CURRICULUM DESIGN IN THE ONLINE LEARNING ENVIRONMENT

SPONSORED BY THE DIVISION OF CONTINUING STUDIES AND PUBLIC SERVICE

Presented by

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INSTRUCTIONAL DESIGN

- BACKGROUND
  - Prescription and blueprint for instructors
  - Addresses two questions:
    - What methods should be used in the design of instruction?
    - When should each method be employed?
  - When designing a course, consider content and…

<table>
<thead>
<tr>
<th>Methods of Instruction</th>
<th>Situations of Instruction</th>
<th>Principles of Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategies Techniques</td>
<td>Desired Outcomes</td>
<td>Descriptive: Outcomes for a given strategy under given conditions</td>
</tr>
<tr>
<td>Building Blocks Models</td>
<td>Conditions of Learning</td>
<td>Prescriptive: Prescribes the strategy that should be used</td>
</tr>
<tr>
<td></td>
<td>- Nature of Content or Task</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Nature of Learner</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Nature of Environment</td>
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</tr>
</tbody>
</table>
INSTRUCTIONAL DESIGN THEORY

- **Descriptive Instructional Theory** – set of content modules and presentation of sets within a specific sequence
- **Prescriptive Instructional Theory** – set of specific methods and strategies for manipulating the instructional environment matched with the learner and with conditions under which learning will take place
### Overview of Selected Theories

<table>
<thead>
<tr>
<th>Behavioral Approach</th>
<th>Gagne-Briggs “Nine Events”</th>
<th>Theory of Inquiry “Scientific Method” (Discovery Approach)</th>
<th>Constructivist Theory Meaning is Rooted in and Indexed by Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifies treatments suitable for each type of objective: Recall Explanation Procedural Problem Solving</td>
<td>Gain attention Present objectives Prior Knowledge Present New Guidance Performance Feedback Assessment Transfer</td>
<td>Learners formulate hypothesis based on examples, observation and data Discovery of generalities and construction of theory</td>
<td>Situated Cognition Authentic Tasks Cognitive Apprenticeship “Real World”</td>
</tr>
<tr>
<td>FOCUS: Bringing about a “Behavioral Change” = Learning</td>
<td>FOCUS: Learned Capabilities Events of Instruction Sequence</td>
<td>FOCUS: Deep understanding through inquiry and exploration</td>
<td>FOCUS: Application, explanation and construction of knowledge</td>
</tr>
<tr>
<td>Instructor-Directed Student: Passive Role Partnership Student: Active Role</td>
<td>Instructor-Guided Student: Active Role</td>
<td>Instructor – Facilitator Student: Active</td>
<td></td>
</tr>
</tbody>
</table>
CONSTRUCTIVISM

- Presumes that learners will process new information differently and places great value on the dialogical processes.
- Learning takes place through the interplay of two forces – assimilation and accommodation.
TECHNOLOGY MEETS CONSTRUCTIVISM

• Five Facets of the Learning Environment
  – Although not all present in any given situation, the five combined offer a perspective of the “ideal learning environment”

<table>
<thead>
<tr>
<th>Information Banks</th>
<th>Symbol Pads</th>
<th>Construction Kits</th>
<th>Phenomenaria</th>
<th>Task Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content to be learned</td>
<td>Surfaces for the construction and manipulation of symbols (notebooks to laptops)</td>
<td>Part of the classic setting of the learning environment (Legos to lab equipment)</td>
<td>An area for the specific purpose of presenting phenomena and making them accessible to manipulation</td>
<td>Elements of any learning environment</td>
</tr>
<tr>
<td>Explicit information</td>
<td>Technology expands power (EX: word processors allow easy editing)</td>
<td>Technology expands the kits to include a wide variety of software, hardware, and web-based kits</td>
<td>Technology offers flexible resources for creating complex “microworlds” (Ex: SimCity)</td>
<td>Tasks, feedback, guidance, etc.</td>
</tr>
<tr>
<td>Text material</td>
<td></td>
<td>Technology offers electronic task managers (Ex: CAI)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Technology expands the bank and the learning possibilities.
DEFINING “DEEP LEARNING”

- Learning that promotes the development of conditionalized knowledge and metacognition through communities of inquiry;
- Deep learning and e-learning are interconnected and inseparable (Weigel, 2002).

<table>
<thead>
<tr>
<th>Deep Learning</th>
<th>Surface Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>- New knowledge connected to old</td>
<td>- Course material treated as bits of knowledge</td>
</tr>
<tr>
<td>- Patterns and principles</td>
<td>- Learners memorize facts and carry out procedures</td>
</tr>
<tr>
<td>- Check evidence and relate it to conclusions</td>
<td>- Difficulty making sense of new ideas</td>
</tr>
<tr>
<td>- Examine logic and argument critically</td>
<td>- Little value or meaning in tasks</td>
</tr>
<tr>
<td>- Learners are aware of understanding that develops as a result of learning</td>
<td>- Learners study without reflection</td>
</tr>
<tr>
<td>- Learners actively involved, engaged, and interested</td>
<td>- Undue pressure and stress regarding course requirements and workload</td>
</tr>
</tbody>
</table>
# EXAMPLE - Surface v. Deep Learning

<table>
<thead>
<tr>
<th>SURFACE LEARNING</th>
<th>DEEP LEARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Assignment: Chapter 3</td>
<td>Reading Assignment: Chapter 3</td>
</tr>
<tr>
<td><em>Social Issues in Public Schools</em></td>
<td><em>Social Issues in Public Schools</em></td>
</tr>
<tr>
<td><em>Inside Mrs. B’s Classroom</em></td>
<td><em>Inside Mrs. B’s Classroom</em></td>
</tr>
<tr>
<td>Assessment:</td>
<td>Assessment:</td>
</tr>
<tr>
<td>1. Identify 5 Social Issues</td>
<td>1. Identify 5 Social Issues</td>
</tr>
<tr>
<td>2. Provide explanation of each</td>
<td>2. Conduct a Teacher Interview incorporating interview items focusing on the identified issues</td>
</tr>
<tr>
<td>3. Chapter test</td>
<td>3. Metacommentary Analysis Paper – Comparison of Teacher Response and Mrs. B.</td>
</tr>
<tr>
<td></td>
<td>4. Online Discussion Forum</td>
</tr>
<tr>
<td></td>
<td>5. Chapter test</td>
</tr>
</tbody>
</table>
Technology should enrich the experience of learning. If e-learning technologies do not deepen the learning experience, they are not worth much. (Weigel, 2002)

Creating Communities of Inquiry

Communities of practice
Learning communities
Formal and informal Interactions

Cognitive Apprenticeship for Deep Learning

Integrates features of the “apprenticeship model”
Focus on the development of cognitive skills
Encourages the application of knowledge and skills in real world context
Elements can be integrated into a formal curriculum and not confined to workplace
COGNITIVE APPRENTICESHIP IN THE ONLINE ENVIRONMENT

- **Modeling** – externalization of cognitive processes
- **Coaching** – teacher as classroom observer
- **Scaffolding** – using a tool to support student learning
- **Articulating** – practicing skills in converting tacit knowledge to explicit knowledge
- **Reflecting** – debriefing process
- **Exploring** – encouraging students to tackle new knowledge on their own
<table>
<thead>
<tr>
<th>Element</th>
<th>Example of Element Within the Online Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modeling</td>
<td></td>
</tr>
<tr>
<td>Coaching</td>
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<td>Exploring</td>
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</tr>
<tr>
<td>Element</td>
<td>Example of Element Within the Online Environment</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Modeling</td>
<td>Examples of Lessons and/or Resources</td>
</tr>
<tr>
<td>Coaching</td>
<td>Dialog via email, Chat, or Guided Forums</td>
</tr>
<tr>
<td>Scaffolding</td>
<td>Web Resources, Prompts, Examples, Peer Teams, Facilitated Group Chats</td>
</tr>
<tr>
<td>Reflecting</td>
<td>Discussion Forums, Meta-Commentaries</td>
</tr>
<tr>
<td>Exploring</td>
<td>Web Quests</td>
</tr>
</tbody>
</table>
Learning Styles/Preferences
- Reading (visual)
- Listening (audio)
- Seeing (visual)
- Speaking (audio)
- Doing (tactile/kinesthetic)

Learning Styles and Strategies
- Active / Reflective
- Sensing / Intuitive
- Visual / Verbal
- Sequential / Global

Learning Modes
- Active Learning Mode
- Passive Learning Mode

Multiple Intelligence Theory
- Linguistic
- Logical/Mathematical
- Visual/Spatial
- Bodily/Kinesthetic
- Musical
- Naturalist
- Interpersonal
- Intrapersonal

Gardner

Felder

Thinking Styles
- Monarchic Thinking / individual
- Hierarchic Thinking / organizer
- Oligarchic / multi-tasker
- Anarchic / antisystematic

Sternberg-Wagner
• LEARNING STYLES & PREFERENCES
  – M.I. THEORY
  – FELDER
  – STERNBERG-WAGNER

• EXAMINING AND DESIGNING COMPONENTS
  – Content material / units / chunks
  – Learning objectives and overall goals for learning / outcomes
  – Learning tasks
  – Interactions
  – Evaluation / Assessment

• MATCHING CONTENT AND LEARNING TASKS
  – What type of tasks will optimize learning?

• ASSESSING AND EVALUATING LEARNING
  – MULTIPLE ASSESSMENTS
EFFECTIVE COURSE DESIGN

COURSE CONTENT
LEARNING GOALS
LEARNING OBJECTIVES
ASSESSMENT TOOLS

MATCH AND ALIGN
CONTENT MATERIAL
Scope
Sequence
Pacing
Resources

MATCH AND ALIGN
LEARNING OBJECTIVES
TASKS AND ACTIVITIES
ASSIGNMENTS
What will be taught?
How will it be presented?
Methods and Strategies
Materials

MATCH AND ALIGN
VARIETY OF ASSESSMENTS
EVALUATION
REVISIONS
Assessments
What tools will best assess learning?
When will they be utilized?
How will results be analyzed?
# CURRICULUM MAPPING

- A graphic portrayal of the relationships between course content, learning tasks, and assessment.
- A tool to help faculty understand and use assessment findings.
- Assists in “seeing” the whole course at a glance.
- Helps understand why outcomes are or are not being achieved.
- Facilitates faculty discussion and understanding of the curriculum.
- A guide to help “align” the curriculum.

## Rationale

**Assists in course alignment - content, learning objectives, overall goals, learning tasks, pacing, resources, and assessment tools**

## Scope/Sequence

**Provides a graphic of the SCOPE (all content required for a specific course)**

**Provides a graphic of the SEQUENCE (pacing and order of instruction and assessment)**
CURRICULUM MAPPING

- Content analysis that illustrates:
  - Relationships and connections between units of study
  - Emphasis on specific content material
  - Learning tasks which are content-appropriate
  - Assessment tools which are content-appropriate
  - Pacing schedule and revision schedule

Enables instructors to align and review courses for the purpose of improving practice and facilitating student success, therefore promoting long-term program improvement.

Jacobs
BEGINNING A CURRICULUM MAP

**STEP 1**
Gather information
- Course Outline
- Sample Syllabus
- Desired Outcomes
- Competencies
- Skills
- Dispositions

**STEP 2**
Organize information
- “Learning Chunks”
- Units of Study
- Content Modules
- Texts and Resources

**STEP 3**
Examine content for accuracy and relevancy
Begin “pacing planning”

**STEP 4**
“Map out” content by
- Examining units/modules
- Aligning outcomes/objectives
- Selecting methods/strategies
- Determining assessments
- Utilizing texts and resources
CRITICAL QUESTIONS TO CONSIDER

• Are outcomes reflected in the map?
• Is there evidence of content connection?
• Are learning tasks aligned with: a) desired outcomes and b) content material?
• Is there evidence that assessment tools are appropriate and content-specific?
### INTASC Standard #9: Reflection and Professional Development

The teacher is a reflective practitioner who continually evaluates the effects of her/his choices and actions on others and who actively seeks out opportunities to grow professionally.

(Interstate New Teacher Assessment & Support Consortium)

#### Overall Goals for Learning

**TSW:** Develop a deeper understanding of the need for reflective practice and how becoming a reflective educator has an impact on student learning and teacher success.

#### Content Unit or Module

- **Unit 3:** Social Issues in the Public School Environment
- **Unit 4:** Meeting the Needs of Diverse Learners

#### Assignments

- Teacher Interview (multiple components)
- Meta-Commentary Analysis Paper (Mrs. B.)
- Culture in the Classroom Presentation
- Mini-Lesson and Materials

#### Assessments

- Rubric / Teacher Interview
- Rubric / Meta Commentary Analysis Paper
- Peer Evaluation and Teacher Evaluation / Presentation
- Unit Test and Discussion Forums (3)

**EXAMPLE**

**FOED 1110**

Education as a Profession
<table>
<thead>
<tr>
<th>INTASC Standard #2</th>
<th>Diverse Learners: The teacher understands how children and youth learn and develop and can provide learning opportunities that support their intellectual, social, and personal development. (Interstate New Teacher Assessment &amp; Support Consortium)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Goals for Learning</td>
<td>TSW: Develop an understanding of specific theories of human development and how these theories may be applied within the classroom environment</td>
</tr>
</tbody>
</table>
| Content Unit or Module | Unit 2: Cognitive Development  
Unit 3: Social and Emotional Development |
| Assignments | Applying Educational Theories: Case Study I  
Applying Educational Theories: Case Study Part II |
| Assessments | Rubric / Case Study Part I  
Rubric / Case Study Part II  
Evaluation of Graphic Organizer (Applying Theories)  
Unit Test and Discussion Forums (2) |
| Resources and Materials | Reading Materials: Textbook, A Child Called It  
Online Materials: Online Interview (author) Slide Shows, Handouts, Guided Field Journal, Online Journals, Sites |
• Using a syllabus or your own course, create a “draft” curriculum map by:
  – Select one “chunk,” unit, or module
  – Note the desired outcomes (overall learning goal)
  – Align at least two learning tasks for one unit
  – Align at least two forms of assessment for the unit
  – Match text and resources
## Curriculum Map Components

<table>
<thead>
<tr>
<th>State or National Standard</th>
<th>Overall Goals for Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Unit or Module</td>
<td>Identify one</td>
</tr>
<tr>
<td>Assignments</td>
<td>List at least two</td>
</tr>
<tr>
<td>Assessments</td>
<td>List at least two</td>
</tr>
<tr>
<td>Resources and Materials</td>
<td></td>
</tr>
</tbody>
</table>
ENHANCING LEARNING / RESOURCES

The WebQuest Page
http://webquest.sdsu.edu/

WebQuest News and Portal
http://webquest.org/

- IMPORTANCE OF TEXT AND SUPPLEMENTAL READINGS
  - Textbooks take a supporting role
  - Supplement with other readings - books, articles, etc.

- WEB QUESTS AND ONLINE RESOURCES

- CONNECTING WITH THE LIBRARY
  - Utilize the library for research, completing tasks, etc.
### ADAPTATIONS / ONLINE

<table>
<thead>
<tr>
<th>CURRICULUM</th>
<th>INSTRUCTOR</th>
<th>STUDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reorganizing “chunks”</td>
<td>Facilitator</td>
<td>Motivation, motivation, motivation</td>
</tr>
<tr>
<td>Designing connections</td>
<td>Coach</td>
<td>Knowledge of learning styles and preferences</td>
</tr>
<tr>
<td>Structuring sequence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing additional resources for understanding</td>
<td>Thinking “outside the classroom”</td>
<td></td>
</tr>
<tr>
<td>Designing authentic assessments</td>
<td>Becoming an “online learner”</td>
<td>Active, not passive</td>
</tr>
</tbody>
</table>

Curriculum Mapping enables the instructor to visualize the adjustments and adaptations that must be made in order to promote student success.
APPLICATION AND CONNECTION

• CONNECTING NEW AND OLD LEARNING
  – Provide structured sequencing to assist with connections
  – Chunk in a logical and connective manner

• DESIGNING TASKS FOR APPLICATION AND ANALYSIS
  – Tasks must be varied in order to promote authentic learning
  – Discourages cheating and misrepresentation on assignments

• TASK VARIETY
  – Project-Based Learning
  – Case Study Analysis
  – Multiple formats for writing
  – Utilization of graphic organizers and other metacognitive tools

• ASSESSMENTS
  – Combination of traditional and authentic
The Research Sequence
Undergraduate Research

Begin with "Term Paper" Type Research

Progress to Analysis Papers Critical Thinking Synthesis Writing

Move to the Meta-Commentary Paper Analysis at a Higher Level

Action Research Beginning Qualitative and Ethnographic Research

Examples Field Work Market Research Studies Participant-Observer

Tools Field Journals Simple Triangulation Mat Beginning Analysis

Qualitative Studies Quantitative Studies Grounded in Relevancy Application

Semester-Long Multiple Semesters Critical Analysis Statistical Analysis

Examples Honors College Thesis McNair Scholars
<table>
<thead>
<tr>
<th>CONTENT SKILLS OBJECTIVES</th>
<th>TASK ADAPTATIONS ONLINE /ONSITE</th>
<th>EVALUATION AND ASSESSMENT TOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onsite</td>
<td>Online</td>
<td>Online</td>
</tr>
<tr>
<td>Online</td>
<td>Online</td>
<td>Online</td>
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</tbody>
</table>