

**Web Technologies for Instructional Designers:
Supplementary Instruction for R541**

Analysis Report

Amy Rae Som

R568 Practicum

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Overview

With the boom in online learning, not only in distance education, but also as an important component in face-to-face classes, Adobe Flash, HTML, and related technologies are now considered key tools in the instructional designer's toolbox. Using these tools to create an instructional product is part of the requirements of EDUC-R541 at IU, but the emphasis of the course is naturally on the sound use of instructional strategies and the application of visual design, learning, and instructional theories, not on the technical aspects of using these tools.

Past R541 students have expressed difficulty in finding resources for technical skills in Web technology that are useful from an instructional design perspective. This report analyzes the learners and context of this setting and the tasks embedded in using Web technologies for instructional design.

Learner analysis

General characteristics

The target audience for this instruction, students in R541, is adults of both genders and of diverse ethnic and cultural backgrounds. All learners are graduate students can be expected to approach learning in a mature manner and to take their education seriously. As the instruction will be an optional supplement, students can be expected to self-select on the basis of their need for the instruction.

The motivation to learn the subject should be high, as technical skills are in high demand for instructional designers, and are crucial for certain elements of R541. However, the high motivation to learn may be compounded by fearful attitudes in some students, who may view technologies like HTML or Flash as intimidating.

The majority (if not the entirety) of R541 students aspire to careers in instructional design or related fields (e.g., performance technology). Many students are currently or were formerly employed in instructional design or training. Because of their background, education, and maturity level, the target audience for this instruction will be very sophisticated learners, who expect instruction with a high degree of quality and practical relevance.

Entry competencies

Learners using this instruction will be expected to have extensive experience using word processor, Web browser, and e-mail software. They will have working knowledge of how to navigate Web pages and familiarity with common visual conventions used on Web sites. They are also expected to have taken R511 and R521.

Context analysis

Needs assessment

Needs assessment was conducted by surveying members of the target audience, as well as those who once were members of the target audience. The instructional designer is also a member of the latter group and serves as a subject matter expert in this project. As a member of a past R541 class, I heard classmates expressing their needs for various skills in Flash and HTML, and their difficulty in finding resources to help them acquire those skills. This experience was the initial impetus to examine the need for instruction.

In order to assess felt needs in a more systematic fashion, I distributed a request to answer a questionnaire to the members of the IST Students and IST Distance listservs. This questionnaire is represented in Table 1. Thirty-one listserv members responded to the anonymous survey. The results of the survey are shown in Table 2.

Twenty-three of the respondents had taken R541. Of the 8 respondents who had not taken R541, those who planned to take the course in the future rated their skill with HTML, Flash, and CSS as little to none (an average of 0.6 for Flash skill, 0.8 for HTML skill, and 0.6 for CSS skill, on a scale from 0 [no skill] to 4 [expert]).

Most survey respondents had at least attempted to use Flash in an instructional project (4 had not used Flash). The most popular use for Flash was animation, followed by interactive quizzes. The task that was found most difficult was scripting, followed by sound timing, animation, and controlling playback. The uses for Flash that were rated most valuable were animation, interactive quizzes, games or game-like activities, and simulation—the most complex applications to create. Not surprisingly, these uses were also the ones respondents rated themselves the least able to create.

The four respondents who had not used Flash also had not used HTML for an instructional project. (These four were among those who had not taken R541 but intended to in the future.) All other respondents had at least attempted to use HTML in instruction. Most had used a WYSIWYG editor and about half (13 of 28) had hand-coded HTML. The tasks that were found most difficult were alignment and embedding media objects. HTML and CSS were rated moderately valuable on average (2.74 and 2.55, respectively, on a scale from 0 [no value] to 4 [extremely valuable]), with 20 respondents rating HTML a 3 or 4, and 18 rating CSS a 3 or 4.

The survey results support the supposition that Flash, HTML, and CSS are seen as valuable technologies, and show that the members of the target population that responded to the survey rate their current skill as low. The results also point to some potential areas on which to focus the supplementary instruction.

Orienting context

The target learners for this instruction will have the goals of gaining skills that can be used, immediately, to complete instructional projects in R541, and ultimately can be carried forward and used as a basis for future skills. The perception of utility for the instruction should be high, both from the immediate need to use skills in Web technologies and from the major role that Web technologies have begun to play in instructional design for many contexts. The supplementary instruction will be optional, but for those learners that choose to use it, the instruction will benefit from a transfer of accountability—the learners know they will be held accountable for many of the skills taught in the optional lessons.

Instructional context

The instructional context for this project will be similar to that of the distance sessions of R541. The assumption is that learners will access the instruction from a Web site and to do their work individually, though residential students may choose to work together on their own time.

Transfer context

The immediate transfer context will be the R541 course. The skills and knowledge promoted in the supplementary instruction should be tailored to applications in the R541 coursework. Students in R541 will be required to have access to the tools necessary for the supplementary instruction. This instruction will itself serve as a resource to work in R541 and instructional applications beyond.

Task analysis

Concept analysis: Web technologies

- I. HTML
 - a. Consists of tags
 - i. Used for structure
 - ii. Some are essential
 1. HTML
 2. Body
 3. Head
 4. Title
 - iii. Have semantics
 - iv. Have attributes
 - v. Must be properly nested

- vi. Demarcate elements
 - 1. Block
 - 2. Inline
 - 3. Table
 - b. Can use JavaScript
 - c. Must use proper syntax
 - II. CSS (Cascading Style Sheets)
 - a. Consist of rules
 - i. Selectors
 - 1. ID
 - 2. Class
 - 3. Element
 - 4. Dependent
 - 5. Child
 - 6. Adjacent sibling
 - 7. Pseudo-element
 - 8. Pseudo-class
 - 9. Attribute
 - ii. Declarations
 - 1. Properties
 - a. Text
 - b. Box
 - c. Positioning
 - d. Floats
 - e. Table
 - 2. Values
 - b. Structured by cascade
 - i. Specificity
 - 1. Inheritance
 - ii. Order
 - c. Must use proper syntax

III. Flash

a. Used for

i. Animation

1. Timeline

a. Scenes

b. Tweens

i. Motion

ii. Shape

c. Frames

i. Frame rate

ii. Keyframes

2. Scripted (ActionScript)

ii. Application development

1. ActionScript

a. Functions

i. Objects and classes

ii. Handle events

b. Data

i. Strings

ii. Numbers

1. Dates

2. Times

iii. Arrays

b. Tools/features

i. Stage

1. Organized by layers

ii. Drawing

iii. Text

iv. Selection

v. View