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AUTHOR Byers, Albert S.; Halpin, David  
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## ABSTRACT

This paper describes a distance collaborative evaluation method employed to analyze an asynchronous World Wide Web-based course. This course was offered through the Instructional Technology Department at Virginia Tech as part of a distance education master's program. An initial expert review of the course was commissioned by the department as part of an assignment for a graduate course in product evaluation. A first-year doctoral student from Virginia Tech followed specific guidelines to complete the review process. Several leading instructional design models that were utilized to conduct this initial review are described. After completion of this initial review, a second doctoral student from the University of Georgia reviewed both the Web-based course and the first reviewer's comments. The cumulative review of the first two students was then passed on to the course developer. The course developer added his own comments and incorporated student feedback into this collaborative distance-based review. The information was then re-circulated and a consensus reached that incorporated all the information into a collective list of evaluative recommendations. All correspondence between the three reviewers was accomplished using a variety of distance collaborative processes, including telephone, e-mail, and videoconferencing. Research concerning the transactional distance that can occur in a distance environment was substantiated. The evaluated course assisted Virginia teachers in creating their own educational Web sites. (Contains 68 references.) (MES)

**Expert Review at a Distance:**

**A Hybrid Approach**

**Full Paper presented at the  
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**By**

**Albert S. Byers  
Virginia Tech  
Blacksburg, Virginia**

**David Halpin  
Virginia Tech  
Blacksburg, Virginia**

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## Expert Review at a Distance: A Hybrid Approach

The purpose of this paper is to describe a distance collaborative evaluation method employed to analyze an asynchronous web-based course. This course is offered through the Instructional Technology department at Virginia Tech as part of a distance education Master's program. An initial Expert Review of the course was commissioned by the Virginia Tech Instructional Technology department as part of an assignment for a graduate course in product evaluation. A first year doctoral student from Virginia Tech followed specific guidelines provided by the department to complete the review process. Several leading instructional design models were utilized to conduct this initial review and will be described below. After completion of this initial review, a second doctoral student, this one from the University of Georgia, reviewed both the web-based course and the first reviewer's comments. The cumulative review of the first two students was then passed on to the course developer. The course developer added his own comments and incorporated student feedback into this collaborative distance-based review. All of the information was then re-circulated and a consensus reached that incorporated all the information into a collective list of evaluative recommendations. All correspondence between the three reviewers was accomplished using a variety of distance collaborative processes, including phone, email and ATM VTEL videoconferencing. Research concerning the transactional distance that can occur in a distance environment was substantiated (Moore, 1996; Wolcott, 1996). The evaluated course assisted Virginia teachers in creating their own educational web sites.

### **Web Site Development: Instructional Technology Master's Module 4**

With the recent adoption and mandate of the Virginia Standards of Learning (SOLs), k-12 instructors throughout the state are now required to take coursework for re-certification that demonstrates a set of core technology competencies. In efforts to support this statewide endeavor, Virginia Tech developed and implemented an Instructional Technology Distance Education Masters Program (ITMA). The instructional delivery methods Virginia Tech utilizes employ an assortment of strategies such as intensive workshop-style courses offered within individual school districts (on-site); interactive television courses offered through a number of state-wide facilities; web-based courses; week-long, on-campus summer courses; open-studio development; and individual computer-based programs.

This online program consists of 13 unique ITMA modules that can be taken independently of each other as needed to satisfy Virginia SOL re-certification requirements, or in total toward the Virginia Tech Master's degree program.

Our evaluation concerned itself specifically with "Module 4: Web Site Development" (<http://www.itma.vt.edu/itma1/modules/webdev/>). The intent of this module is to provide learners with basic HTML design skills using Netscape Composer, such that they develop a 7-8 page standalone web site. Should the learners not be taking this module independently, but as part of the overall Virginia Tech ITMA program, their product will be integrated into a larger electronic portfolio. There were 51 students who participated in the first iteration of the module. These students were divided into three cohort groups based on their geographic location within the state of Virginia. They constituted a diverse mixture of elementary and middle schoolteachers, librarians, and instructional technologists in the public school system. Our expert

review was performed to increase the effectiveness of the instruction for this diverse group of learners.

### **Expert Review: The Models and Theories Employed**

The overall model of the Expert Review was patterned after the procedure outlined in the book Planning and Conducting Formative Evaluations (Tessmer, 1998). Tessmer delineates the steps and values behind conducting the following types of reviews: One-to-One, Expert Review, Small Group Evaluation, and Field-testing. The Expert Review conducted on Module 4 focused specifically on the following areas: General product description, instructional components, instructional contexts and functions, and overall instructional message display. A brief description of these areas is warranted.

The general product description delineated the developers, clients, module objectives, learning environment and media characteristics incorporated in Module 4. The "instructional components" section evaluated the overall structure of the module from a Walt Dick and Lou Carey instructional design perspective (1996). In addition, several other ID research theories were employed which will be discussed later. The instructional context of the module was examined to evaluate the synergism between all the factors influencing the appropriateness of context chosen and under what functions it was intended to facilitate instruction. The overall message display was additionally evaluated with respect to the following: layout, color, density of information, perceived units of information, rate of information presentation, and appropriateness of images and/or audio used. The evaluators applied several ID research modules in evaluating the components described above.

To evaluate the overall module from a "Big Picture" perspective the Walt Dick and Lou Carey model was used (Dick & Carey, 1996). The following components were examined in the module for their inclusion of appropriate sub-component characteristics: Introduction, activity, practice & feedback, review, assessment and transfer. Within this overall structure, the individual instructional objectives were examined using the methodology cited in Sullivan & Higgins 1993 book: Teaching for Competence (Sullivan & Higgins, 1983). Thus, instructional objectives were examined with respect to observable and measured behaviors, with proper attention to conditional givens and standards.

The work of Tessmer & Richey (1997) was used to classify and evaluate the module with respect to the appropriateness of context and its function within the overall design stages of orienting, instructional, or transfer (Tessmer & Richey, 1997). Module 4 employed the contexts of "Real" and "Tutorial" in an appropriate fashion.

J.M. Keller's ARCS model of instructional design was utilized to evaluate the module from a motivational perspective, attempting to identify if the following strategies were imploded: Attention, Relevance, Confidence, and Satisfaction (Keller, 1987). Please see Appendix 1 for a review of Keller's ARCS model.

Finally, the work of Gagne and Driscoll was utilized to measure the appropriateness of instructional objectives to specific tasks or lessons at hand (Gagne & Driscoll, 1998). Please see Appendix 2 for a template of the instructional design model and theories applied to evaluating module 4. Appendix 3 presents a section of one of the expert reviewers evaluative comments.

What was interesting is the nature in which this expert review was conducted in a distance collaborative nature.

### **Expert Review at a Distance: The Process**

The original Expert Review (ER) paper was circulated to the second distant expert reviewer. The second reviewer then visited the Module 04 web site, reviewed the ER paper, and evaluated the initial reviewer's criteria against the originally commissioned guidelines and the actual module, inserting comments into the original ER paper using a different colored font. The updated ER paper with comments was then circulated to the module developer and the initial reviewer.

Next the developer's implementation perspectives were incorporated as a separate section at the bottom of this evaluation paper, describing the technical difficulties encountered during the module's first field test, including student impressions of Module 4's effectiveness. This updated document was then sent to both reviewers who additionally commented on the developer's implementation analysis. Finally, having now seen both sets of Expert Review comments in a single document, the developer offered his impression of the expert reviews. Needless to say, this asynchronous distance evaluation approach involved several iterations of circular review, providing a thorough analysis of the module from an ID Expert Review perspective.

The techniques employed in the collaboration process utilized several forms of distance communication. The review document was created in Microsoft Word and passed between reviewers via email attachment. Discussion and debate between the reviewers took place using email, teleconferencing, and videoconferencing. A significant portion of the review occurred via asynchronous email exchanges allowing the experts to ponder their critiques prior to submission at a pace and place of choice. Several teleconferences occurred at the key junctures in the review process when decisions needed to be made in concert with all three members with prompt asynchronous feedback. ATM VTEL videoconferencing provided the not only prompt synchronous feedback, but the most realism in conveying the strength of a reviewer's conviction about a recommendation or revision. Unfortunately, the expense of conducting VTEL communication limited this type of exchange to only brief communiqué.

The important realization to come out of this process is that without in-person, face-to-face contact there is a higher probability for miscommunication to occur between participants, especially when those participants have never met face-to-face. At several points during this collaborative project there was confusion due to misunderstandings created by the psychological distance between the three reviewers. This type of transactional or psychological distance has been documented in previous distance education literature (Moore 1996; Wolcott, 1996) and communicative efforts needed to be intentionally tempered via this distance-based critique. The synopsis of the aggregated conclusions between the two reviewers and the module 4 developer were quite interesting.

### **Expert Review: The Recommendations**

Both expert reviewers agreed that overall the site was exemplary. The module was well designed, easy to understand, implement and execute. The site was additionally aesthetically pleasing from a graphical design standpoint. Most importantly the asynchronous module was

successful in its instructional goal of facilitating the learner with the creation of standalone web sites. Both the director of the ITMA program, Dr. Greg Sherman, and the participants commented favorably in survey reviews at the completion of the module.

From an instructional design standpoint, only a few suggestions were put forth, which may improve the effectiveness and efficiency of the module. The comments that follow were the collective agreement from all three parties. First, there may be a benefit to incorporating an official assessment for each sub lesson within the overall unit by way of a rubric. This rubric would specify evaluation criteria, thus providing a guidepost to the learners prior to their project development, and a way for learners metacognitively self assess their own work prior to submission for grading. In addition, the Composer tutorial should include instructions specific to the Macintosh platform. At the time the module was initially offered for course credit, there were a significant number of students using the Macintosh platform. By offering additional instructions or screen snapshots unique to the Netscape Macintosh Composer platform, the module might alleviate any confusion with platform specific issues. This could be done by incorporating Macintosh examples in the existing tutorial, or by creating a new tutorial specific to the platform.

Also, a separate lesson dealing specifically with tables may be warranted, incorporating additional instruction and a student-to-student collaborative constructivist model. The module developer share with the expert evaluators that the distance teachers taking module 4 frequently wanted to create more controlled html page layouts and tables are the way to do this within Netscape Composer. Possibly by structuring in a peer-support or mentor-based system, the module could engage a collaborative dialog regarding the creation of certain "table" page layout looks.

Finally, the overall module may be made more effective should all lessons utilize more examples of student work tied to reflective student-student collaboration. Interaction that fosters peer collaboration, reflection, and assessment has been shown to enhance the distance learning process. It should be made clear though that these suggestions are unproven at this juncture, and their success must still be born out in future revisions through evaluative field-testing.

## **Closing**

This paper describes a distance collaborative evaluation method employed to analyze an asynchronous web-based course in web design for teachers seeking recertification in the state of Virginia. The course is offered through the Instructional Technology department at Virginia Tech as part of a distance education Master's program. Various asynchronous and synchronous technologies were employed to conduct the expert review of the web-based course including Internet email with attachments, teleconferences and ATM VTEL videoconferencing. Issues concerning psychological or transactional distance were addressed throughout these various modes of communication as the expert reviewers communicated with the course developer. Several models of instructional design were utilized for the ID review including that of Dick and Carey (1996), Tessmer and Richey (1997), J.M Keller (1987) and Gagne and Driscoll (1998). The area of instructional context was also evaluated and a concise model has been provided in the appendix of this paper.

The process of conducting an expert review at a distance is a viable alternative when the experts are geographically dispersed and unable to meet with the developer for a face-to-face exchange. It was found that communiqué between the evaluators and the designer needs to be structured in such a way to overcome the barriers erected by temporal and physical separation, but valuable and worthwhile evaluation may be achieved using a multi-modal distance-based approach.

## Appendix 1:

*Keller's ARCS Model of Addressing Motivation in the ID Process*

<b>Attention Strategies</b>	
Incongruity, Conflict	Introduce a fact that seems to contradict the learner's past experience.
	Present an example that does not seem to exemplify a given concept.
	Introduce two equally plausible facts or principles, only one of which can be true.
	Play devil's advocate.
Concreteness	Show visual representations of any important object or set of ideas or relationships.
	Give examples of every instructionally important concept or principle.
	Use content-related anecdotes, case studies, biographies, etc.
Variability	In stand up delivery, vary the tone of your voice, and use body movement, pauses, and props.
	Vary the format of instruction according to the attention span of the audience.
	Vary the medium of instruction.
	Break up print materials or (displays) by use of white space, visuals, tables, different typefaces, etc.
	Change the style of presentation.
	Shift between student-instructor interaction and student-student interface.
Humor	Where appropriate, use plays on words during redundant information presentation.
	Use humorous introductions.
	Use humorous analogies to explain and summarize.
Inquiry	Use creativity techniques to have learners create unusual analogies and associations to the content.
	Build in problem solving activities at regular intervals.
	Give learners the opportunity to select topics, projects and assignments that appeal to their curiosity and need to explore.
Participation	Use games, role-play, or simulations that require learner participation.
<b>Relevance Strategies</b>	
Experience	State explicitly how the instruction builds on the learner's existing skills.
	Use analogies familiar to the learner from past experience.
	Find out what the learner's interests are and relate them to the instruction.
Present Worth	State explicitly the present intrinsic value of learning the content, as distinct from its value as a link to future goals.
Future Usefulness	State explicitly how the instruction relates to future activities of the learner.
	Ask learners to relate the instruction to their own future goals (future wheel).
Need Matching	To enhance achievement striving behavior, provide opportunities to achieve standards of excellence under conditions of moderate risk.
	To make instruction responsive to the power motive, provide opportunities for responsibility, authority, and interpersonal influence.
	To satisfy the need for affiliation, establish trust and provide opportunities for no-risk, cooperative interaction.
Modeling	Bring in alumni of the course as enthusiastic guest lecturers.
	In a self-paced course, use those who finish first as deputy tutors.
	Model enthusiasm for the subject taught.
Choice	Provide meaningful alternative methods for accomplishing a goal.
	Provide personal choices for organizing one's work.

<b>Confidence Strategies</b>	
Learning Requirements	Incorporate clearly stated, appealing learning goals into instructional materials.
	Provide self-evaluation tools which are based on clearly stated goals.
	Explain the criteria for evaluation of performance.
Difficulty	Organize materials on an increasing level of difficulty; that is, structure the learning material to provide a "conquerable" challenge.
Expectations	Include statements about the likelihood of success with given amounts of effort and ability.
	Teach students how to develop a plan of work that will result in goal accomplishment.
	Help students set realistic goals.
Attributions	Attribute student success to effort rather than luck or ease of task when appropriate (i.e. when you know it's true!).
	Encourage student efforts to verbalize appropriate attributions for both success and failures.
Self-Confidence	Allow students opportunity to become increasingly independent in learning and practicing a skill.
	Have students learn new skills under low risk conditions, but practice performance of well-learned tasks under realistic conditions.
	Help students understand that the pursuit of excellence does not mean that anything short of perfection is failure; learn to feel good about genuine accomplishment.
<b>Satisfaction strategies</b>	
Natural Consequences	Allow a student to use a newly acquired skill in a realistic setting as soon as possible.
	Verbally reinforce a student's intrinsic pride in accomplishing a difficult task.
	Allow a student who masters a task to help others who have not yet done so.
Unexpected Rewards	Reward intrinsically interesting task performance with unexpected, non-contingent rewards.
	Reward boring tasks with extrinsic, anticipated rewards.
Positive Outcomes	Give verbal praise for successful progress of accomplishment.
	Give personal attention to students.
	Provide informative, helpful feedback when it is immediately useful.
	Provide motivating feedback (praise) immediately following task performance.
Negative Outcomes	Avoid the use of threats as a means of obtaining task performance.
	Avoid surveillance (as opposed to positive attention).
	Avoid external performance evaluations whenever it is possible to help the student evaluate his or her own work.
Scheduling	Provide frequent reinforcements when a student is learning a new task.
	Provide intermittent reinforcement as a student becomes more competent at a task.
	Vary the schedule of reinforcements in terms of both interval and quantity.

Keller, J. M. (1987). Development and use of the ARCS model of instructional design. *Journal of Instructional Development*, 10 (3), 2-10.

## Appendix 2:

*Instructional Design Template use for Evaluation*

## Basic Instructional Design Model

Once a meaningful, purposeful context for a particular instructional goal is identified and described, provisions must be made for addressing the important elements of each ID component. These elements may be addressed before, during, or after the learners “experience” the activities associated with the context.

Component	Elements	Context Function <sup>7</sup>		
Introduction	<ul style="list-style-type: none"> <li>• Gain learner attention</li> <li>• Articulate in some way the SKA<sup>1</sup> already needed to succeed within the new learning environment</li> <li>• Identify opportunities in which learners will relate what is about to be learned (goal) to what they already know how to do</li> <li>• Inform learners of objectives (o.k. to be vague)</li> <li>• Fit objective(s) into a "Big Picture"<sup>2</sup></li> <li>• Present the utility (relevance) of the SKA to be learned</li> <li>• Clearly identify the incentives/rewards for learning the SKA and succeeding within the learning environment</li> <li>• Establish clearly-perceived learner accountability, role(s) and task(s) within the learning environment</li> <li>• Establish clearly-perceived instructor role(s) and learner support mechanisms</li> <li>• Employ specific content-area methodologies if applicable (ensuring that all other elements are properly addressed)<sup>3</sup></li> </ul>	Orienting		
Activities	<ul style="list-style-type: none"> <li>• Establish <u>in context</u> the appropriate conditions for the type(s) of new SKA facilitated<sup>4</sup></li> <li>• Relate all SKA to a clearly-defined content domain<sup>5</sup></li> <li>• Provide learner guidance for learners as they apply information presented <u>in context</u> to SKA being facilitated</li> <li>• Present a variety of clear, concrete examples and nonexamples <u>in context</u></li> <li>• Provide opportunities for learners to explore the learning environment with minimal instructor guidance and intervention</li> </ul>		Instructional	

Practice & Feedback <sup>6</sup>	<ul style="list-style-type: none"> <li>• Provide initial learner guidance</li> <li>• Must match performances and conditions indicated within objectives and presented <u>in context</u></li> <li>• All should get practice</li> <li>• Feedback as immediate as possible (unless delayed feedback is desirable)</li> </ul>			
Review	<ul style="list-style-type: none"> <li>• Provide opportunities for learners to summarize the key ideas (including how these ideas fit into the "Big Picture"), what they learned how to do, and how they personally learned it</li> <li>• Restate objectives</li> </ul>			
Assessment	<ul style="list-style-type: none"> <li>• Must match performances and conditions indicated within objectives (goal may be only thing assessed)</li> </ul>			
Transfer	<ul style="list-style-type: none"> <li>• Present new context which elicits the same performances under different conditions</li> <li>• Make the utility of succeeding within the new context apparent</li> <li>• Present cues within the new context which aid learners in selecting and applying the appropriate previously-learned SKA</li> <li>• Clearly identify the incentives/rewards succeeding within the new context</li> </ul>			Transfer

<sup>1</sup> SKA refers to Skills, Knowledge, and Attitudes. Unless otherwise noted, "SKA" represent content-domain as well as context-specific (including social interaction) performances.

<sup>2</sup> A "Big Picture" often consists of a graphic representation of how a goal's SKA fit into a particular context (like saving the rain forest, meeting a client's need, running a small business), a content domain (like biology, American Literature, project management), a cognitive-behavioral domain (like problem-solving, study skills, self-esteem, physical fitness), and/or social domain (like cooperative learning, team building, role-playing).

<sup>3</sup> Examples of content-area methodologies include "Math Their Way," Distar Reading Program, and biology learning cycles.

<sup>4</sup> The manner in which learning activities (including information presentation) are structured depend on the type of behavior stated in each objective (see the Classifying Performances and Learning Conditions for Different Outcome Types charts).

<sup>5</sup> "Content domain" refers to the general body of knowledge (information) in which the SKA are associated. For example, music, biology, football, world history, and team building all represent various content domains.

<sup>6</sup> Once an objective has been established, practice and feedback are the most important elements of any instruction. The most important things humans learn are acquired through informal information presentation and lots of practice and feedback.

<sup>7</sup> These context functions are described by Tessmer and Richey (1997) as context "types." The orienting type represents a context which precedes the learning event (information and examples directed at the target SKA) and contains factors which influence the learner's readiness to learn the target SKA. The instructional type represents a context in which conditions specific to the acquisition of the target SKA are presented. The transfer type of context is presented after learners have demonstrated they have acquired the target SKA. Transfer contexts provide an opportunity for learners to apply SKA to conditions outside initial learning context. It is important to identify which component(s) are addressed by a chosen context type because it helps the designer determine which elements of the learning environment need to be presented before, during, or after the learners experience the events associated with the context.

### Classification of Technology-Supported Educational Contexts

Context	Description
Creation:	This type of context provides opportunities for learners to create something. [O,I,T] <sup>1</sup>
Simulation:	This context type allows the learner to make decisions in the development and subsequent operation of a simulated environment or situation. Simulations often try to replicate real-world environments. This type of context is often "problem-solving" in nature. [O, I, T]
Situation Exploration:	Unlike a simulation context, this type of context does not allow the learner to make decisions regarding the development of a simulated environment, but the learner can freely explore within a simulated environment or situation. This type of context is often "problem-solving" as well case-based. [I, T]
Reference Exploration:	This context type allows the learner to freely explore and access reference-type information. [I, T]

Tutorial (Direct instruction):	This context type generally presents "new" information (usually in a linear or stepwise format), and either provides a certain degree of practice using the information in some way, or applies the SKA to specific example(s). [I]
Information Presentation (No-Practice Tutorial)	This context type simply provides the learners with the linear presentation of information and examples. That's it. [I]
Drill and Practice:	Generally, this type of environment does not present "new" information, but provides practice and feedback over specific skills (often knowledge, defined concepts and rules). [I]
Game:	This type of context usually engages learners in competition, cooperation, puzzles, or strategies, often for the sake of entertainment. Other contexts may employ this context to because of the motivational advantages of games. [O, T]
Communication:	This context allows learners to communicate with other people via text, audio, binary files, and/or video information. [O, I, T]
Real:	Contexts in this category could fall into any of the above groups, or none. The distinguishing characteristics for these contexts are simply that they constitute real-world situations and settings (home, school, work, play). [O, I, T]

\*In general, each context type lends itself to one or more ID context functions that are referenced in the basic instructional design model at the beginning of appendix 2. O = orienting function, I = instructional function, T = transfer function.

The ID components and elements presented in this appendix were developed by Dr. Greg Sherman for an instructional design course at Virginia Tech in 1998 and are based on the following:

Gagné, R. & Driscoll, M. (1988). *Essentials of learning for instruction*. Englewood Cliffs, N.J. : Prentice Hall.

Keller, J. M. (1987). Development and use of the ARCS model of instructional design. Journal of Instructional Development, 10 (3), 2-10.

Merrill, M. D. & Tennison, R. (1994). *Teaching concepts : an instructional design*. Englewood Cliffs, N.J. : Educational Technology

Sullivan, H. & Higgins, N. (1983). *Teaching for competence*. New York: Teachers College Press.

Tessmer, M. & Richey, R. (1997). The role of context in learning and instructional design. *Educational Technology Research and Development*, 45 (2), 85-115.

## Appendix 3:

*Expert Review Evaluation Comments (A Section)*

Module 4: WWW Site Development  
 Expert Review  
 Al Byers

## A. PRODUCT DESCRIPTION:

Product title, developers, client:

What follows is an expert review of an asynchronous web based instructional course offered by Virginia Tech as part of a Master's degree for k-12 education population. The module under review is called: Module 04: WWW Site Development. Mr. David Halpin developed this module. Mr. Halpin is currently obtaining his Ph.D. in Instructional Technology from Virginia Polytechnic Institute and State University located in Blacksburg, Virginia. The subject matter expert who provided the content development and vision is Dr. Greg Sherman, a professor in Instructional Technology at Virginia Tech. The Instructional Technology program is located within the department of Teaching and Learning under the College of Human Resources and Education.

Instructional Goals:

The instructional goal for Module 04: WWW Site Development as stated under the main objective header (<http://www.itma.vt.edu/itma1/modules/webdev/syllabus.htm>) is as follows: The goal of this module is to provide you with the skills you need to begin creating your web-based electronic portfolio. Upon completion of this module you will have a web site that includes the following:

- A Home Page with personal contact information
- An online resume
- Links to various portfolio components
- Links to outside sites
- An overall design theme
- Images, clipart, bullets, horizontal rules, and tables

In addition, your site should be easy to navigate; easy to read, and well designed. Plus you should ultimately feel comfortable enough using Netscape Composer that you can create other web sites for your personal and professional use.

Throughout this module you will also become comfortable publishing (uploading) your web page to the new ITMA server, and subsequently accessing that information over the Internet. This is important because much of your future work in the IT Master's program will be incorporated into your portfolio and uploaded in this manner.

### **Amended Instructional Goals**

1. Using Netscape Composer, students will create their own well-designed web-based portfolio framework consisting of a Homepage and pages for each of their portfolio components as listed under "The Portfolio" description provided at the ITMA Portfolio Overview (provide URL).
2. Incorporated within these pages will be an overall design theme, hypertext links, graphics, bullets, horizontal rules and tables.
3. Students will place their previously developed resume within their electronic portfolio and organize and display a number of previously identified web resource links.
4. Additionally using an FTP software, students will be able to upload their image and html files to the appropriate Virginia Tech server computer.

I could not find a listing or review of entry behaviors that would be necessary prior to beginning this module. If included, the entry behaviors should be stated at the top level entry page of this module, such that prior to beginning the tutorial lessons, the user may go back and pick up the necessary skills if lacking.

### **Entry level skills and prerequisites for Module 4:**

The user should feel comfortable navigating and searching both the ITMA web site, and the Internet in general. The user should also feel comfortable navigating their own hard drive, and creating new folders. Additionally the user should be able to move, copy and paste files between different folders on their computer. They should be able to digitize images into their computer (as stated in the module 4 skills survey), or be able to locate, download and save images to their hard drive from the Internet. Should they wish to create their own background images for their web pages (as requested in assignment #2), they may need to know how to create background GIFs using an image editing program as well.

### Instructional Objectives and Subobjectives:

This next section will attempt to list all the objectives or subobjectives that were found listed in this module. They will be presented as organized within the module lessons. From the Syllabus page, which lists the overall course objectives, a link to the assignments page is provided. It is here that individual assignments and subobjectives are found. The following Assignment objectives are specified on the "Syllabus" page:

1. Web Design
2. The Home Page
3. Navigation and Hyperlinks
4. The Resume
5. External Links
6. The Final Exam

### **Assignment 1: Web Design**

#### Objectives as stated on page:

1. Read the entire Yale Web Style Guide Manual.

2. Find 3 Internet sites that demonstrate "good design" and write a single paragraph why as related to Yale's Web Style Guide Manual
3. Find 3 Internet sites that demonstrate "poor design" and write a single paragraph why as pertaining to Yale's Web Style Guide Manual guidelines

Ancillary Objectives for consideration:

1. Think about how you might want your site to look and make note of what you can do to avoid frustrating people who visit your site.
2. Ponder how you can make it easy for your future users to navigate or find specific information on your site
3. Consider what kind of look or theme you'll want for your site

Classification of Instructional Objectives:

Intellectual Skills: Concepts, procedural knowledge and rules (differentiate, classify, and show)

Comments on objectives listed above:

I like the activity of applying what you know to both good and bad examples found on the Internet. Could this activity be more structured by having the users reference critiques as related to the original objectives that the site in question might be trying to achieve? For example, a training or learning tutorial site may have a linear or sequential fashion for certain portions of its online training (as referenced in Yale's Web Style Guide Manual), while an information dissemination type of site may incorporate a more web-based, hierarchical or categorical listing type of layout.

Better yet, the instructional objective might follow the Walt Dick and Lou Cary ID model, and be stated as: Given the Yale Web Style Guide Manual and access to the internet, the user will find 3 "good example web sites" and 3 "bad example web sites" citing 3 supporting reasons for each site found as supported by the Yale Web Style Guide Manual.

The ancillary objectives are definitely worthwhile, as these design concepts will eventually materialize in the user's electronic portfolio. Would it not be beneficial to have the participants formalize some of these formative design considerations literally as well at this point, attempting to operationalize which layout styles they may use for their own personal Home Page?

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