

# **Instructional Treatment Plan**

## **Unit 4: “Selecting the Right Tools for Your Dynamic Online Course Needs”**

### **Dynamic Trio**

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**Course:** Enhancing Online Courses

**Title:** Unit 4.0 — Selecting the Right Tools for Your Dynamic Online Course Needs

**Unit Objectives:**

- Terminal Objective. Given a list of available tools, a description of the development environment, and a summary of the performance criteria for a dynamic content application, the developer will produce a report that recommends the most appropriate tool with which to develop the application with 80% proficiency as determined by an assessment rubric.
- Enabling Objectives.
  1. Given a completed storyboard/flow chart that diagrams the needs of the dynamic content application, create a brief outline that lists the needs that are relevant to technical (as opposed to pedagogical) development of that application with 80% proficiency as determined by an assessment rubric.
  2. Given a list of tools used to develop dynamic content, the developer will identify the strengths, weaknesses, capabilities, limitations, and dependencies of each tool on a conventional CRT with 80% proficiency.
  3. Given a simulated environment—described textually—the developer will complete a worksheet about the simulated environment with 80% proficiency as determined by a product checklist of the worksheet.
  4. Given a summary of the performance criteria for a dynamic content application (from section 4.1), a list of available tools (from section 4.2), and a description of the development environment (from section 4.3) the developer will create a product-checklist matrix that compares each of these categories with 80% proficiency as determined by an assessment rubric.

**Prerequisites:**

- Reading proficiency at a high-school level.
- Basic technical writing skills.

**Instructional Strategy:** Inductive-Thinking Model

Why this strategy works:

This instructional strategy supports our instructional needs, which require the student to:

1. be introduced to new (verbal) information,
2. work with that information so that it becomes understood and remembered,
3. make interpretations based upon complex relationships of the newly introduced information, and
4. apply these interpretations to the decision-making process in real-world situations.

This strategy also seems to fit with the notion of “professionals as learners” in a workplace environment (as opposed to full-time students as learners in a purely classroom environment).

## Operational Instructional Strategy:

	Instructional Event	Description	Interaction	Media Selection
Concept Formation	Enumeration and listing	1. Outline the technical needs that are depicted in the storyboard/flow chart that was made during Unit 3.0. Use clustering and chunking ( <i>Organizational technique</i> ) and meaningful sentences ( <i>Elaboration technique</i> ).	1. Student - Interface	Dynamic Webpage
	Grouping		2. Student - Content	Dynamic Webpage
	Labeling, Categorizing	2. Read THE BOOK, which introduces the available website creation tools. As you read, create a table that lists each tool's strengths, weaknesses, capabilities, limitations, and dependencies ( <i>learner generated images technique</i> ).  3. Take the "Tool Attributes" Quiz. <i>Create an online quiz from the questions provided.</i>  4. Look at online stores and create a list of each tool's current sales price. <i>Compile a list of online stores selling dynamic content development software.</i>  5. Read the description, budget forms, project proposals sheets, and inventory lists of our simulated workplace environment. Create a list of the software, training, and labor budgets; deadlines and milestones; and existing hardware, software, and expertise. <i>Create printable sample materials of the given simulated workplace environment as well as printable worksheet to collect data.</i>  6. Review your storyboard outline, available tools table, and environment check list. Turn these in to the instructor before proceeding to the next section. <i>Setup tools to allow students to submit completed work and provide immediate notification of each submission to instructor.</i>	3. Student - Interface  4. Student - Content  5. Student - Interface  6. Student - Teacher	Webpage Bulletin board

Interpretation of Data	Identify critical relationships	1. Given your graded (and if-need-be, corrected) storyboard outline, available tools table, and environment checklist create a product-checklist matrix that compares each of these.	1. Student - Interface	
	Explore relationships	1. Review your completed checklist. Respond to the questions in the bulletin board: <i>Setup forum</i> <ol style="list-style-type: none"> <li>Are any trends or relationships revealed from the checklist?</li> <li>Which tools are dependent upon each other?</li> <li>Which tools compliment each other the best?</li> <li>Which tools are most economical (i.e. they meet the most dynamic-content challenges for the least price)?</li> <li>Is there a correlation between the most labor-intensive tools and their costs? If so, what is it?</li> </ol> 2. Read the bulletin board comments; do you see them illustrated in your matrix?  3. Review and update your matrix, if needed.  4. Turn in your matrix to your instructor before you proceed to the next section. <i>Setup tools to allow students to submit completed work and provide immediate notification of each submission to instructor.</i>	1. Student - Student	Dynamic Webpage
	Make inferences		2. Student - Interface 3. Student - Content 4. Student - Instructor	Dynamic Webpage Email
Application of Principles	Predicting consequences	1. Given your graded (and if-need-be, corrected) product-checklist matrix create a report for your simulated "boss" that states your recommendations for the most appropriate tool with which to develop the application.	1. Student - Interface	Dynamic Webpage Email

	Explaining predictions	<ol style="list-style-type: none"> <li>1. In your report, make sure you state your reasoning and list all implications for budget, timeline, compatibility, and effectiveness.</li> <li>2. Trade your finished report with one of your classmates.</li> <li>3. Review your classmate's report. How do you think his/her tool(s) will work? Explain your prediction.</li> <li>4. Make corrections to your own report, if desired.</li> </ol>	<ol style="list-style-type: none"> <li>1. Student - Content</li> <li>2. Student - Student</li> <li>3. Student - Student</li> <li>4. Student - Content</li> </ol>	
	Verifying predictions	<ol style="list-style-type: none"> <li>1. Turn in your final unit report. <i>Setup tools to allow students to submit completed work and provide immediate notification of each submission to instructor.</i></li> <li>2. The instructor will review it and offer his/her evaluation. Review the instructors comments. <i>Setup submission tool to allow professor to provide immediate feedback for students to review at their leisure.</i></li> </ol>	<ol style="list-style-type: none"> <li>1. Student - Instructor</li> <li>2. Student - Instructor</li> </ol>	

## Media Selection Rationale

### Dynamic Web Pages

- The learning population of the course consists of webpage developers. In most cases, these professionals have time constraints and will prefer the benefits of an online course which does not require travel-time or set meeting times.
- No face-to-face interaction is necessary for the selected events.
- The learning population is also comfortable with webpages.
- The content of this unit relies heavily upon verbal information. The Internet provides the most inexpensive, flexible, and easily updated way to provide learners with this information in a well-organized manner.
- Since the course is about designing dynamic webpages, presenting the course via a dynamic webpage provides the students with an elegant and usable example.
- Since much of the course material—which is about cutting-edge web development processes and technology—is continually changing, the course format needs to be easy and inexpensive to update; webpages provide that flexibility.
- The course webpage can offer hyperlinks to other online sources of information or examples of other dynamic webpages.

### A Threaded Discussion Board (BBS)

- BBS's are inexpensive to implement.
- BBS's allow students to interact and give each other feedback, without relying upon face-to-face interaction.

### Electronic Mail with Attachments

- E-mail allows students to submit large documents to the instructor or to send them among each other, privately.
- The learning population will be familiar with e-mail communications.
- The learning population will have ready-access to e-mail communications.

## Design Evaluation Chart

### REMINDER: Overall Course Goal Statement

Advanced web developers will analyze, design, develop, implement and evaluate dynamic content to enhance a web-based course.

Purpose	Skill	Objective	Classification (Based upon Gagné, 1985)	Assessment Type	Assessment Items
<b>Terminal Objective</b>					
Post-test	(4.0) Select compatible tools	Given a list of available tools, a description of the development environment, and a summary of the performance criteria for a dynamic content application, the developer will select the most appropriate tool(s) with which to develop the application with proficiency as determined by an assessment rubric.	Rules	Produce a report that recommends the your selection to your simulated "boss."  Assessment Rubric	Exemplary Level: <ul style="list-style-type: none"> <li>- Best overall tool for the proposed application is correctly identified.</li> <li>- Report thoroughly explains rationale for selection, including: <ul style="list-style-type: none"> <li>o How the capabilities of the tool support each of the development needs.</li> <li>o How the development environment's in-house expertise affected the decision.</li> <li>o How the development environment's budgetary constraints affected the decision.</li> <li>o How the development environment's pre-existing hardware and software affected the decision.</li> </ul> </li> </ul>
<b>Enabling Objectives</b>					
Practice Test	(4.1) Review needs of application	Given a completed storyboard/flow chart that diagrams the needs of the dynamic content application, the developer will determine the needs that are relevant to technical (as opposed to pedagogical) development of that application with proficiency as determined by	Problem Solving	Create a brief outline that lists and paraphrases the technical needs of the application.	Exemplary Level: <ul style="list-style-type: none"> <li>- All of the technological needs are correctly listed.</li> <li>- The outline is written in an accurate and succinct manner.</li> <li>- The relationship between primary and subordinate needs is illustrated via the outline's hierarchy.</li> <li>- The needs hierarchy is accurately depicted.</li> </ul>

		an assessment rubric.		Assessment Rubric	
Practice Test	(4.2) Describe available tools	Given a list of tools used to develop dynamic content, the developer will identify the strengths, weaknesses, capabilities, limitations, and dependencies of each tool on a conventional CRT with 80% proficiency.	Verbal Skills	Conventional CRT	<p>1. _____ is a client-side scripting language that contains a Document Object Model DOM, and cascading style sheets (CSS).  <b>(a) DHTML</b>  (b) HTML  (c) JavaScript  (d) Java</p> <p>2. _____ automatically detects the nature of your Web documents and outputs an appropriate HTTP content header. If your document is HTML, it outputs text/html. Otherwise, it simply outputs text/plain.  (a) JavaScript  (b) Visual Basic (VB)  (c) MySQL  <b>(d) ePerl</b></p> <p>3. _____ is a programming language that adds interactivity to webpages and can control all browser attributes. Although it is a full programming language, It is often as only a part of typical HTML pages.  (a) CGI  <b>(b) JavaScript</b>  (c) Macromedia Dreamweaver  (d) C++</p> <p>4. _____ is a robust programming language frequently used for creating CGI programs. It can read and write binary files, and it can process very large files.  <b>(a) Perl</b>  (b) PHP  (c) JavaScript  (d) MySQL</p> <p>5. _____ is a free programming language that is similar to C. It is compiled server-side and interfaces seamlessly with HTML and most popular databases.  (a) Java</p>

				<p>(b) ColdFusion (c) ActionScript <b>(d) PHP</b></p> <p>6. _____ supports code written in compiled languages like C++ and Visual Basic, and, it features server controls that can separate the code from the content, allowing WYSIWYG editing of pages. (a) ColdFusion (b) Perl (c) PHP <b>(d) ASP.NET</b></p> <p>7. _____ is a new programming language developed by Macromedia to support Flash. (a) ColdFusion <b>(b) ActionScript</b> (c) PHP (d) Java</p> <p>8. _____ is an advanced website program that works in conjunction with a database of information that it draws from. It can be used to create dynamic web pages that display a variety of data, depending on what the viewer clicks on. (a) PHP (b) C++ (c) ASP <b>(d) ColdFusion</b></p> <p>9. Which of the following is true of PHP? (a) Low cost (b) Ease of use (c) Database compatibility <b>(d) All of the above</b></p> <p>10. Which of the following is a significant limitation of Flash (action scripting) when used to develop dynamic content? <b>(a) Difficult to learn</b> (b) High cost (c) Limited compatibility (d) Limited flexibility</p> <p>11. All of the following are benefits of PHP, except:</p>
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				<p>(a) Extended API module (b) Supports multi-threaded web servers (c) Native HTTP session support <b>(d) Object-orientated classes</b></p> <p>12. PHP is superior to Perl because it is: (a) Less complicated than Perl (b) PHP is easier to integrate with HTML (c) PHP is easier to debug <b>(d) All of the above</b></p> <p>13. ColdFusion MX Server is useful because: <b>(a) It has significant built in functionality and versatility with other programs, databases, and back-end.</b> (b) It is a freeware program. (c) ColdFusion is the easiest programming language to learn. (d) All of the above</p> <p>14. ActionScript is part of what popular application? (a) Adobe InDesign <b>(b) Macromedia Flash</b> (c) Java Development Kit (JDK) (d) Microsoft Office</p> <p>15. The biggest drawback of ASP is that: (a) Some browsers cannot read ASP pages. (b) It cannot interface with databases. (c) It requires expensive licensing to use. <b>(d) It is a proprietary system that is natively used only on Microsoft Internet Information Server (IIS).</b></p> <p>16. MySQL is (a) a client-side scripting language. (b) an interface program used with php databases, such as ColdFusion. <b>(c) an open source, relational database management system often used in conjunction with scripting languages.</b> (d) an expensive, but functional, alternative for SQL.</p> <p>17. Which of the following is <i>not</i> a database package: (a) ColdFusion (b) MySQL</p>
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					<p>(c) Microsoft Access <b>(d) Dreamweaver Spreadsheet Management (DSM)</b></p> <p>18. Which of the following is true of ASP: (a) Although variables are supported, they are all loosely typed as variants and bound to particular types only when the code is run. (b) Session state can only be managed using client browser supports cookies. <b>(c) All of the above.</b></p> <p>19. All of the following are true of ASP.NET <i>except</i>: (a) ASP.NET pages execute on the server and generate markup such as HTML, WML, or XML. <b>(b) ASP.NET and ASP (classic) are very similar.</b> (c) Components of an ASP.NET application can be updated while the server is online and clients are connected. (d) ASP.NET comes with built-in Web Forms controls, which are responsible for generating the user interface.</p> <p>20. Which of the following is a weakness of Flash/ActionScript: <b>(a) Printing and selecting text in Flash movies is often not as simple (or familiar) to users as that on HTML sites.</b> (b) Flash cannot support typical image formats, such as GIF, JPG, or TIFF. (c) Flash requires the clients' browsers to reload often. (d) Flash has poor interactivity.</p> <p>21. The PHP Performance Suite is used for: (a) Database management for individual clients, using client-side cookies. (b) Interactive movies. <b>(c) Dynamic content caching, code acceleration, and file compression.</b> (d) The same things the rest of the language is used for.</p> <p>22. ColdFusion is built using what language: <b>(a) Java.</b> (b) Pascal. (c) JavaScript. (d) ASP.</p>
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					<p>23. JavaScript has which of the following weaknesses:</p> <p>(a) It can display differently—or not at all—on different browsers.</p> <p>(b) People can view your code.</p> <p>(c) It can be difficult to make ADA-508 accessible.</p> <p><b>(d) All of the above.</b></p> <p>24. Which of the following <i>cannot</i> be used to create webpages?</p> <p>(a) Java</p> <p>(b) DHTML</p> <p>(c) JavaScript</p> <p><b>(d) Visual Basic</b></p> <p>25. Which of the following is an “extendable” descendant of HTML?</p> <p>(a) Advanced HTML (AHTML)</p> <p>(b) JavaScript</p> <p><b>(c) XML</b></p> <p>(d) ASP.NET</p>
Practice Test	(4.3) Describe current development environment	Given a simulated environment—described textually—the developer will describe that environment via a product checklist worksheet with proficiency as determined by a checklist.	Rules	Product Checklist	<p>Product checklist with two possible levels of performance:</p> <p>(a) Yes, and (b) No, and an opportunity to comment.</p> <p>Exemplary Level:</p> <ul style="list-style-type: none"> <li>- Worksheet correctly identifies budgetary allowance for software acquisition and training.</li> <li>- Worksheet correctly identifies budgetary allowance for labor hours to design, develop, and test dynamic content.</li> <li>- Worksheet correctly identifies total labor hours allotted to design, develop, and test dynamic content.</li> <li>- Worksheet correctly identifies project milestones and deadlines for designing, developing, and testing dynamic content.</li> <li>- Worksheet correctly describes existing in-house hardware, software, and programmer expertise in dynamic content development</li> </ul>
Post-test	(4.4) Compare application	Given a summary of the performance criteria for a dynamic content application (from section	Rules	Assessment Rubric	<p>Exemplary Level:</p> <ul style="list-style-type: none"> <li>- All of the dynamic content needs are included.</li> <li>- All the available tools are included.</li> </ul>

	needs to development environment and available tools	4.1), a list of available tools (from section 4.2), and a description of the development environment (from section 4.3) the developer will compare each of these by creating a product-checklist matrix with proficiency as determined by an assessment rubric.			<ul style="list-style-type: none"><li>- All of the environmental constraints/disadvantages are included.</li><li>- All of the environmental advantages are included.</li><li>- All of the available tools are correctly identified as meeting or not meeting each dynamic content need.</li><li>- All of the available tools are correctly identified as supporting or failing to support each environmental advantage or disadvantage.</li></ul>
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**Assessment Rubric for Final Selection**

<p>Exemplary Level 91-100 pts</p>	<ul style="list-style-type: none"> <li>• Best overall tool for the proposed application is identified</li> <li>• Report thoroughly explains rationale for selection in terms of cost, labor, and technical considerations</li> <li>• Capabilities of the chosen tool meet or exceed the needs of the application</li> <li>• Chosen tool strongly aligned with in-house expertise</li> <li>• Chosen tool is the most economical choice</li> </ul>
<p>Satisfactory Level 81-90 pts</p>	<ul style="list-style-type: none"> <li>• Suitable tool for the proposed application is identified</li> <li>• Report somewhat explains rationale for selection</li> <li>• Chosen tool may meet the needs of the application</li> <li>• Chosen tool represented by some in-house experience</li> <li>• Chosen tool is within budget</li> </ul>
<p>Unsatisfactory Level ≤ 80 pts</p>	<ul style="list-style-type: none"> <li>• Selected tool is unsuitable for the application</li> <li>• Report does not explain rationale for selection</li> <li>• Capabilities of the chosen tool do not meet needs of the application</li> <li>• Chosen tool is not aligned with in-house expertise</li> <li>• Cost of chosen tool exceeds budget</li> </ul>

**Assessment Rubric for Application Needs Outline**

<p>Exemplary Level 91-100 pts</p>	<ul style="list-style-type: none"> <li>• All of the technological needs are correctly listed.</li> <li>• The outline is written in an accurate and succinct manner.</li> <li>• The relationship between primary and subordinate needs is illustrated via the outline's hierarchy.</li> <li>• The needs hierarchy is accurately depicted.</li> </ul>
<p>Satisfactory Level 81-90 pts</p>	<ul style="list-style-type: none"> <li>• Most of the technological needs are correctly listed.</li> <li>• The outline contains errors and is difficult to understand.</li> <li>• The relationship between primary and subordinate needs is illustrated via the outline's hierarchy, but it is incomplete.</li> </ul>
<p>Unsatisfactory Level ≤ 80 pts</p>	<ul style="list-style-type: none"> <li>• Many of the technological needs are missing from the outline.</li> <li>• The outline contains errors and is difficult to understand.</li> <li>• The outline does not depict a hierarchy between needs -or-</li> <li>• The outline depicts an inaccurate hierarchy.</li> </ul>



**Product Checklist for Development Environment Worksheet**

<b>Characteristic</b>	<b>Yes</b>	<b>No</b>	<b>Comment</b>
Worksheet correctly identifies budgetary allowance for: <ul style="list-style-type: none"><li>• Software acquisition</li><li>• Training</li></ul>			
Worksheet correctly identifies budgetary allowance for labor hours for: <ul style="list-style-type: none"><li>• Product design</li><li>• Product development</li><li>• Product testing</li></ul>			
Worksheet correctly identifies total labor hours allotted for: <ul style="list-style-type: none"><li>• Product design</li><li>• Product development</li><li>• Product testing</li></ul>			
Worksheet correctly identifies project milestones and deadlines for: <ul style="list-style-type: none"><li>• Product design</li><li>• Product development</li><li>• Product testing</li></ul>			
Worksheet correctly describes existing in-house capabilities: <ul style="list-style-type: none"><li>• Hardware</li><li>• Software</li><li>• Programmer expertise</li></ul>			

### Assessment Rubric for Comparison Matrix

Exemplary Level 91-100 pts	<ul style="list-style-type: none"><li>• All of the dynamic content needs are included.</li><li>• All the available tools are included.</li><li>• All of the environmental constraints/disadvantages are included.</li><li>• All of the environmental advantages are included.</li><li>• All of the available tools are correctly identified as meeting or not meeting each dynamic content need.</li><li>• All of the available tools are correctly identified as supporting or failing to support each environmental advantage or disadvantage.</li></ul>
Satisfactory Level 81-90 pts	<ul style="list-style-type: none"><li>• Most of the dynamic content needs are included.</li><li>• Most the available tools are included.</li><li>• Most of the environmental constraints/disadvantages are included.</li><li>• Most of the environmental advantages are included.</li><li>• Most of the available tools are correctly identified as meeting or not meeting each dynamic content need.</li><li>• Most of the available tools are correctly identified as supporting or failing to support each environmental advantage or disadvantage.</li></ul>
Unsatisfactory Level ≤80 pts	<ul style="list-style-type: none"><li>• Many of the dynamic content needs are missing.</li><li>• Many the available tools are missing.</li><li>• Many of the environmental constraints/disadvantages are missing.</li><li>• Many of the environmental advantages are missing.</li><li>• Many of the available tools are incorrectly identified as meeting or not meeting each dynamic content need.</li><li>• Many of the available tools are incorrectly identified as supporting or failing to support each environmental advantage or disadvantage.</li></ul>