Introducing Instructional Design Wizard

June 2010

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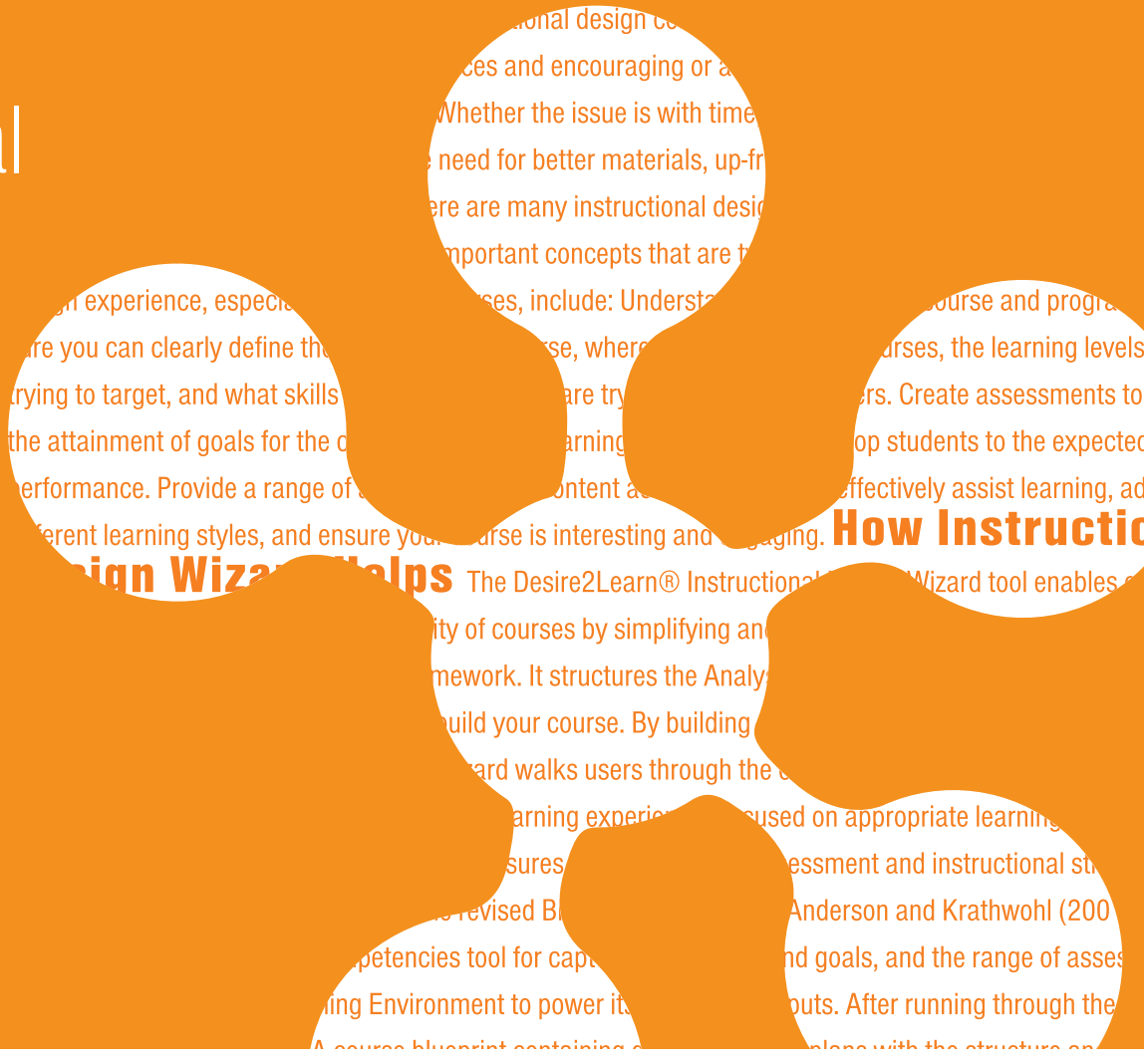
Desire2Learn Incorporated



Desire2Learn

INTRODUCING INSTRUCTIONAL DESIGN WIZARD

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Challenges to Building Pedagogically Sound Courses

Matt Teskey,
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The task of building courses that follow instructional design best practices can be tedious or difficult depending on an individual's experience and exposure to instructional design concepts. Many institutions have departments dedicated to documenting their best practices and encouraging or assisting faculty to incorporate them, either for new courses or during course redesign. Whether the issue is with time, lack of experience, complexity of organizational policies and best practices, or the need for better materials, up-front planning and course design doesn't always get the attention it deserves.

There are many instructional design concepts to consider—far too many to cover in one document. However, some important concepts that are typically stressed by those with instructional design experience, especially for online courses, include:

- Understand the goals of the course and program; make sure you can clearly define the purpose of the course, where it fits in with other courses, the learning levels you are trying to target, and what skills and knowledge you are trying to impart to learners.
- Create assessments to measure the attainment of goals for the course, and create learning experiences to develop students to the expected level of performance.
- Provide a range of assessment and content activities that most effectively assist learning, address different learning styles, and ensure your course is interesting and engaging.

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How Instructional Design Wizard Helps

By facilitating and encouraging up-front analysis and design with a step by step process, Instructional Design Wizard lowers the barrier for incorporating instructional design best practices during course development or re-design to help ensure high quality, effective courses.

The Desire2Learn® Instructional Design Wizard tool enables organizations to save time and increase the quality of courses by simplifying and streamlining the course development process over an instructional design framework. It structures the Analysis and Design sections of the ADDIE model providing a sound blueprint on which to build your course. By building on Competencies and other Learning Environment tools, Instructional Design Wizard walks users through the creation of pedagogically sound courses organized by modules containing a variety of learning experiences focused on appropriate learning levels. It promotes an effective course structure, and ensures the alignment of assessment and instructional strategies with course objectives classified using the revised Bloom's Taxonomy by Anderson and Krathwohl (2001). It leverages the Desire2Learn Competencies tool for capturing outcomes and goals, and the range of assessment and content delivery tools in Learning Environment to power its steps and outputs. After running through the Wizard, designers will have created:

- A course blueprint containing detailed module plans with the structure and placeholders for assessment and content activities clearly aligned to objectives.
- An objective-based assessment shell in the Competencies tool.
- A grades-based assessment shell in the Grades tool.

From there, the Desire2Learn Course Builder tool can be used to create materials, populate placeholders, and complete the course design and implementation.

Instructional Design Wizard is useful for new course development by individuals or teams, and also for existing courses to incorporate an analysis and design process.

Created as part of a multi-year, multi-million dollar research and development project through a partnership between Desire2Learn, the Université de Moncton, and the National Research Council of Canada as part of the SynergiC3 project (http://www.synergic3.com), the Instructional Design Wizard and Course Builder tools apply years of instructional design research and incorporate best practices employed by instructional design groups at leading institutions around the world.

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The Steps and the Background

The following sections outline the specific steps of Instructional Design Wizard, including what the user is to do on each step, along with some insight into the research, best practices, and intentions of the steps. The steps are organized into four categories:

1.0 Define Learning Goals

1.1 Outline and list the modules to be developed in the current Wizard session
1.2 Define and list the competencies / goals for those modules
1.3 Classify and list the learning objectives
1.4 Define module objectives

2.0 Choose Activities

2.1 Define and categorize assessment activities aligned to objectives
2.2 Define and categorize content activities aligned to objectives

3.0 Organize Gradebook

3.1 Define Gradebook settings / choose grading system
3.2 Create Gradebook categories for assessment activities

4.0 Review Course Design

4.1 Review Information collected
4.2 Review Wizard output and finish

When running the Wizard, users can go back to previous steps to refine inputs, they can save progress and continue at a later time, and they can run through the Wizard again and again to create additional course modules or to refine existing modules.

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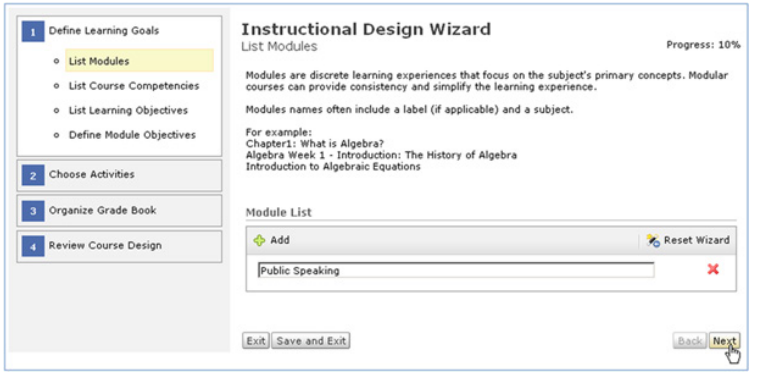
1.0 Define Learning Goals

1.1 Outline and list the modules to be developed in the current Wizard session
1.2 Define and list the competencies / goals for those modules
1.3 Classify and list the learning objectives
1.4 Define module objectives

This step is first because often designers or instructors have existing ideas of the areas to cover, typically from textbooks, resources, curriculum documents, or from delivering the course material previously. They often have a logical sequence of modules in mind as well. It is important to organize a course into logical learning units so that each is self-contained with its own objectives, assessments, and content. Instructional Design Wizard enables users to design the complete course in one run of the Wizard, but most often, users will work on only one or a few modules at a given time, and may even run the Wizard multiple times as they refine modules during a course or for subsequent offerings.

Step 1.1: List Modules

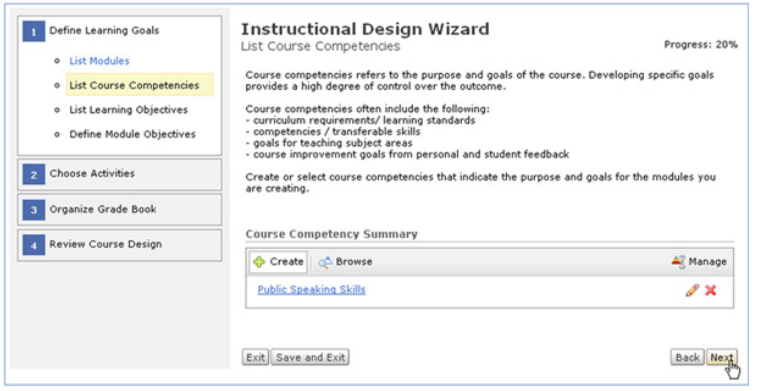
The List Modules step asks users to list the modules that they want to design using the Wizard. Modules are defined learning units and are typically organized by concept, objective, or time sequence.



Step 1.1 | List Modules

Step 1.2: List Course Competencies

The List Course Competencies step asks users to articulate the course goals that relate to the identified modules as competency statements, either by creating new competencies in the interface, or by selecting competencies shared to the course from the organization, often from previously imported academic standards or accreditation requirements.



Step 1.2 | List Course Competencies

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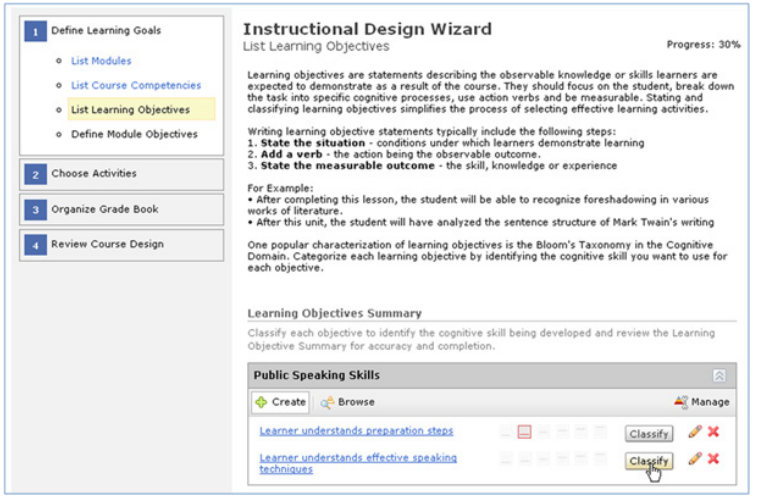
The purpose of the course is defined in this step. By clearly articulating the purpose and goals of the course, and using them as the basis for its development, an increased level of control is achieved over the end result. The success of a course is defined by the goals you set and the leaner's ability to achieve them. This step encourages designers to define their target and then later build up the assessments and content to reach that target, making the course focused on learner achievement versus simply covering material.

When defining competencies, it is important to consider the type of course being offered, how the course relates to other courses in the curriculum or program, and the depth and breadth of knowledge fitting the course type. Users can choose as few or as many competencies as they like; Instructional Design Wizard supports both general statements and very granular statements so as to be useful for users with various levels of exposure to creating course goals and competency statements.

Step 1.3: List Learning Objectives

Learning Objectives are statements describing the observable knowledge or skills the learners are expected to demonstrate as a result of the course. They are created in the List Learning Objectives step and typically focus on the learner, break down the task to observable cognitive processes, use action verbs, and are measurable.



Step 1.3 | List Learning Objective

These Learning Objectives are then optionally tied to Competencies, and each Learning Objective is classified according to Bloom's Taxonomy of learning levels, or skills in the cognitive domain (remembering, understanding, applying, analyzing, evaluating, and creating). Future steps of the Wizard will use these classifications to recommend appropriate assessment and content activities that measure and assist learners in direct support of each objective.

Classifying the Learning Objectives forces the designer to understand exactly what they are expecting the learner to be able to do, allowing them to focus on that specific task, and, therefore, providing more effective assessment and instruction towards it. Not all courses will need to focus on all learning levels, and some objectives may be classified for multiple learning levels.

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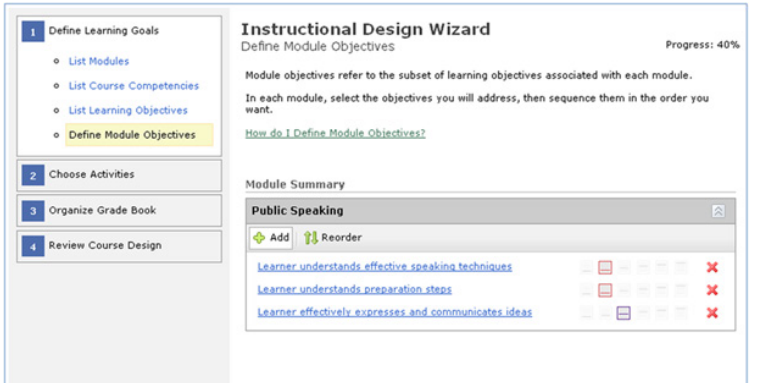
Step 1.4: Define Module Objectives

The Define Module Objectives step asks designers to select which learning objectives are going to be assessed and taught to for each module. Designers can also sequence those learning objectives within each module, establishing the sequence of assessments and content within the module.



Step 1.4 | Define Module Objectives

Any one module can cover multiple learning objectives, and any specific learning objective can be covered by one or more modules. Designers should be mindful, however, to not try to address too many learning objectives in one module as this will make it difficult to sequence activities. Similarly, trying to cover the same learning objective in many modules can potentially interrupt the sequence of activities that take the learner towards achievement of the learning objective. It is recommended to group general objectives at the top of the module and then sequence the subject specific objectives. This controls the sequence of the activities that will be chosen later.

Defining module objectives is an important step to provide guidance for the assessments and content that should be included with each module. Future Wizard steps use the learning objectives associated with each module to recommend assessment and content activities.

2.0 Choose Activities

2.1 Define and categorize assessment activities aligned to objectives

2.2 Define and categorize content activities aligned to objectives

Step 2.1: Design Assessments

The Design Assessments step allows designers to pick assessment methods for each module from a list of activities organized by objective, approach, and learning level. The activities presented are appropriate to the learning levels of learning objective selected (defined during the List Learning Objectives step), and can also be narrowed down by enabling the designer to select one or more instructional approaches that are used to help learners achieve the objective. Approaches include direct instruction, indirect instruction, independent learning, collaborative learning, and experiment/discover.

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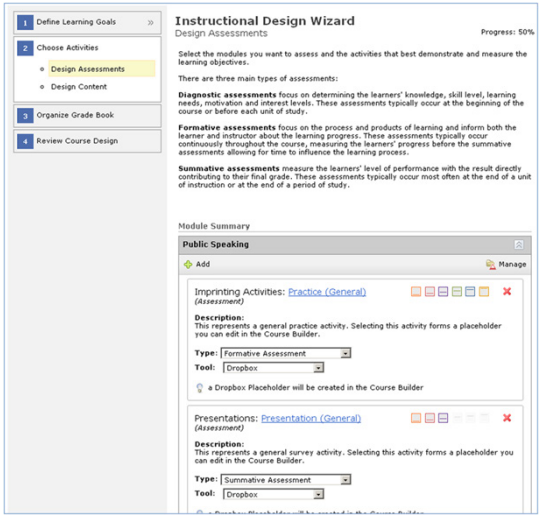

Step 2.1 | Design Assessment

For each activity, designers can review the activity description and the learning levels that the activity can be used to address. Once activities are selected, designers specify whether each assessment is diagnostic, summative, or formative, and which Learning Environment assessment tool is going to be used to enable the assessment. The designer has complete control over adding more activities, assessing more or less often, and incorporating a variety of activities in each module or through the duration of a course to use the most effective method and to support different learning styles.

The Design Assessments step comes before the Design Content step to ensure that the assessments in each module are aligned with the module objectives, and not just aligned with the materials covered. If objectives are clearly stated and measurable as recommended, assessments should facilitate the direct measurement. The Design Content step will then be followed to provide the learning experiences to support the assessments using the "Teach to the Test" method. A considerable list of assessment activities are provided to expose potentially new options to designers, letting them incorporate different types to provide diversity, to incorporate more tools, to use the most suitable assessment method, and to provide flexibility for different subject areas.

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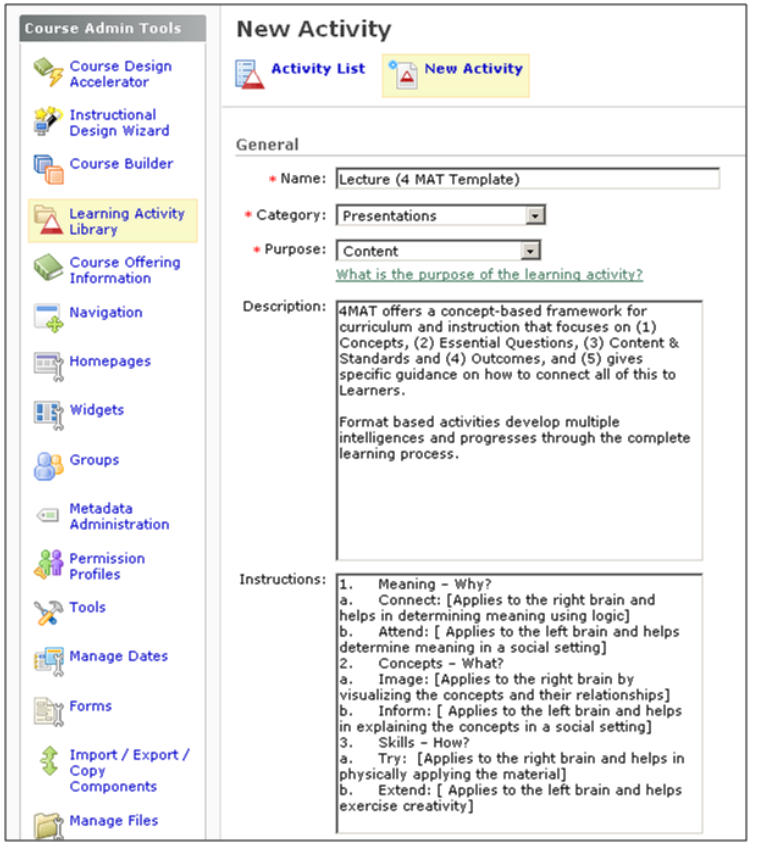
Different approaches are recognized in this step to support the various styles and strengths of instructors, different types of available resources, different learning styles, and bring exposure to other instructional approaches that may not be commonly used by instructors.

In addition to the extensive list of activities built into Instructional Design Wizard, the Learning Activity Library tool allows institutions or individual users to define and classify additional learning activities that can then be chosen as assessment or content activities. This functionality provides users with a greater ability to ensure Instructional Design Wizard reflects their specific needs, terminology, and strategies by enabling the customization of the list of potential activities.



Step 2.1 | Defining a New Activity in Learning Activity Library

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Step 2.2: Design Content

Similar to the Design Assessments step, the Design Content step allows designers to pick activities to present material or provide learning experiences for each module from a list of activities organized by objective, approach, and learning level. The activities presented are appropriate to the learning levels of the learning objective selected (defined during the List Learning Objectives step), and can also be narrowed down by permitting the designer to select one or more instructional approaches that are used to help learners achieve the objective.

Step 2.2 | Design Content

This step is presented after the defining of learning objectives and designing assessments so that the learning resources and learning supports can directly reinforce the teaching and learning of the defined objectives and their associated assessments.

Aligning module content to the specific objectives, and thus to the Bloom's Taxonomy that the objectives are classified with, enables designers to incorporate a wide range of activities to support appropriate learning levels and to provide diverse activities to ensure learner engagement.

3.0 Organize Gradebook

3.1 Define Gradebook settings / choose grading system

3.2 Create Gradebook categories for assessment activities

Steps 3.1 and 3.2: Choose Grading System and Categorize Grades

The Choose Grading System and Categorize Grades steps allow designers to select the grading system to use in the course, and to begin setting up the structure for grades-based assessment.

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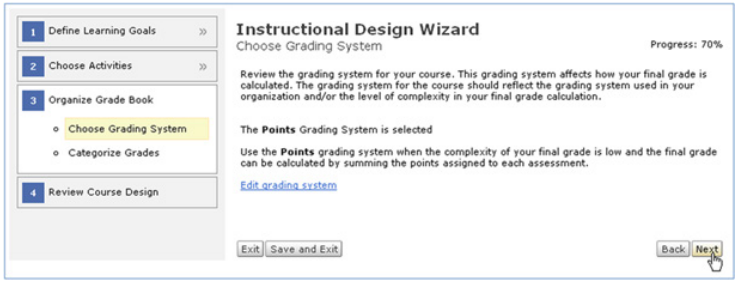
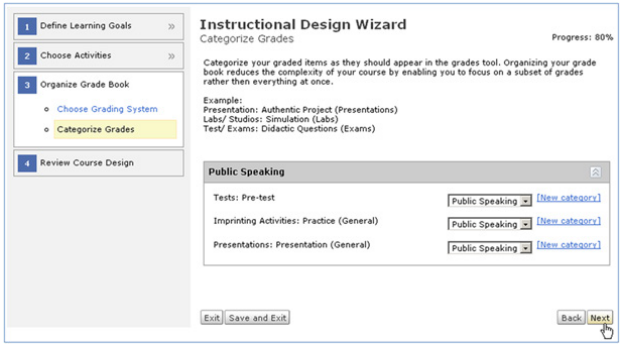




Step 3.1 & 3.2 | Choose Grading System and Categorize Grades

In determining a grading system that is appropriate, the main considerations are what the organization typically uses, and the granularity in which assessment should be done. The Points grading system is the most granular, whereas the Weighted and Formula options provide for determining a learner's grade by weighting certain assessments higher than others or using custom formulas to control how each assessment factors into the learner's final grade.

Creating grade categories and assigning a category to each assessment selected in the current run of the Wizard provides the flexibility for the gradebook to be organized in the most effective way for the instructor. It can be organized into categories by module, assessment type, unit of time, or using any other categorization that is effective for the type of course.

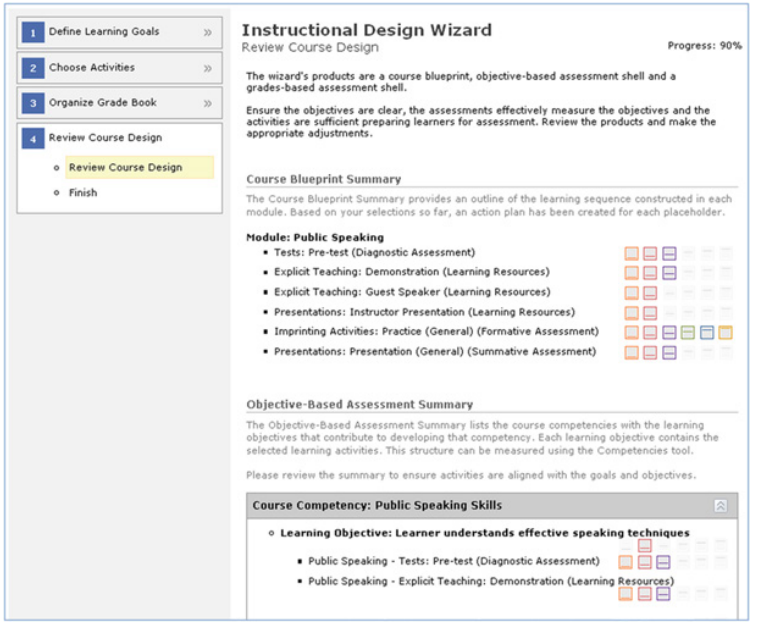
4.0 Review Course Design

4.1 Review Information collected

4.2 Review Wizard output and finish

Step 4.1: Review Course Design

There are many ways, either before the course starts or during the delivery of the course, that a designer or instructor will review and evaluate their course for effectiveness, but the Review Course Design step presents a summary of information that was collected and entered.



Step 4.1 | Review Course Design

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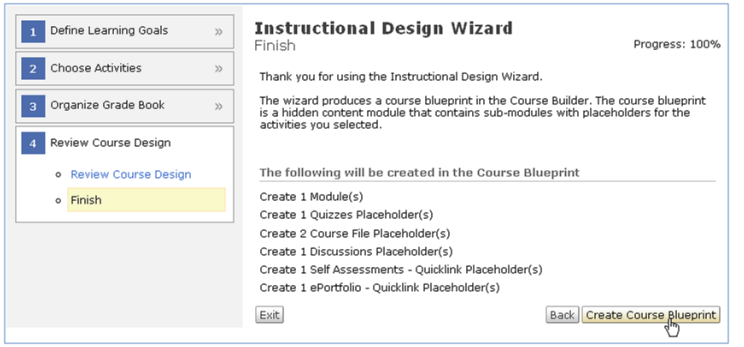
This step provides a summary of the modules designed and the learning objectives addressed. It also highlights the specific assessment and content activities aligned to those objectives, providing a visual representation of how the activities are meeting the set objectives. Defined Gradebook categories are also listed in this step. Upon review of the data, the designer can then adjust the balance of the activities to be manageable or more effectively aligned with the course objectives.

The summary should be reviewed and the designer/instructor should ask themselves a number of questions:

- Is the module structure effectively used to define learning units?
- Are there too many or not enough assessments? Should any of the summative assessments be changed to formative assessments that can be used to guide learning paths?
- Is too much time or too many activities being devoted to one concept/objective/knowledge area?
- Are any modifications required to the organization of learning objectives?
- Is there a trend upwards of learning levels, and are the learning levels appropriate for this course?
- Is the same activity being used too often?
- Does the course (objectives, assessments, and content) correctly match the role the course plays in the curriculum/program?

Step 4.2: Finish

The Finish step highlights what modules and assessment/content placeholders will be created in the course for use with the Course Builder tool. Options exist to clear the module list so the Wizard can be run again later for other modules, and to launch Course Builder immediately after finishing the Wizard to begin the creation of actual assessment and content objects to populate the placeholders.



Step 4.2 | Finish

The main output after finishing the Wizard is a time stamped blueprint of the results of the Wizard run. This is visible from Course Builder, summarizing the tasks that should be done to complete the course design in other Learning Environment tools (such as creating groups for collaborative activities, running the Grades Wizard, finalizing competencies and learning objectives). The blueprint also provides an Instructional Design Summary similar to the Review Information Collected step highlighting the learning objectives and their aligned assessment and content activities.

In addition to the blueprint, the placeholders created by Instructional Design Wizard clearly indicate the associated learning objective, the learning objective's classification information, a description of the activity the placeholder represents, the applicable instructional strategies, and the assessment tool and grade details.

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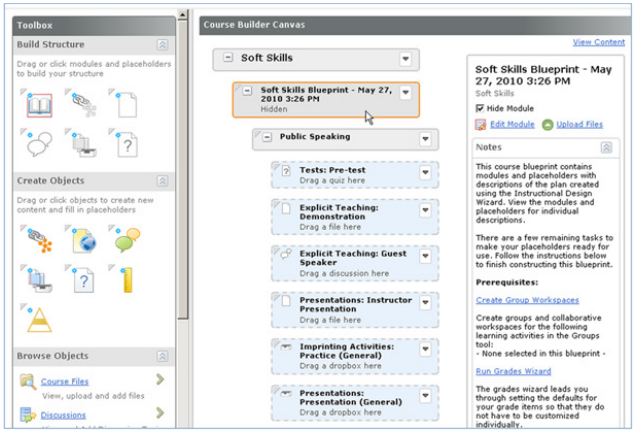
Tasks after Instructional Design Wizard

When a designer completes a run of Instructional Design Wizard, the most common destination for next steps is Course Builder. This new tool provides an intuitive drag-and-drop interface for organizing and managing the course structure and activities. From Course Builder, designers can:

- Review the blueprint, module structure, and placeholders.
- Follow links in the blueprint to create groups, further configure grades, and finalize competencies and learning objectives.
- Create actual tool objects (quizzes, content topics, dropbox folders, etc.) and drag them onto placeholders.
- Drag grade items and learning objectives onto actual objects to create associations.
- Drag completed modules out of the hidden blueprint module into the course so the structure and items can be viewed by learners from the Content tool.



Desire2Learn Course Builder

After running through Instructional Design Wizard for one or more modules, and interacting with Course Builder to populate actual assessment and content activities, designers can run the Wizard again for other modules, or to even revisit the same modules again in the future after evaluating the structure and activities by delivering the course to learners.

Conclusion

By leveraging an instructional design framework and building on many tools and features of Desire2Learn Learning Environment, Instructional Design Wizard walks users through the creation of pedagogically-sound courses containing a variety of learning experiences focused on appropriate learning levels. It promotes an effective course structure, and ensures the alignment of content and assessment with instructional strategies and course objectives.

By facilitating and encouraging up-front analysis and design with a step by step process, Instructional Design Wizard lowers the barrier for incorporating instructional design best practices during course development or re-design to help ensure high quality, effective courses.

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A global leader in cloud-based (SaaS) learning solutions, Desire2Learn provides an open and extensible platform to more than 700 clients and 10 million learners in higher education, K–12, healthcare, government and the corporate sector, including Fortune 100 companies. Desire2Learn has personnel in the United States, Canada, Europe, Australia, Brazil and Singapore.

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