Conducting formative reviews</li> </ul>	<ul style="list-style-type: none"> <li>· Instructional Designer</li> <li>· Subject Matter Experts</li> <li>· Graphic Artist</li> <li>· Programmer(s)</li> </ul>	<ul style="list-style-type: none"> <li>· Design document/Treatment description</li> <li>· Instructional archetypes</li> <li>· Flowcharts</li> <li>· IMM prototypes</li> <li>· Instructional improvement specs</li> </ul>
<b>development</b>	<ul style="list-style-type: none"> <li>· Writing/Authoring interactions</li> <li>· Creating graphics</li> <li>· Preparing instructor materials</li> <li>· Conducting preproduction</li> <li>· Conducting production</li> <li>· Conducting postproduction</li> <li>· Mastering optical media</li> <li>· Integrating optical media &amp; code</li> </ul>	<ul style="list-style-type: none"> <li>· Instructional Designer</li> <li>· Subject Matter Experts</li> <li>· Graphic Artist</li> <li>· Programmer(s)</li> </ul>	<ul style="list-style-type: none"> <li>· Web code</li> <li>· Interactive code</li> <li>· Graphics/animations</li> <li>· Instructor materials</li> <li>· Program documentation</li> <li>· Shot lists</li> <li>· Video/film</li> <li>· Audio</li> <li>· Edited video masters</li> <li>· Videodisc/CD-ROM/course website</li> <li>· IMM program</li> </ul>
<b>implementation</b>	<ul style="list-style-type: none"> <li>· Orientation to user interface</li> <li>· Facilitation of training/course</li> <li>· User/instructor support</li> </ul>	<ul style="list-style-type: none"> <li>· Instructional Designer</li> <li>· Subject Matter Experts</li> <li>· Test Subjects/students</li> <li>· Instructor(s)</li> <li>· Technical user support</li> </ul>	<ul style="list-style-type: none"> <li>· User list &amp; contact information</li> <li>· Instructor’s facilitation plan</li> <li>· Instruction</li> </ul>
<b>evaluation</b>	<ul style="list-style-type: none"> <li>· Documenting project</li> <li>· Testing IMM</li> <li>· Validating IMM</li> <li>· Conducting impact evaluation</li> </ul>	<ul style="list-style-type: none"> <li>· Instructional Designer</li> <li>· Subject Matter Experts</li> <li>· Programmer(s)</li> </ul>	<ul style="list-style-type: none"> <li>· Project documentation</li> <li>· Functionally valid IMM</li> <li>· Instructionally valid IMM</li> <li>· Formative evaluation report</li> <li>· Effectiveness evaluation report</li> <li>· Impact evaluation report</li> </ul>

**Figure 1 Instructional Multimedia Design Model**

## Levels of Design and Development

This process will involve four levels of design and development.

Level 1: Includes a diagram of the overall structure or a flowchart of the whole product showing how the various principal modules relate to each other.

Level 2: Includes a detailed presentation of the structure of each module, showing the “deep structure” of the product, the treatment to be implemented in each part, what motivational, informational, instructional, entertainment tactics will be employed in each part, what media options will be used. ...overall navigation and presentation structure, the kinds of screens you will employ, menu screens, information screens, motivational screens, direction screens, and test screens.

Level 3: Includes storyboards and scripts that will guide media production. These may be printouts of screens as developed, together with a script of what happens on each screen.

Level 4: Actual screen productions – completed module will suffice for this.

## Level 1 – Design

### Flowchart

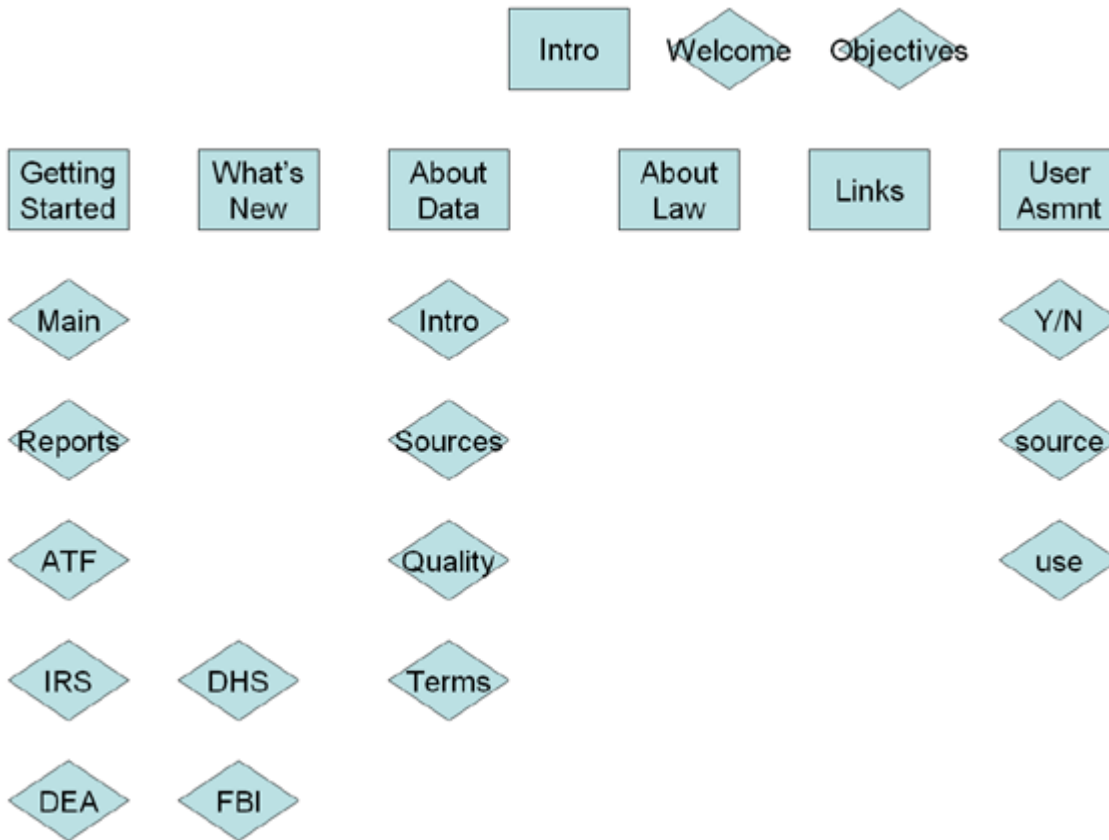


Figure 2 flow chart

## **Level 2 – Design**

### ***Instructional Strategies***

The TRAC tutorials are meant for new and current users of the TRAC web site. These users are short on time and patience, typically wanting the information *yesterday*. Therefore the tutorials have to be quick and simple, to the point. *Chunking* the information into small bits of information allowing the user to pick and choose what they need to see is optimal. The movie clips will be useful interactive pieces to quickly and efficiently show the user how to use the different tools throughout the web site.

## Level 3 – Design

### Storyboard: Home page

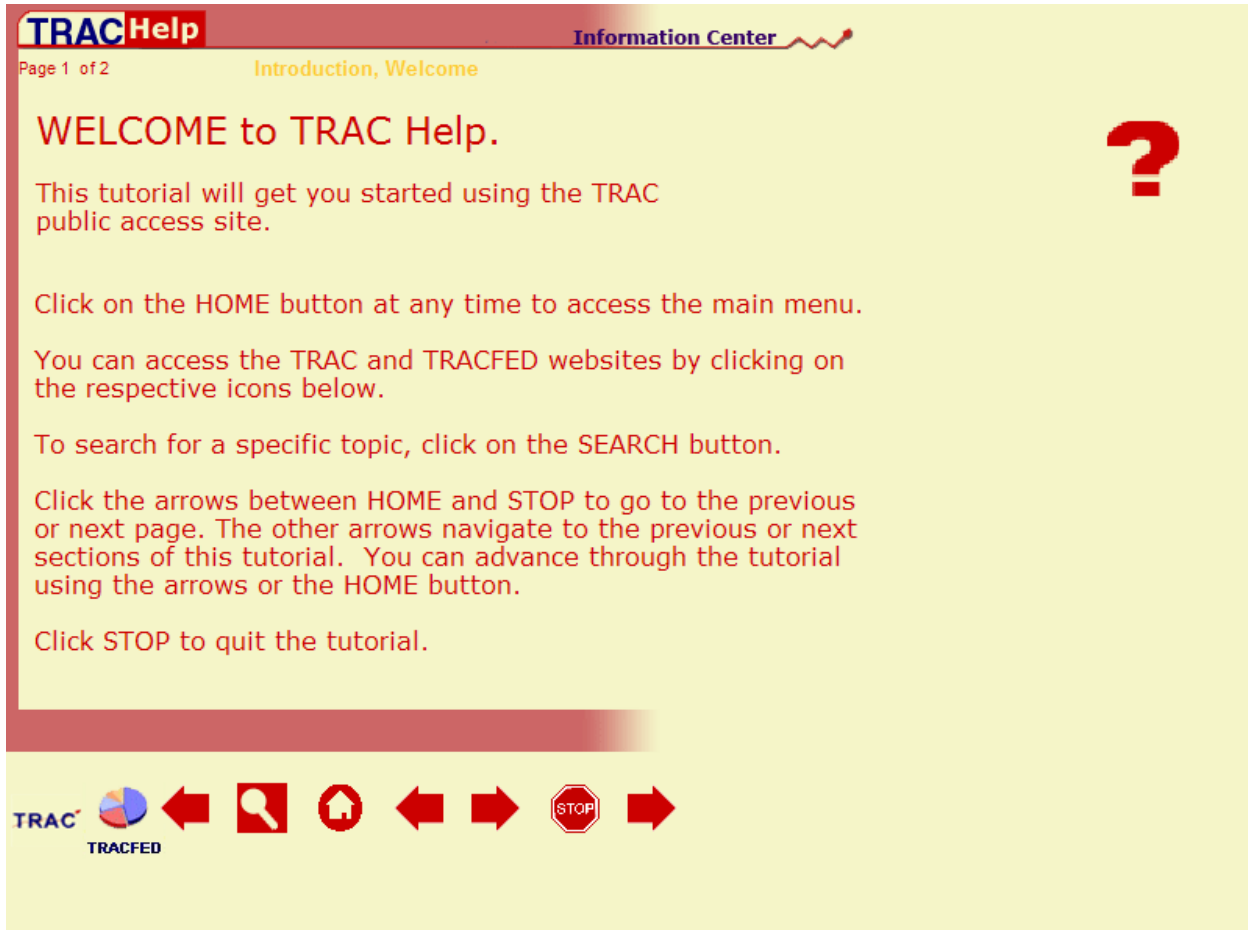


Figure 3 TRAC Quickstart home page

- This shows the page template for the entire product.
- Each page will have the TRAC Help background, a “gif” image file.
- Each page will have the bottom icons: the TRAC and TRACFED logo links, previous section arrow, search; menu, previous page arrow, next page arrow, quit, and next section arrow.
- This first introduction page gives the instructions for using the bottom icons to navigate.
- The question mark image appears at the bottom of the page and travels up to the top to gain the user attention.
- The page numbers are indicated at the top of each page to inform the user.
- Page titles are also used to inform the user. The page title correspond with the menu when the “home” link is selected.

### Storyboard: main menu



Figure 4 main menu

- This is the main menu available by selecting the “home” icon on any of the tutorial pages.
- The “+” symbol indicates the section expands to show the different topics.
- The user can also scroll down through the list as it expands.
- Similar color schemes are used throughout the tutorial for consistency.
- The user can use the “X” at the top right to exit the menu screen at any time.
- Selecting one of the topics closes the menu and advances to the topic.



## Storyboard: user assessment

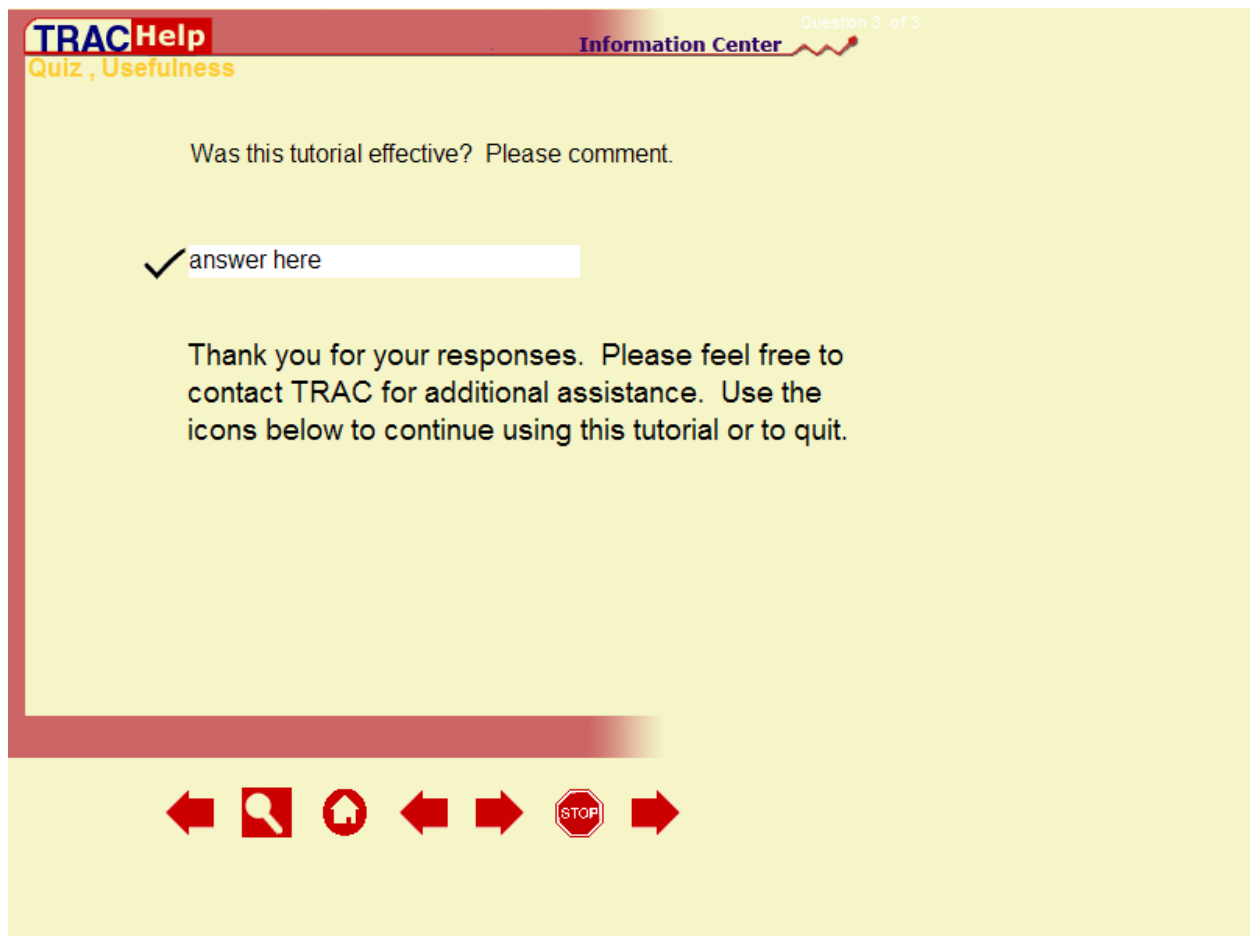


Figure 6 user assessment example

- A short user assessment will be provided at the end of the tutorial to determine success

## **Level 4 – Development**

Final Product

[http://www.erincunia.info/ide755/quickstart\\_trac1.htm](http://www.erincunia.info/ide755/quickstart_trac1.htm)

## **Conclusion**

Overall, this project was useful in learning the software, *Authorware*. Unfortunately, I did not find the software to be very user friendly and it was not at all compatible with the web, i.e. URL links could not be made, rather the user would have to cut and paste the address into their browser manually. I find this to be counter intuitive for a CBI in this day and age. For the actual TRAC tutorial, I decided to use HTML. This tutorial can be seen at

<http://tracfed.syr.edu/trachelp>

## References

Multimedia Development Tools. (August 19, 2004). Georgia Institute of Technology website:

[http://mime1.marc.gatech.edu/MM\\_Tools/](http://mime1.marc.gatech.edu/MM_Tools/). Home page (<http://mime1.marc.gatech.edu/>)

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