

# A Model for Designing Web-based Units of Instruction

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A well-organized and consistent organizational format is critical to the success of any online course. When students complain that they don't understand what they are supposed to do, why they are assigned certain learning activities, or how their grade is determined, it stems from a lack of clarity or organization. While these problems are certainly not unique to online courses, good organization and clearly-stated instructional

materials are probably even more important in cyberspace than in the face-to-face classroom.

In this article, I share a structural model for organizing course content that I have found to work well for me in my online courses. Much of what is described here will be generally familiar to seasoned instructors regardless of whether they teach online or in a classroom.

## ORGANIZING THE COURSE

Most courses are organized into blocks of instruction that are usually called units, lessons, or modules. I choose to use the term *unit*. Most one-semester courses have between 8 and 15 units. This is probably due to the same reason that textbooks usually have about 15 chapters: the typical 15-week semester. A course with 15 units will cover about one unit per week. In an asynchronous environment, I find that 2 weeks per unit works better to provide adequate time for interaction between learners as well as with the instructor, so I usually have about eight units in a course. This is not to say that less should be covered in an online course, just that content might be better if chunked into larger blocks to allow time for dis-

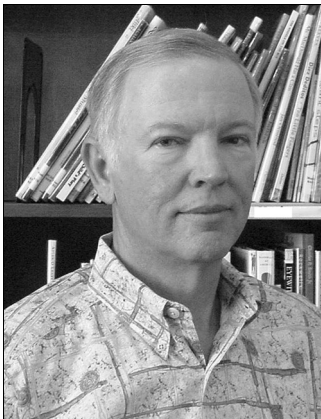
semination and dialog before moving on to the next topic.

When organizing a course, the instructor must first decide how the course content is to be divided, how many units there will be, and what information will be covered in each. Once this has been decided, it is time to begin constructing the units.

Every instructor has his or her own philosophy of teaching and learning. The organizational structure that I provide here is not unique to any one approach and can be applied to most approaches, including constructivist approaches, concept attainment, and mastery learning. While the activities and evaluation will vary with these various approaches, the organizational structure can be standardized.

## AN ORGANIZATIONAL STRUCTURE OF UNITS

In the model suggested here, each unit contains the following sections: introduction, module objectives, how to proceed, discussion, review or self-help exercises, and unit assignments. Units can be stored on the course Website, where students may read, print, or download them



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to their own PC. These main components of units are described below.

## INTRODUCTION

The introduction presents an overview of the unit and is about a half page in length. It includes a brief overview of the material and activities to be covered in the unit, a statement describing the purpose of

the unit, and sometimes thought-provoking questions, that are intended to focus the student's attention and provide motivation. Those who have completed basic teacher education training may recognize the introduction as the *set induction* that many teachers provide when they begin a new topic in the classroom.

**Table 1. Sample Unit Objectives**

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| After completing this unit, you should be able to:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <ul style="list-style-type: none"> <li>• Locate books, journal articles, and reports by author, subject, and title using the university's on-line <i>Library Information System</i>;</li> <li>• Conduct research on assigned topics using the <i>Library Information System</i>;</li> <li>• Locate and use on-line journals for research;</li> <li>• Use popular on-line databases for research;</li> <li>• Construct information searches using Boolean logic;</li> <li>• Locate Information on the World-Wide Web using basic and advanced search techniques;</li> <li>• Describe and evaluate several major Web based search engines;</li> <li>• Construct inquiry-based Internet research activities for students,</li> <li>• Differentiate between instructional resources and primary resources,</li> <li>• Apply the <i>Big 6</i> model in constructing inquiry based instructional assignments, and</li> <li>• Evaluate information found on the Internet using a standard rubric.</li> </ul> |

**Table 2. Sample Unit Procedures**

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Complete and submit Units 1 and 2 before proceeding with this unit.                                                                                                           |
| 2. Read the unit introduction and objectives.                                                                                                                                    |
| 3. Read Chapter 5 of the textbook and the discussion material included in this unit.                                                                                             |
| 4. View the narrated <i>Power Point</i> presentation titled <i>Electronic Research</i> from the course CD.                                                                       |
| 5. For your own information, complete the self-help exercises included in this unit. These are not submitted with the unit assignment. You should complete some or all of these. |
| 6. Complete the Unit Assignment including the multiple choice questions and application exercises.                                                                               |
| 7. If you have questions about the unit or assignment, you may send an e-mail message to me or submit it to the class via the discussion tool.                                   |
| 8. Submit your Unit 3 assignment via e-mail as described in the <i>Procedures for Submitting Assignments</i> in the <i>Course Introduction</i> .                                 |

## UNIT OBJECTIVES

These are measurable statements of learning outcomes that clearly state what the student is expected to know or be able to do after completing the unit. It is important that the list of objectives be comprehensive enough to include all expected learning outcomes for the unit, and they should be clearly and unambiguously stated. A sample list of objectives for a unit from a course that I teach titled Curriculum Applications of the Internet is given in Table 1. The topic of this unit is electronic research.

## HOW TO PROCEED

This section is a step-by-step listing of what the student is to do in order to complete the unit. This is an example only. Procedures may be written to specify the steps that are needed for any particular unit. The idea is that they should clearly state what the student must do to complete the unit.

## DISCUSSION

This section might be thought of as a substitute for the class lectures and as a supplement to the textbook or other course materials. The purpose here is to supplement other course materials, not to rehash them. Important concepts and principles can be pointed out and explained. Important information that is not included elsewhere can be included. Points that the student may find confusing can be explained, and the importance and application of the unit material can be stated. Clear and concise writing is important here to avoid misunderstandings. In some courses, a textbook and/or Web resources are relied on heavily, and the discussion material within the unit will be brief. In courses that do not include a great deal of text or other reference material, the discussion mate-

**Table 3. Sample Review Exercises**

1. Define or describe the following key terms:  
Think in terms of explaining each term to a friend or your instructor in a way that will show that you understand the practical working definition of each term.
  - Query
  - Search term
  - Search Strategy
  - Boolean Logic
  - Limitors
  - Relational Operators
  - Hit
  - Library Information Service
  - Electronic Database
  - Robot Programs
  - Advanced Search
  - Interlibrary Loan
  - Library Express
  - Online Catalog
  - ERIC
  - Electronic Journals
  - Primary Sources
  - Inquiry-Based Learning
  - The Big Six Skills for Problem Solving
  - Scaffolding
2. Pick a topic of interest to you, such as a research paper for another course or a topic in which you are interested, and use the *Library Information System* to locate articles and citations for to your topic. Try to do all (or as much as possible) of your research on-line.
3. Pick a topic of interest to you and visit Unified Web Searches at [www.search.com](http://www.search.com). Try to locate information on this topic from several web search engines. Decide which ones are most likely to work best for you in the future.

rial becomes more paramount. I boldface important terms within discussions. These are defined in context. References to articles, text chapters, and Web sites are also included in the discussion section.

### REVIEW EXERCISES

These are self-help exercises and are designed to provide practice and reinforcement for the student. These exercises may be optional and not submitted or graded. Such activities as answering review questions from a textbook, defining key

terms, problem-solving activities, or accessing Websites containing supplementary information may be included in review exercises. In my courses, I inform students that I expect them to do some of the review exercises, but not necessarily all of them. I will also follow up by asking them on course exams to describe the review exercises that they have completed.

### UNIT ASSIGNMENT

The unit assignment should include an assignment that allows

the student to demonstrate mastery of the unit objectives. In my courses, the unit assignments consist of a set of multiple-choice questions and a set of application exercises. If multiple choice questions are used, it is important that questions be worded well and that there be exactly one justifiably correct answer. Questions should be designed to measure concept attainment and an ability to apply the information contained in the unit, rather than simple recall of facts.

The applications assignments require the student to demonstrate the appropriate behaviors specified in the unit objectives. Specific instructions should be given in assignments. In some courses, diagrams, computer screens, and examples are included as appropriate. The assignment section also specifies exactly what items the student is to submit to the instructor. Some sample application exercises from the example unit on *Electronic Research* are given in Table 4.

## DESIGN CONSIDERATIONS

One must consider not only the content of course units but also their appearance. Since long blocks of text are visually unappealing, I try to include pictures and graphics that reinforce the information presented and add visual appeal. Graphs and tables that summarize information are also provided. Key terms are given in boldface type and are defined in context. Titles of anything—books, articles, Websites, programs, and so forth—are given in italics for ease of identification. I make frequent use of bulleted or numbered lists.

## CONCLUSION

Organizing courses into blocks of instruction provides a solid struc-

**Table 4. Application Exercises**

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**Applications Exercises (60%—15 points each)**

Complete the application exercises below using your word processor and attach them to your assignment message.

1. Complete a short literature review on the subject of online learning. You may refine the basic topic, *online learning*, as you wish, such as limiting the search to certain subject areas, levels, dates, etc. Your literature review should consist of at least 5 journal article citations followed by a brief summary of the article. You may use either the *Library Information System* or the online E-Journals given in section 5.10 of this unit. Use this basic format for citations: Author(s), Article Title, Journal, Issue, Date, page(s). Limit your literature review to 3 pages.
  2. Design an instructional problem solving activity for a level and subject of your choice, using the *Big Six* model. State which of the critical thinking skills, given at the end of the section on the Big Six model apply to your activity. (1 page maximum)
  3. Share your ideas and experiences with online research with the class via the course bulletin board tool. Enter *Online Research* as the subject of your message and post it to the Lesson 3 forum. This is a fairly free form assignment. You might choose to tell something about a research project that you have completed, describe how you use Internet research in your teaching, provide information about useful web sites for research, or share other ideas that you think would be useful to class members. Read the messages posted by other class members and respond to at least 5 of them. Copy and paste your initial message into your assignment as Exercise 3. (1 page maximum)
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ture for online courses. These units, modules, or lessons provide the glue that holds a course together. Instructional materials such as textbooks, audiovisual materials, and Web resources are integrated into the course through these organized units. Units will include learning activities such as class discussions,

group assignments, exams, and individual projects. In courses that provide a well-articulated organizational structure, students will be more likely to master course content and there will be no need for them to ask: "What am I supposed to do? Why am I doing this? And "How is my work going to be evaluated?"

**"ORGANIZING COURSES INTO BLOCKS OF INSTRUCTION PROVIDES A SOLID STRUCTURE FOR ONLINE COURSES."**

**—ROBERT PRICE**