



A LEARNING OBJECT INSTRUCTIONAL DESIGN MODEL

April 2005

TABLE OF CONTENTS

	PAGE
MODEL	
EVALUATE FEASIBILITY	1
ANALYZE NEED	2
ANALYZE FUNCTIONALITY	3
ALIGN TEAM AND PLAN PROJECT	4
IDENTIFY & ELIMINATE DUPLICATE TERMINAL OBJECTIVES	5
IDENTIFY ENABLING OBJECTIVES	6
DESIGN	7
DEVELOP	9
IMPLEMENT	10
EVALUATE	11
APPENDIX	

This **Learning Objects Instructional Design model** has ten phases: evaluate feasibility, analyze need, analyze functionality, align team and plan project, identify and eliminate duplicate terminal objectives, identify enabling objectives, design, develop, implement, and evaluate. This method assumes that the designer is working on or with a course or complete instructional program.

EVALUATE FEASIBILITY	
Why	<p>Initial scoping, information gathering, and analysis are carried out to confirm that a learning object approach is economically viable, technically and organizationally feasible, and valid to address the identified gap.</p> <p>Instructional interventions are extremely effective when they are the right solution. They are also time and resource consuming. Therefore, feasibility must be evaluated and potential ROI identified before the project is begun.</p>
What	<ul style="list-style-type: none"> • Identify business objectives. • Identify project objectives. • Apply a feasibility analysis model that addresses economic, technical, organizational, and instructional feasibility issues. (Includes ensuring that both a classification and a tagging schema are in place.) • Identify the criteria by which you will evaluate success and gather baseline data.
Who	<ul style="list-style-type: none"> • Instructional Designer (with learning object design expertise) • Developer (with learning object design expertise) • Project Manager • Sponsor • Client

The next three phases: Analyze Need, Analyze Functionality, Align Team and Plan Project, can occur concurrently.

ANALYZE NEED	
Why	To refine and clarify information gathered during the needs assessment. To obtain the next several levels of information required for the design, production, and implementation phases.
What	<ul style="list-style-type: none">• Job analysis• Task analysis• Learner analysis• Analyze defined performance gap.• Analyze any available information on previous learning object implementations in the company.
Who	<ul style="list-style-type: none">• Instructional Designer (with learning object design expertise)• Subject Matter Experts• Client

ANALYZE FUNCTIONALITY

Why	The intranet and/or extranet, delivery (desktop) hardware, and available software must be analyzed for opportunities and constraints.
What	<ul style="list-style-type: none">• Analyze platform from which learners will be accessing learning. (Browser, bandwidth, etc.)• Identify and analyze software options for development in terms of flexibility, applicability to the intervention to be developed, and ease of conversion to XML.• Analyze capabilities / constraints of the company's LCMS.• Choose authoring tool for both production and for prototyping.• Analyze classification and tagging schema.• Identify XSL style sheets available for both performance support and learning. Determine if additional style sheets might be required.
Who	<ul style="list-style-type: none">• Instructional Designer (with learning object design expertise)• Developer (with learning object design expertise)• Information Technology group responsible for intranet, infrastructure and security protocol.• Subject Matter Experts• Client

ALIGN TEAM & PLAN PROJECT

Why	Instructional interventions require the input and cooperation of many different groups and skill sets. The success or failure of the project may hinge on the effectiveness of team interactions and project planning.
What	<ul style="list-style-type: none">• Identify skill sets required for project. Ensure the Instructional Designer and the Developer both have learning object expertise.• Select team members based on the skills required.• Determine and document communication protocols.• Determine and document team member roles and responsibilities for each project step.• Determine and document the change management / scope management process that the team will follow.• Identify risks to the project, determine how likely each risk is to occur, decide what impact that risk could have on the project, and develop and document strategies to mitigate the risk.• Decide on the project management tool and process to be followed.• Draft first project plan and time line.
Who	<ul style="list-style-type: none">• Instructional Designer (with learning object design expertise)• Developer (with learning object design expertise)• Graphic Artists, Technical Writers, etc. Depending on which skills are required for the project.• Subject Matter Experts• Client• Sponsor <p>Note: Anyone who will be working on the project, at any stage, should be included in the initial team meetings and in the project planning.</p>

The next two phases (**Identify & Eliminate Duplicate Terminal Objectives and Identify Enabling Objectives**) are completed when the instructional designer is redesigning existing content into learning objects. If one is working with new content one can move directly to the Design phase.

It is recommended that the instructional designer use an instructional hierarchy as described by Dick and Carey (see Appendix B) to map both terminal and enabling objectives as they exist in the current program. A second hierarchy should be developed upon which the design of the learning object version of the course or program can be based.

IDENTIFY & ELIMINATE DUPLICATE TERMINAL OBJECTIVES	
Why	Looking at the entire curriculum, which was most likely developed in an ad hoc manner over time, one usually finds that many of the terminal objectives overlap. Removing overlapping objectives reduces the rework substantially.
What	<ul style="list-style-type: none"> • Identify every terminal objective in every lesson in the program. • Identify and eliminate any duplicate terminal objectives. • Create a list of terminal objectives to be used in the repurposed learning, ensuring that they are written in a consistent and measurable format. (Objectives Worksheet)
Who	<ul style="list-style-type: none"> • Instructional Designer (with learning object design expertise)

IDENTIFY ENABLING OBJECTIVES

Why	Each terminal objective will have one or more enabling objectives. Assets are created based on enabling objectives. Just as terminal objectives are often duplicated in a program so are enabling objectives. The difference is, rather than eliminating duplicate enabling objectives one identifies where they are located and ensures that related assets are applicable to each instance of the objective.
What	<ul style="list-style-type: none">• Identify every enabling objective related to each terminal objective for the revised program.• Create a list of enabling objectives to be used in the repurposed learning, ensuring that they are written in a consistent and measurable format. (Objectives Worksheet)• Consider which enabling objectives relate to both development and support of performance. (Objectives Worksheet)
Who	<ul style="list-style-type: none">• Instructional Designer (with learning object design expertise)

DESIGN

Why	<p>Design involves several iterations of prototyping, requiring heavy input and review from the subject matter experts. While this extends the time required for the design phase, it also overlaps design with development and shortens the overall development cycle while providing a superior product.</p> <p>The learning object design document is formatted to:</p> <ul style="list-style-type: none">• Capture the design at the level of detail required if more than one designer is creating the assets and objects.• Allow the designer to dictate both content and format.• Display the design in a format that is easy for subject matter experts and clients to understand thus facilitating review and sign-off.
What	<ul style="list-style-type: none">• Create an instructional design hierarchy.• Complete <i>section one</i> of the design document. List all the modules and the objects in each module.• Complete <i>section two</i> of the design document. List all the assets in each object.• Complete <i>section three</i>:<ul style="list-style-type: none">○ Organize the assets in the display template chosen for each object.○ Detail each asset including recommendations for creation in more than one media.• Obtain sign-off on design document from both subject matter experts and the client.• Create storyboard template.• Use joint application design (JAD) session to design the architecture, determine protocols and navigation, and obtain sign-off on objectives and storyboard template. Determine which enabling objectives (assets) and which terminal objectives (objects) to prototype to ensure each general type / approach is prototyped.• Storyboard first set of assets and have subject matter experts review storyboards.• Program and test assets.

DESIGN (CONT'D)

	<ul style="list-style-type: none">• Revise assets based on feedback from subject matter experts.• Create prototype object from prototyped assets.• Revise object based on feedback from subject matter experts.• Storyboard next set of assets and the related object.• Test dissemination of the prototype object through the LCMS.• Obtain client sign-off on each object. <p>Note: Repeat the design, evaluate, and revise cycle for each object selected for prototyping.</p>
Who	<ul style="list-style-type: none">• Instructional Designer (with learning object design expertise)• Developer (with learning object design expertise)• Graphic Artists, Technical Writers, etc. Depending on which skills are required for the project.• Subject Matter Experts <p>Note: Client and Sponsor are involved at regular design review points, established in the project plan.</p>

DEVELOP

Why	Based on the design document, each asset is storyboarded using a storyboard format agreed upon with the developers. Since the organization of assets into objects is detailed in the design document, this phase de facto creates the objects as well.
What	<ul style="list-style-type: none">• Finalize development and production schedule.• Storyboard each asset then combine storyboards into one storyboard per object.• Review each object to ensure validity, reusability and transportability.• Have subject matter experts review and provide feedback on each storyboard as it is developed.• Revise storyboards based on feedback.• Obtain client sign off on each revised storyboard.• Program assets and objects in selected style sheet. (Alpha)• Validate each Alpha object with subject matter experts not involved in the project up to this point.• Validate each Alpha object with subject matter experts not involved in the project up to this point.• Revise and revalidate.• Test dissemination of the prototype object through the LCMS.• Obtain client sign-off on each object.
Who	<ul style="list-style-type: none">• Instructional Designer (with learning object design expertise)• Developer (with learning object design expertise)• Graphic Artists, Technical Writers, etc. Depending on which skills are required for the project.• Subject Matter Experts• Client (for sign-off on each object)

Implementation and Evaluation overlap since the first two levels of evaluation occur during the Implementation step and provide input to the post-implementation report.

IMPLEMENT	
Why	The implementation plan is reviewed and revised and the intervention is implemented.
What	<ul style="list-style-type: none"> • Review and revise implementation plan and schedule. • Train the implementers. • Implement. • Develop and submit post-implementation report. • Act on post-implementation report recommendations.
Who	<ul style="list-style-type: none"> • Implementers (implementers are often the subject matter experts used throughout the project) • Instructional Designer (with learning object design expertise) • Project Manager • Client (to review and sign-off on post-implementation report)

EVALUATE

Why	<p>First and second level evaluation should be conducted. These two levels are conducted during or at the end of implementation. They provide data and input to the post-implementation report.</p> <p>First Level: Learner and implement reactions to the structure and content of the intervention.</p> <p>Second Level: Acquisition of skill, knowledge, and attitudes measured against the project objectives.</p> <p>Third Level: Six months after implementation, usage and effectiveness of the knowledge and skills taught should be measured.</p> <p>Fourth Level: One year after implementation improvements in productivity, decreases in errors, etc., as well as any other evaluative criteria identified in the feasibility evaluation step, should be measured.</p>
What	<ul style="list-style-type: none">• Conduct first, second, third, and fourth level evaluations.• Act on results
Who	<ul style="list-style-type: none">• Implementers• Instructional Designer (with learning object design expertise)• Subject Matter Experts• Client (to review results and approve further actions to be taken)

Appendix A

Objectives Worksheet

Course / Program: _____	Instructional Designer: _____	Date: _____
Module / Lesson: _____	E-mail: _____	Version: _____
Phone: _____		

Terminal Objective	Enabling Objectives	Relates to TO's #	Learning (✓)	Support (✓)
1	a			
	b			
	c			
	d			

Terminal Objective	Enabling Objectives	Relates to TO's #	Learning (✓)	Support (✓)
2	a			
	b			
	c			
	d			

Terminal Objective	Enabling Objectives	Relates to TO's #	Learning (✓)	Support (✓)
3	a			
	b			
	c			
	d			



LEARNING OBJECT DESIGN DOCUMENT

Course / Program Title

Section One

MODULE	LEARNING OBJECTS	PAGE
MODULE NAME	List of objects in module	
MODULE NAME	List of objects in module	
MODULE NAME	List of objects in module	
MODULE NAME	List of objects in module	

Section Two

LEARNING OBJECT	ASSETS
LEARNING OBJECT NAME	List of assets in object
LEARNING OBJECT NAME	List of assets in object
LEARNING OBJECT NAME	List of assets in object
LEARNING OBJECT NAME	List of assets in object



Section Three

MODULE: Introduction

LEARNING OBJECT 1: Learning Objectives

ASSETS:

- **fact, text, learning objectives**

At the end of the program, learners will be able to:

- Describe what a project is, and isn't.
- Describe what project management is.
- Describe the role of the project manager.
- State why consistency in project management is important.
- Describe the project management process being recommended.
- List the five phases of the project management process and briefly describe each phase.
- State the use of each tool, which step in the process it supports, the benefit to using each tool.
- Describe how they would be able to apply the project management process to a project they are currently working on.

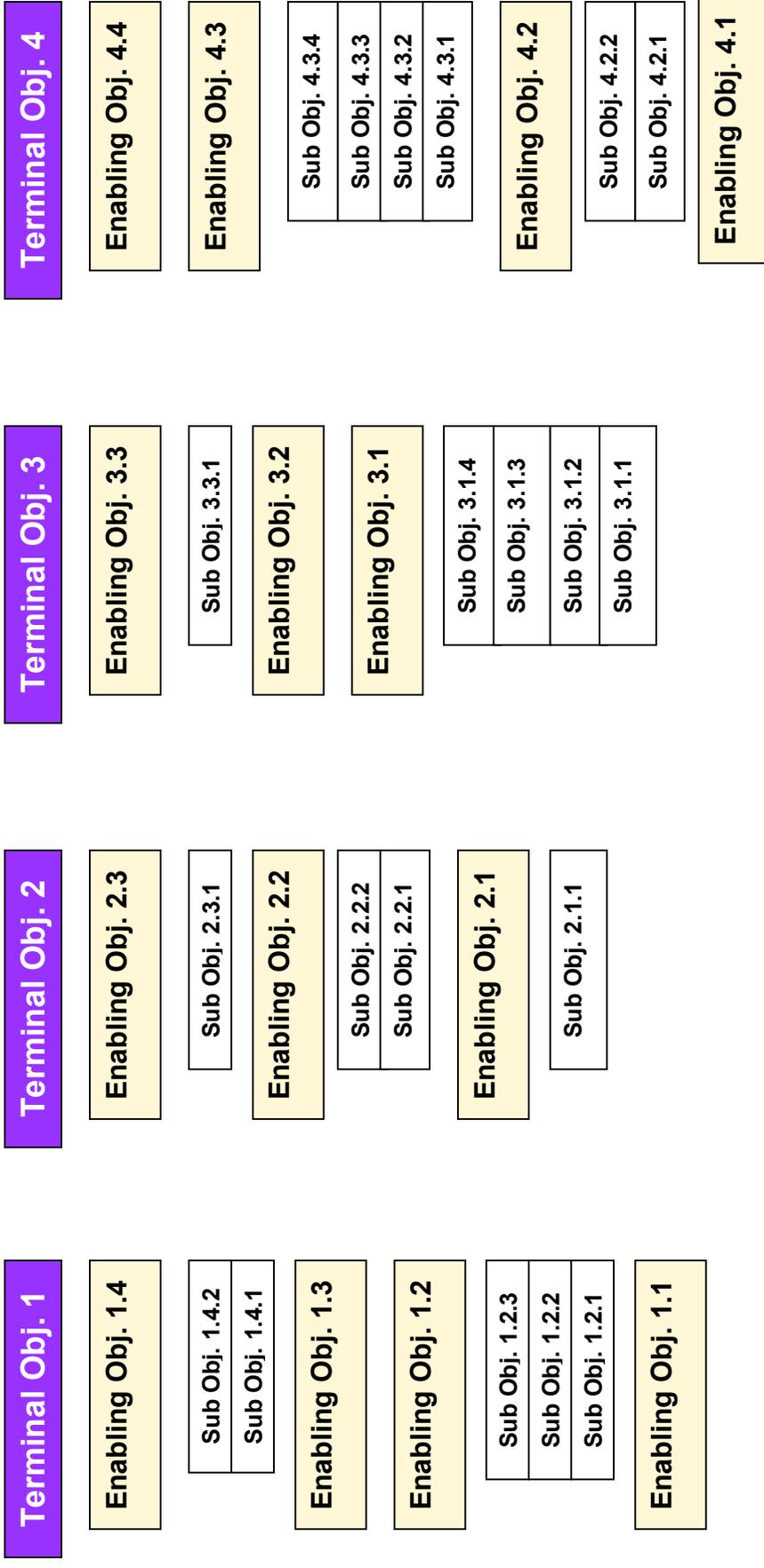
- **concept, photo, learning objectives**



Appendix B

Instructional Hierarchy

Program Goal



Adapted from Dick, Walter, and Carey, Lou (1990). The Systematic Design of Instruction, Third Edition.

