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Engage, Elicit, Experience, Explore: Applying Discovery Learning to Library Instruction

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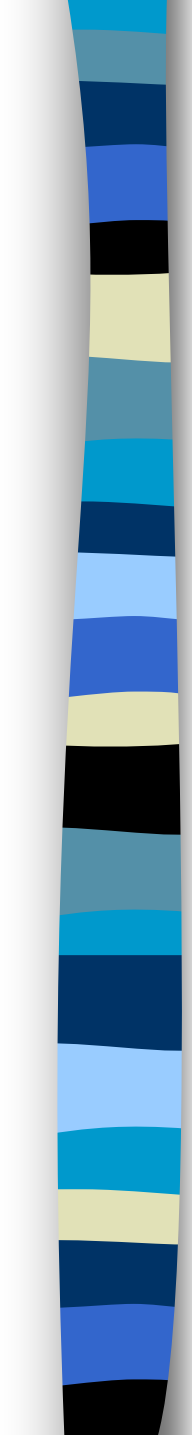


*Engage, Elicit, Experience, Explore:
Applying Discovery Learning to
Library Instruction*

2000 Tri-Conference
October 27, 2000

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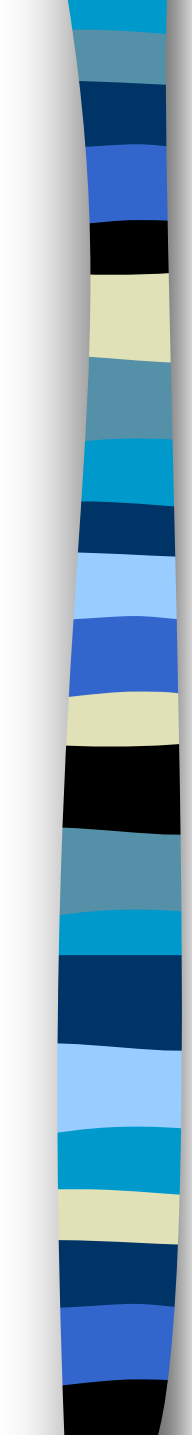
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*Engage, Elicit, Experience, Explore:
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Session Overview

- I. Discovery Learning--Overview
- II. Discovery Learning Architectures
- III. Barriers and Suitability to Multiple Environments
- IV. Summary and Questions



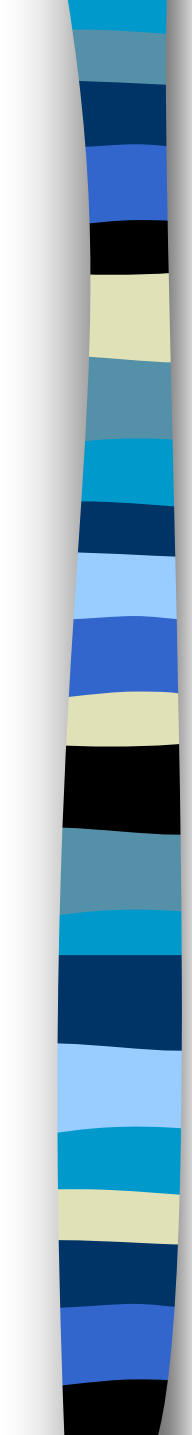
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"All genuine learning is active, not passive. It is the process of discovery in which the student is the main agent, not the teacher."

--Adler

"One must learn by doing the thing, for though you think you know it--you have no certainty until you try."

--Sophocles



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“Active Learning”

Instructional techniques in which learners are motivated to interact directly with curriculum content, not merely gain exposure to it through reading, listening, or observing.

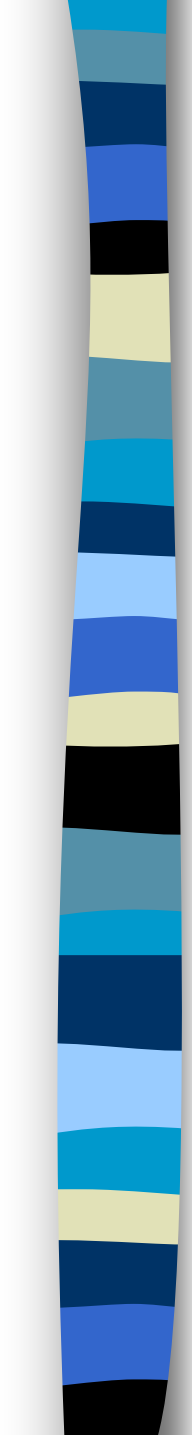
Range from...

- the simple to complex activities
- the low-risk to high-risk activities
- the spontaneous to scripted activities

Instructor Controls the sequence and frequency of the activities

Focuses on step-by-step instructions

May occur across learning environments

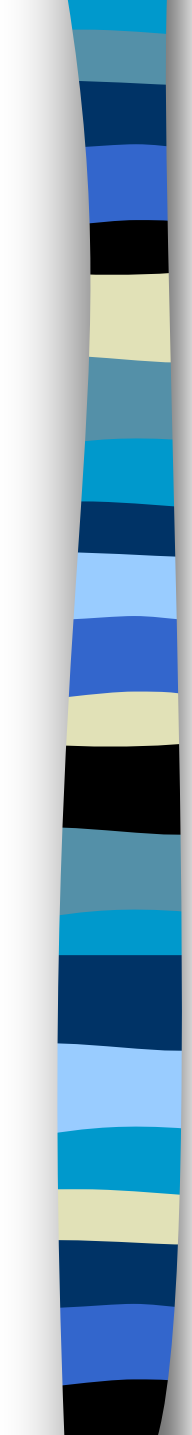


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“Discovery Learning” (aka “Constructivist Learning”)

- 1) Students create, integrate and generalize knowledge through exploration and problem solving.
- 2) A process of learning driven by interest-based activities in which the learner exercises some control over the sequence and frequency with which they occur.
- 3) An activity which strives to integrate new knowledge with the learner’s existing knowledge base, and can occur through the use of several instructional strategies.

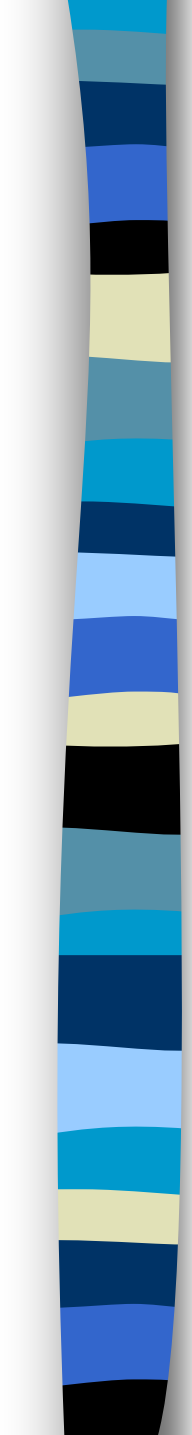
Focuses on the “Ah Ha! Element”, the discovery of principles and the creation of meaning unique to the student



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Contrasting Examples

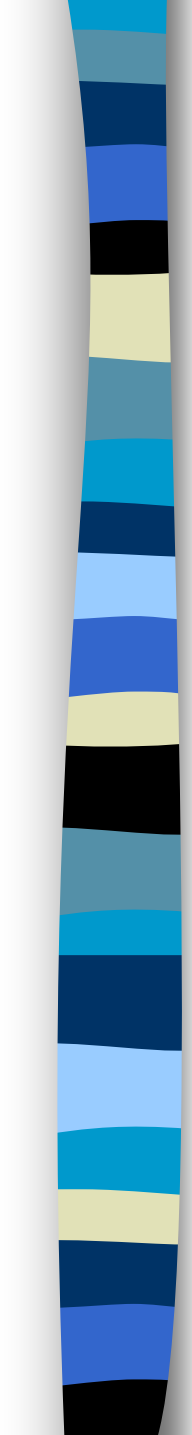
"Active Learning"		"Discovery Learning"
<p>A hands-on demonstration. The instructor demonstrates the mechanics of using a database while the students follow along.</p>		<p>Students are given an assignment. They do not receive instruction in using the database, but learn the mechanics of the database while completing the project.</p>



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Characteristics of Discovery Learning

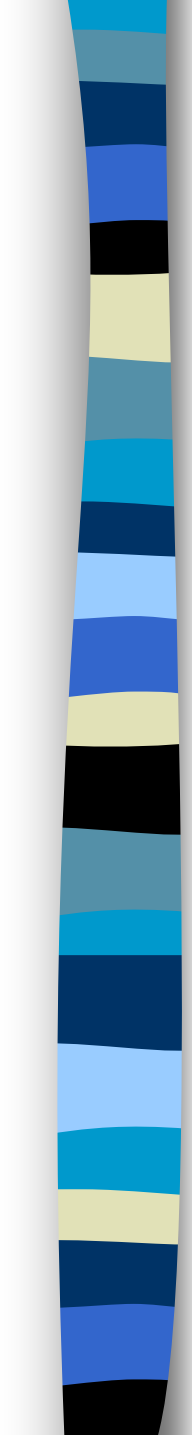
- Students are more than passive listeners--they are engaged in various activities. “Learning by doing.”
- Less emphasis on transmission of information--more emphasis on developing skills
- Students receive timely feedback from instructors or learning modules
- Failure brings on the “teachable moment”



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Characteristics of Discovery Learning--continued

- “Intellectual engagement”--students go beyond learning for the sake of comprehension
- Emphasis on establishing goals, generating questions, problem solving, and seeking answers
- Learning activities are anchored in real-life scenarios and are student interest-based
- Learning activities are motivating to ensure engagement

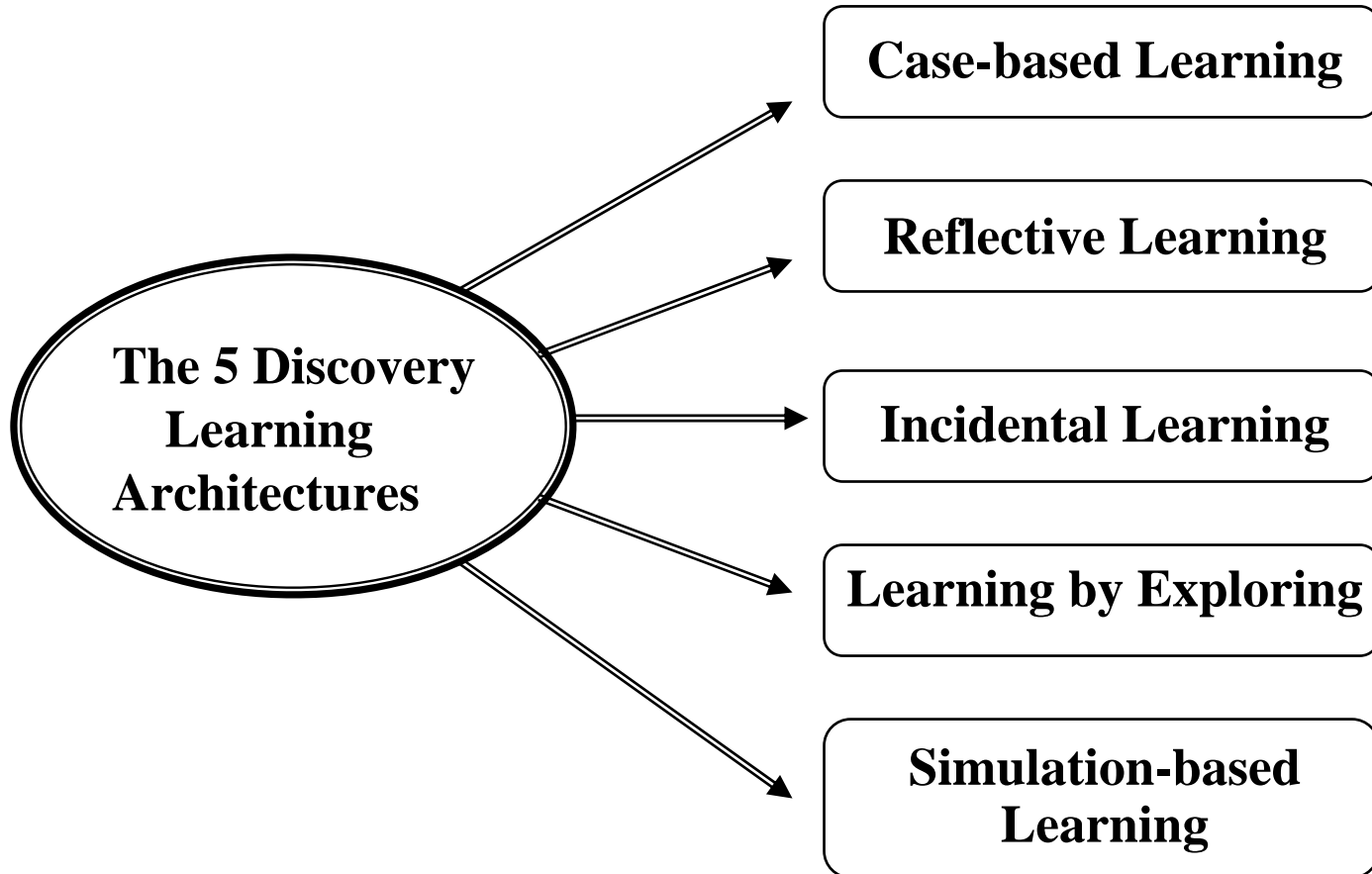


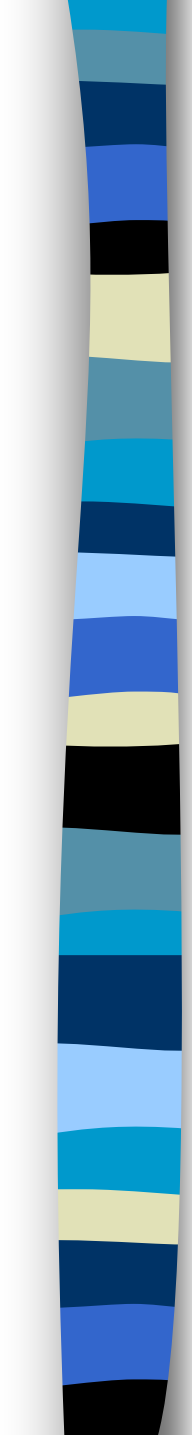
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Why Discovery Learning?

- Has potential for improving the content and delivery of instruction across broad range of topics.
- It permits instructors to select from a variety of tools in order to present knowledge and skills in a manner that makes content adaptable, challenging, and stimulating to students.
- It is a flexible and effective set of teaching tools designed to help instructors keep pace with a constantly changing landscape of instructional technology.

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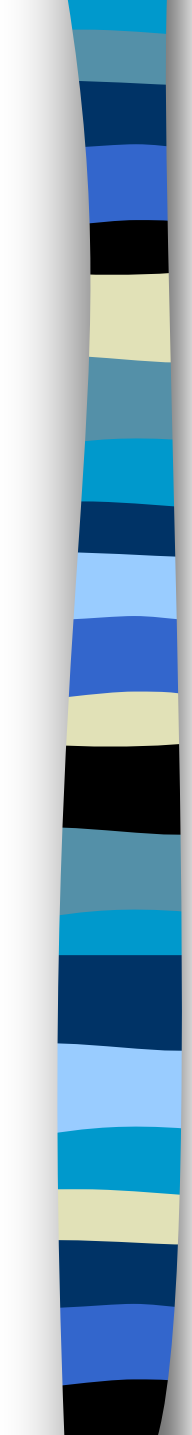


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Case-based Learning

Features learning/problem solving through exposure to stories and vignettes which highlight the application of the select knowledge, skill or principles.

Example: *Choosing Resources*

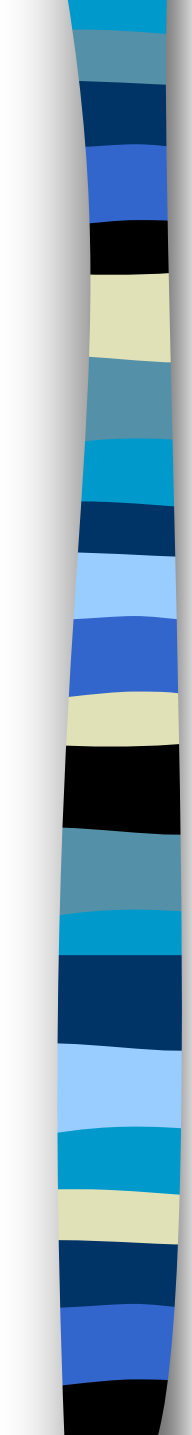


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Case-based Learning - Example

Choosing Resources

<u>Attribute</u>	<u>Application in Example</u>
Scenarios:	Initial research topics
Action Choices:	Choose a resource to Use
Feedback:	Immediate
Failure:	Stories illustrate why a choice failed
Integrates Knowledge/Skills:	Coverage & content of resources
Students' Interests:	Choice of research topic
Different Perspectives:	Allows for differing choices

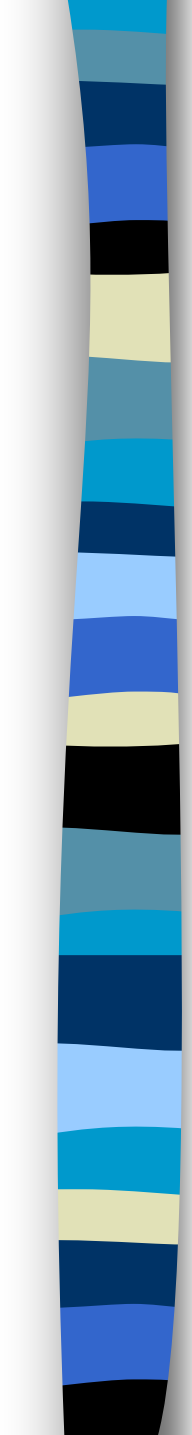


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Reflective Learning

Features the development of comprehension, problem solving and skill building through the use of analytical questioning.

Example: *Scholarly Communication Process*

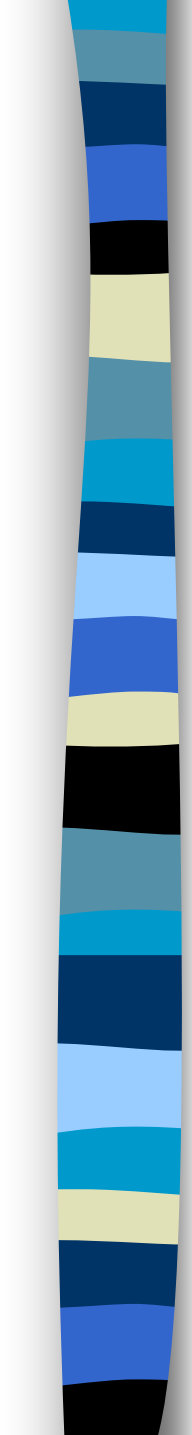


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Reflective Learning - Example

Scholarly Communication Process

<u>Attribute</u>	<u>Application in Example</u>
Modeling Q&A Process:	Asks the types of questions a researcher would at the outset of a project
Deeper Learning:	Problem solving, deduction, prediction
Critical Thinking:	Process of conducting library research
New Viewpoints:	Stimulates ideas beyond simply books and journal articles.



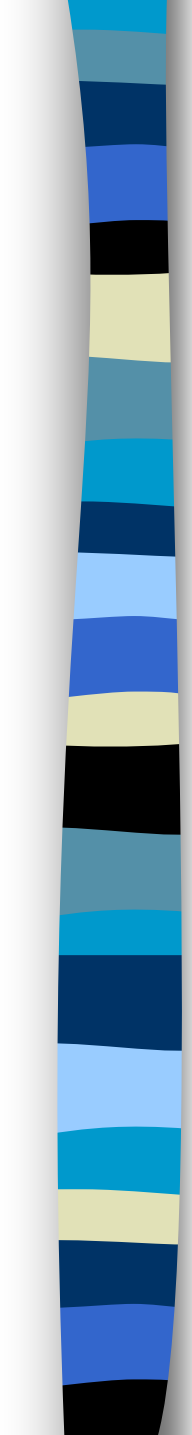
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Incidental Learning

Also known as “Learning in Passing”

Features curricular content linked to fun,
motivating, game-like
activities.

Example: *Word Game*

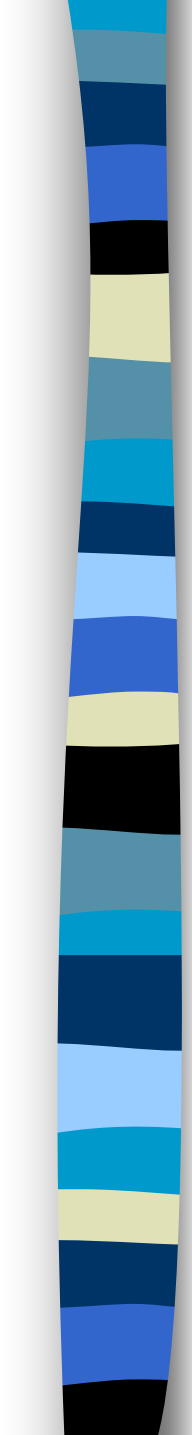


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Incidental Learning - Example

Word Game

<u>Attribute</u>	<u>Application in Example</u>
Fun:	Word Puzzle
Learn in Passing:	Must answer questions to figure out the words in the puzzle
Motivational:	Curiosity about the Quote
Memory Cues:	Quote, words in the puzzle, the pathways the group took to answer the questions in the puzzle



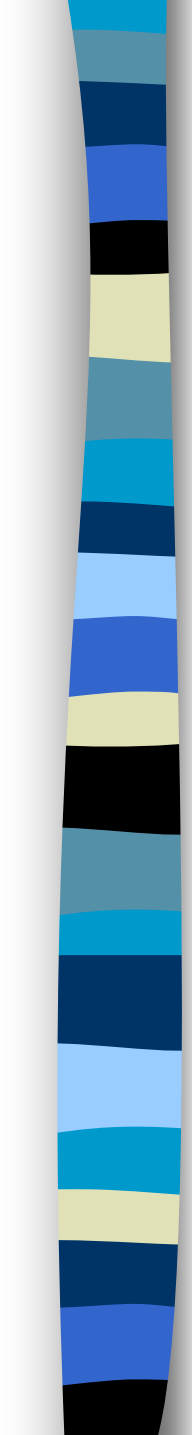
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Learning by Exploring

Also known as “Learning by Conversing”

Features self directed learning by permitting students to navigate through a repository of answers focusing on specific topics or skills.

Example: *Services in the Library*



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Learning by Exploring - Example

Services in the Library

Attribute

Application in Example

Conversational:

Students ask questions and receive answers based on what they are learning

Feedback:

Immediate

Failure:

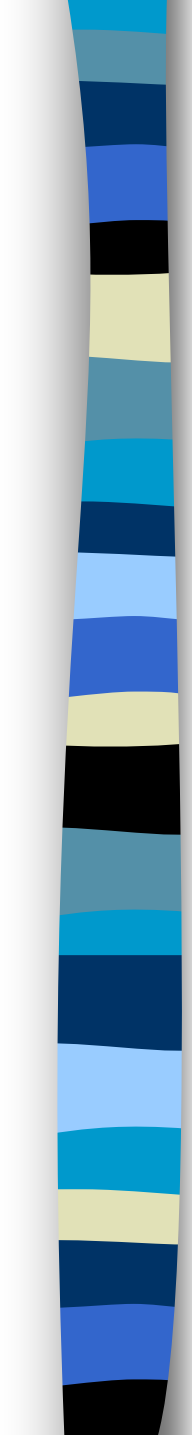
Requires follow-up to correct

Students' Interests:

Real-life scenarios with a tangible product produces

Integrates Knowledge:

Answers direct students to engage in skill building activities using the info they just received

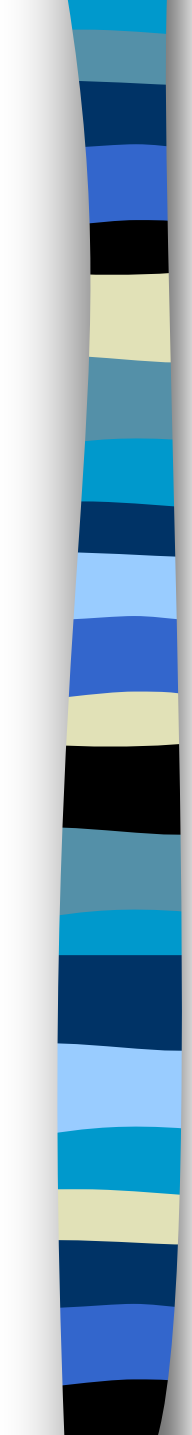


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Simulation-based Learning

Features artificial environments that allow learners to develop and practice skills or understand abstract concepts without fear of failure.

Example: *The Candy Database*

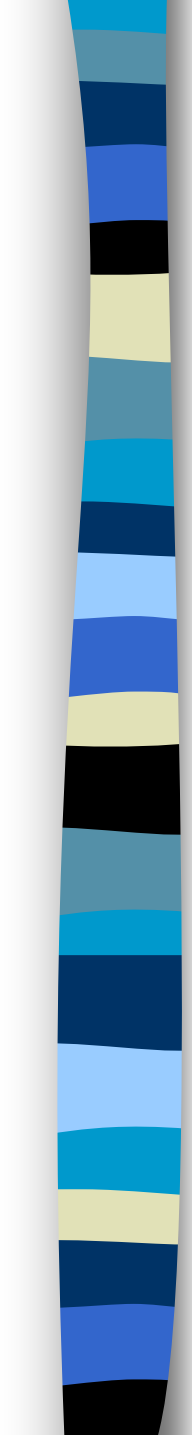


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Simulation-based Learning - Example

Candy Database

<u>Attribute</u>	<u>Application in Example</u>
Artificial Environment: Realistic:	Database of Candy Simulates real search & retrieval of items in a database
Complex Skills:	Boolean Logic, adjacency, terminology, etc.
Time to Pause & Study Problem:	Action can be stopped to discuss results or potential search strategies



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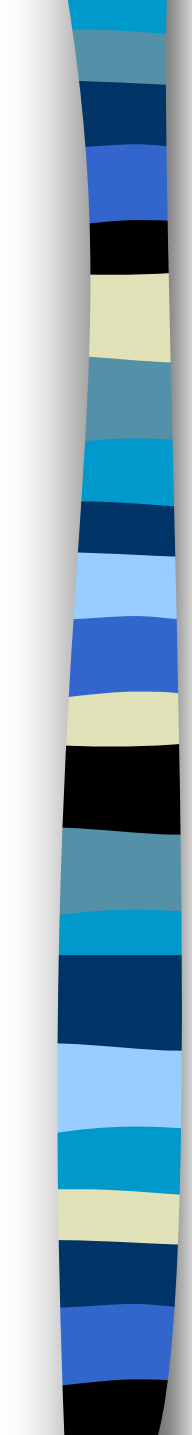
Discovery Learning is applicable across all formats and types of instruction

Types of Instruction:

- 50 minute, one time session
- Semester long course
- Workshops, seminars, presentations etc.
- Distance education

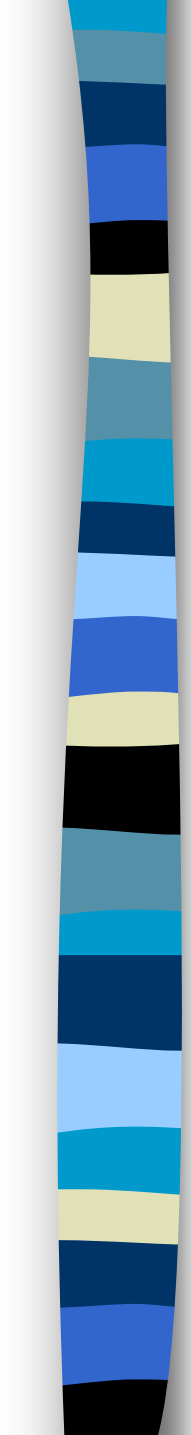
Formats

- Multimedia or computer based instruction
- In class



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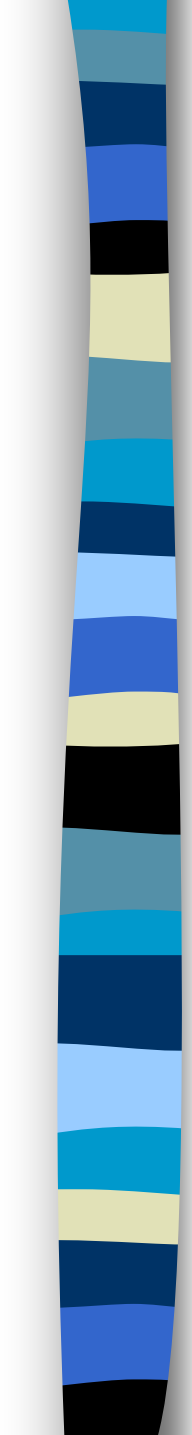
*“Okay...I’m impressed. But if
Discovery Learning is such a flexible
and effective tool for instruction, why
aren’t **more** people using it?”*



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*“ It won’t adequately cover
the course content.”*

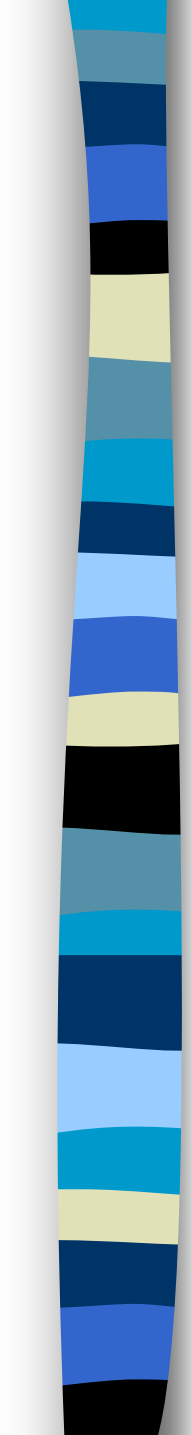
Discovery learning can be augmented with in- or out-of-class reading and writing assignments.



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“It will take too much preparation!”

No less time than revamping old material, or trying to find a way of fitting new information into routine ways of teaching.

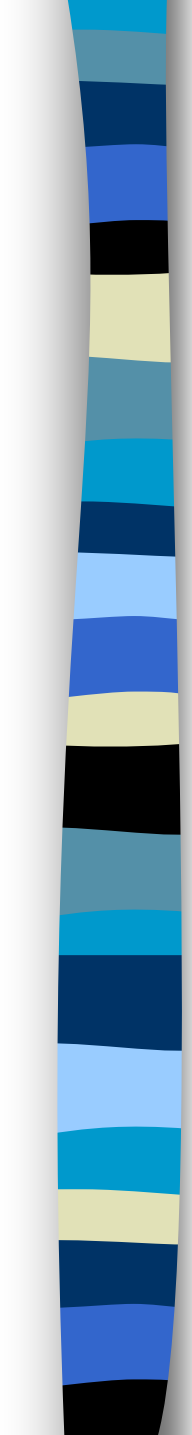


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“My class is too big.”

“My class is too small.”

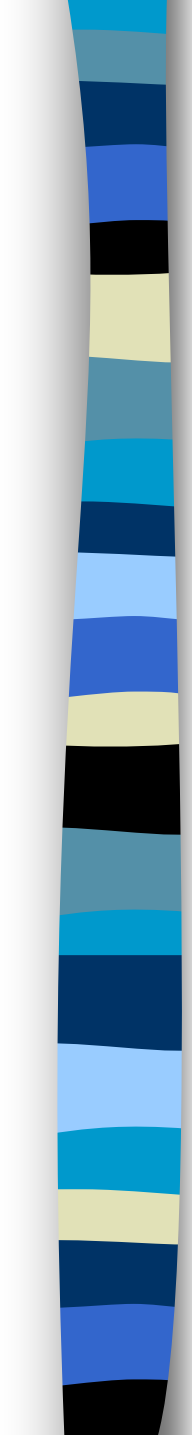
Classes size only means that some types of discovery learning strategies are more appropriate/effective than others.



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*“Students will be resistant to
non-traditional teaching approaches.”*

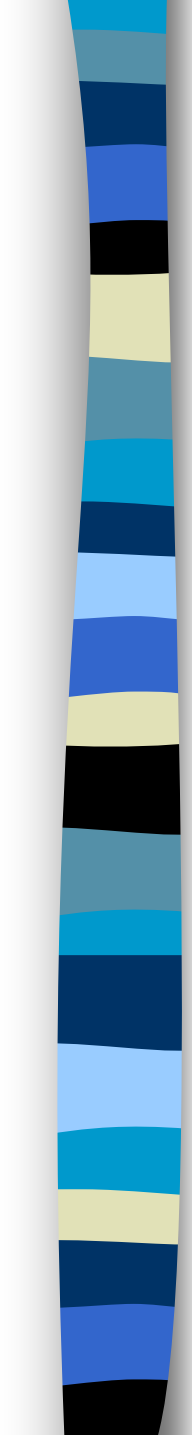
Students are often resistive to changes in what they have become accustomed to.



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*“My lectures and assignments
work just fine!”*

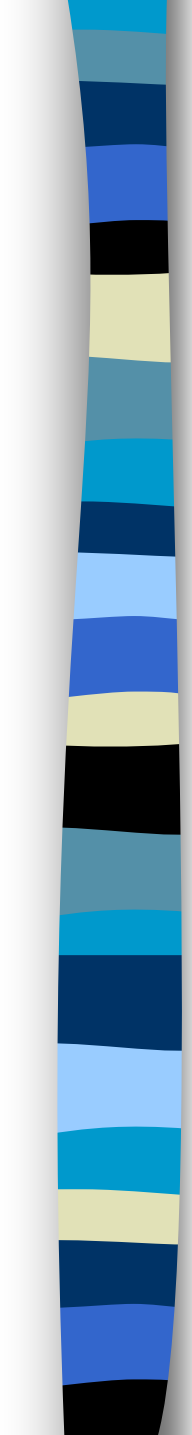
There is nothing wrong with lectures, but what we strive to teach is not always what our students learn.



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“So how do I begin?”

- Read
- Talk with others
- Take risks
- Start small
- Experiment



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***“Good teachers
turn learning
into an adventure.”***

--Walmart sampler



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