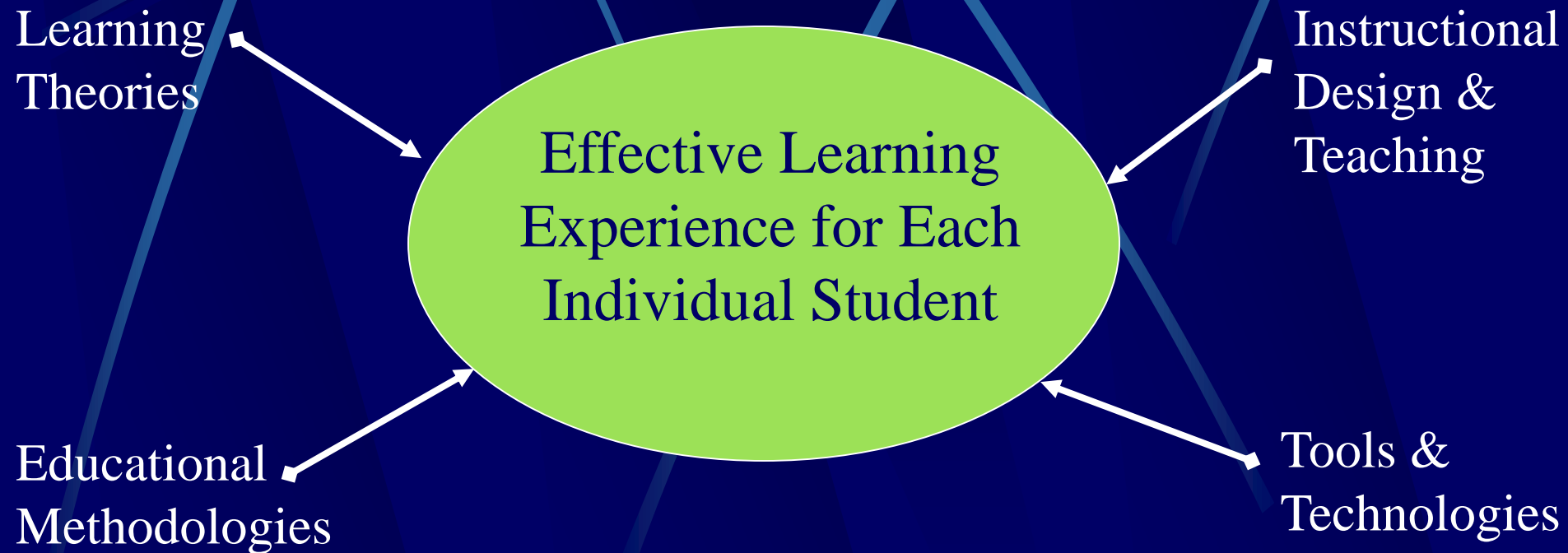


Technology-Enabled Learning

Benay Dara-Abrams, Ph.D.
Santa Clara University
January 21, 2003

Focus on Learning



Agenda

- Integrating Theory, Methodology, Technology
- Successful Graduates
- Learning Theories
 - Theory of Multiple Intelligences
 - Constructivist Learning Theory
 - Adult Learning Theory
- Educational Methodologies
 - Teaching for Understanding Framework
 - Entry Point Framework
 - Multiple Representations
 - Problem-Based Learning
- E-Learning and Enabling Technologies

Integration

Education

**Technology-
Enabled
Learning**

Computer Science

Psychology

Technology-Enabled Learning

Educational Methodologies

**Theory of
Multiple
Intelligences**

**Constructivist
Learning
Theory**

**Adult
Learning
Theory**

**Theoretical Foundation
Educational Psychology**

**Adaptive
Hypermedia**

**Web and
Multimedia
Technologies**

**Technology Foundation
Computer Science**

Successful Graduates

- Systems perspective
- Problem solving and decision making
- Use of information technology
- Negotiation and teamwork
- Communication skills and multicultural awareness
- Adaptability and flexibility
- Creativity and leadership
- Analysis and synthesis
- Learning to learn
- Practical experience

American Council on Education (ACE)

Theory of Multiple Intelligences

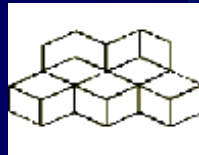
- Linguistic



- Logical-Mathematical



- Spatial



- Bodily-Kinesthetic



- Musical



- Interpersonal



- Intrapersonal



- Naturalist



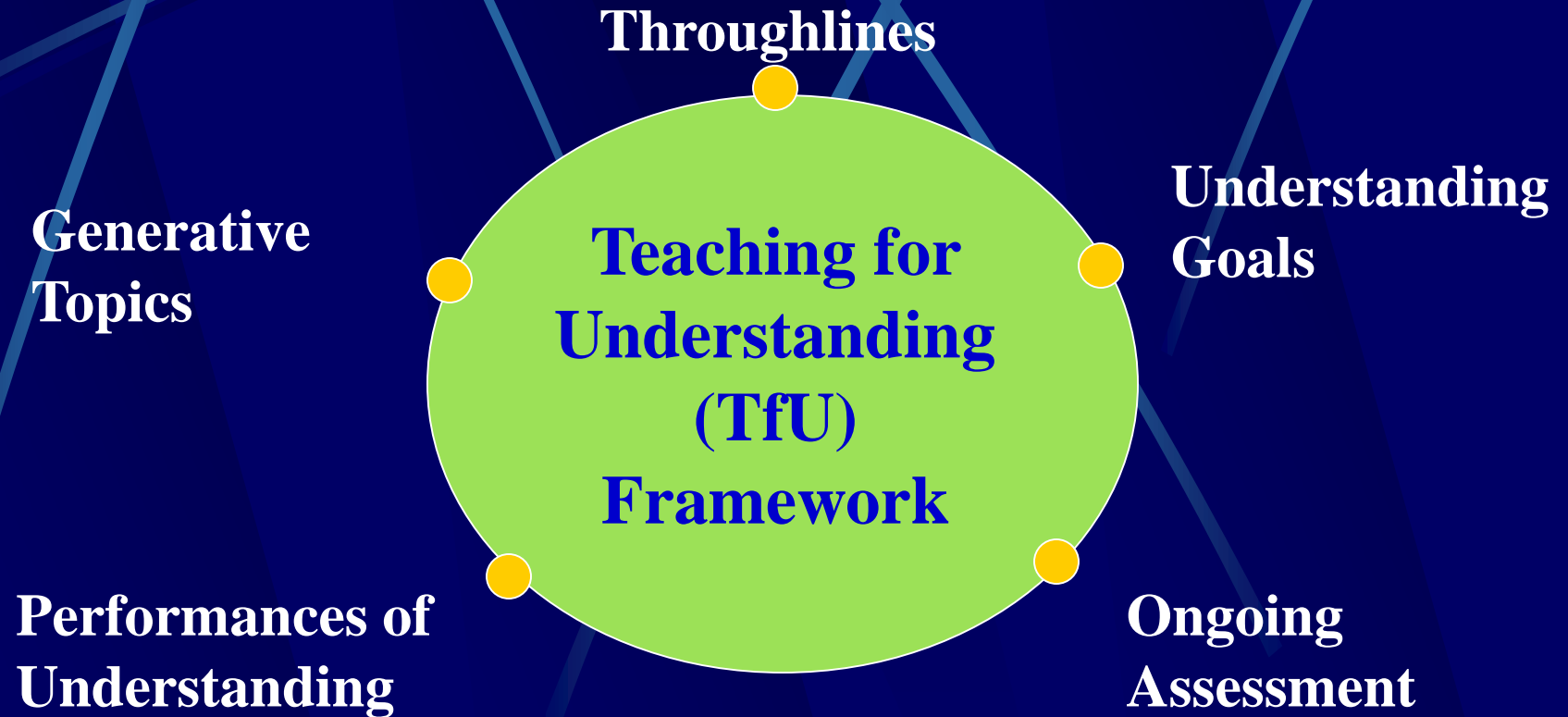
Constructivist Learning Theory

- Based on research of Piaget
- Learning - result of individual's mental construction
- Individuals learn by actively constructing their own understanding
- Incorporate new information into base of knowledge already constructed in their minds
- Discovery learning - "True learning is based on discovery guided by mentoring rather than transmission of knowledge" John Dewey

Adult Learning

- Learn throughout their lives
- Transitional stages – cause for learning
- Diverse learning approaches
- Problem-centered and relevant
- Immediacy of application
- Past experiences
- Self-concept
- Self-directed

Teaching for Understanding



Entry Point Framework

- Narrative – introduce through story-telling
- Numerical – engage through computation
- Logical – deduction to learn new concepts
- Existential/Foundational – ask questions
- Aesthetic – engage senses through artworks
- Hands-On – experiential, manipulation
- Interpersonal – cooperative learning

Multiple Representations

- Family of representations
- Activate different intelligences
- Present new concepts in multiple ways
- Content presentation activates more than one intelligence

Problem-Based Learning

- Process Skills + Content Knowledge
- Analyze and solve real-world problems
- Find, evaluate, use learning resources
- Demonstrate communication skills
- Case study analysis
- Case study development

What is E-Learning?

“Learning experiences enabled or enhanced by technological resources that support the development, exchange, and application of knowledge, skills, attitudes, aspirations, or behaviors for the purpose of improving teaching and increasing student achievement.”

National Staff Development Council

Hybrid/Blended Learning

- Face-to-Face (F2F)
- Online Learning
- Move to 7 X 24 learning experience
- Structured discussions supplement class session
- Encourages quiet students to participate
- Opportunity for reflection
- Build & apply knowledge incrementally

Enabling Technologies

Educational Adaptive Hypermedia

Web-Based Learning

User-
Adaptive
Systems

Hypermedia

Intelligent
Tutoring
Systems

Computer-
Mediated
Communication

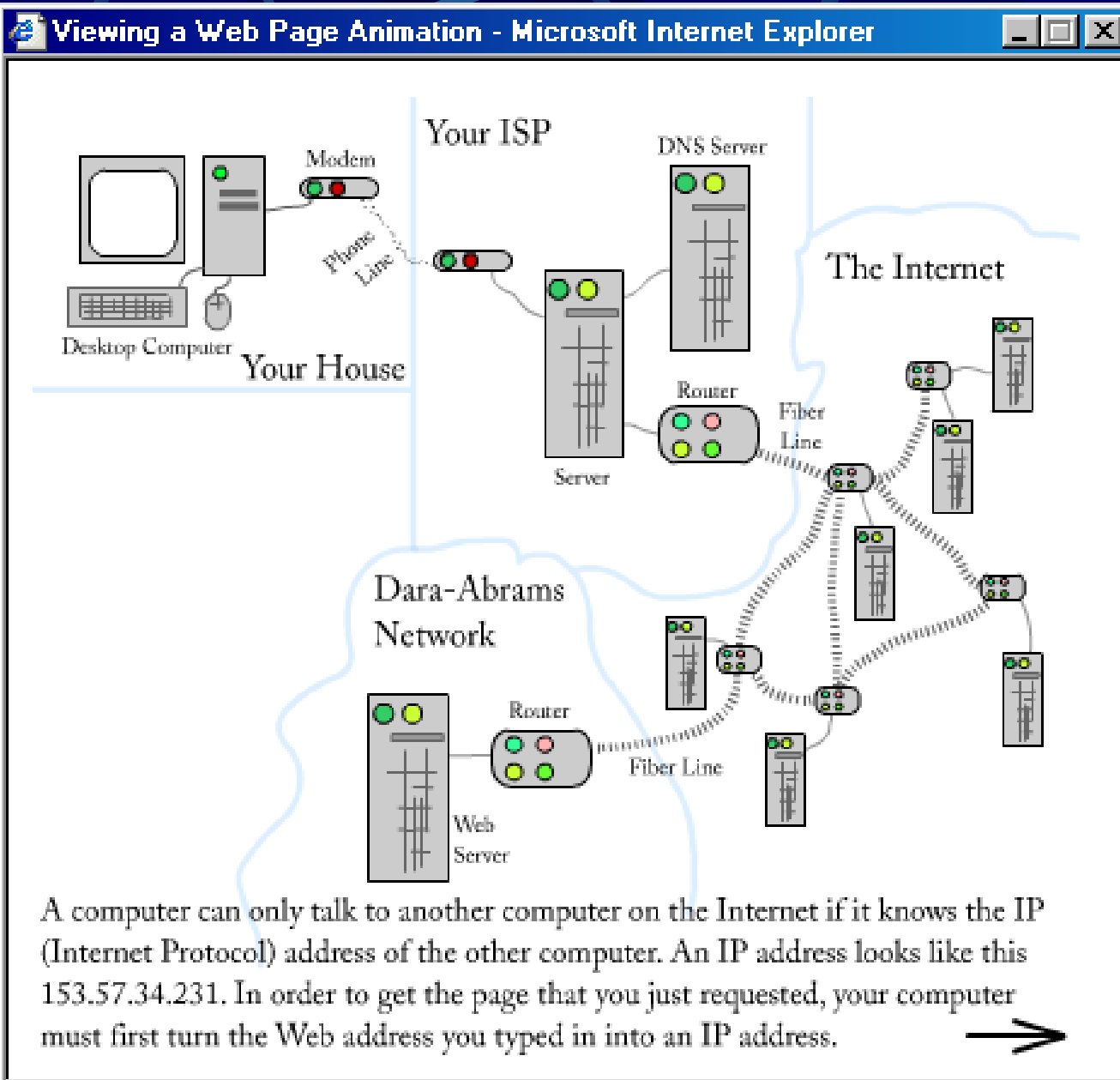
Multimedia
Technologies

Technology Foundation
Computer Science

Explanation Variants

Intelligence	Explanation Variant	Technology
Linguistic	Prose, Textual Explanation	HTML, Word
Logic-Math	Bulleted List	HTML list
Spatial	Diagrams, Graphics, Movies	Flash, iMovie, PowerPoint
Musical	Sound Effects, Sound Track	Flash, Audio
Intrapersonal	Self-Guided Problem Analysis, Journals	HTML forms with script
Interpersonal	Discussions – problems, cases, questions	Threaded discussion
Naturalist	Categories and Metaphors	HTML lists, Flash
Bodily-Kinesthetic	Hands-on Exercises Simulations	Scripts Virtual Environments

Spatial and Musical



Interpersonal

Legacy Systems Integration - Section 1: Front-end Integration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.dara-abrams.com/benay/research/courses/legacy/1_frontEnd/inter/forum.php?userID=

Legacy Systems Integration
Section 1: Front-end Integration

Please read the messages in the topic entitled Web front-end for legacy application before the messages in the topic entitled Case study of time card application, and please participate in the discussion while you are here.

[Return to the beginning of the section.](#) | [Return to overview.](#) | [Continue to next section.](#)

Legacy Systems Integration - 1) Front-end Integration

[Forum List](#) | [Go to Top](#) | [New Topic](#) | [Collapse Threads](#) | [Search](#)

Topics	Author	Date
Case study of time card application new	Benay Dara-Abrams	08-24-2001 15:33
RE: Case study of time card application new	Susan Hardin	08-24-2001 15:44
RE: Case study of time card application new	Benay Dara-Abrams	08-24-2001 15:46
RE: Case study of time card application new	Paul Krugman	08-24-2001 17:52
RE: Case study of time card application new	Benay Dara-Abrams	08-24-2001 17:58
RE: Case study of time card application new	Usha Sekar	09-03-2001 20:14
RE: Case study of time card application new	Benay Dara-Abrams	09-03-2001 21:06
RE: Case study of time card application new	Ramesh	09-10-2001 15:57
RE: Case study of time card application new	Van Shackelford	08-30-2001 10:09
RE: Case study of time card application new	Benay Dara-Abrams	08-30-2001 10:16
RE: Case study of time card application new	Chris Culp	08-31-2001 08:45
RE: Case study of time card application new	Benay Dara-Abrams	08-31-2001 08:52
RE: Case study of time card application new	Van	08-31-2001 16:11
RE: Case study of time card application new	Abdul Aleem	09-02-2001 08:41
RE: Case study of time card application new	Benay Dara-Abrams	09-02-2001 08:59
RE: Case study of time card application new	Andrew Wall	09-04-2001 09:23
Web front-end for legacy application new	Benay Dara-Abrams	08-24-2001 15:33
RE: Web front-end for legacy application new	Jim Letter	08-24-2001 15:40
RE: Web front-end for legacy application new	Benay Dara-Abrams	08-24-2001 15:50

[Newer Messages](#) | [Older Messages](#)

Done Internet

Intrapersonal

Legacy Systems Integration - Section 1: Front-end Integration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.dara-abrams.com/benay/research/courses/legacy/1_frontEnd/index.php?userID=

Legacy Systems Integration
Section 1: Front-end Integration

The A Corporation was founded in the 1970s in order to provide lower-cost computers with advanced technology while maintaining compatibility with IBM mainframes, which then dominated the market. By the 1990s, the A Corporation was an established computer manufacturer, software systems developer, and service provider with an international market.

The A Corporation had a vacation scheduler application running on a mainframe to keep track of each employee's vacation days. Employees complained about how difficult it was to enter their data through the cumbersome user interface, but the vacation scheduler application itself was working quite well.

The corporate intranet team decided to retain the vacation scheduler application and use front-end integration, placing an HTML (Hypertext Markup Language) form in front of the vacation scheduler application for data entry. One of the software engineers on the team wrote a CGI (Common Gateway Interface) script to accept and check the data entered via the HTML form and pass it back to the vacation scheduler program.

Please consider the decision made by the A Corporation intranet team and answer the following questions.

1. What do you think were some of the benefits of the new Web GUI (Graphical User Interface) front-end for the vacation scheduler application?

2. Why do you think the A Corporation decided to do front-end integration for the vacation scheduler application?

Once you have answered both of these questions, please press the submit button below.

Return to [overview](#).
Continue to [next section](#).

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Done Internet

Discussions and Cases

- Interpersonal Intelligence
- Problem-Based Learning
- Question to consider during the week – History
- Students take turn moderating discussion
- Develop own cases – IT Management
- Analyze cases – Harvard Business Review – High-Tech Marketing

Student Cases

- The Slow Contract
- Doing Job Right Can Put You Out of Job
- Wrong side Politics
- Cross-Country Micromanagement
- Dog Eat Dog
- Red Dragon Power Play
- Robin Hood Gone Wrong
- Fast Track to Tell All
- Network Engineer who couldn't network
- Sales Position that was Sold
- Star Telemarketer
- Quality Holdout
- Which Coast Advertising?
- Work Process Improvement
- What's Your Priority?

Effective Technology-Enabled Learning

- Effective Learning Experience
- Each Individual Student
- Multiple Entry Points
- Multiple Representations
- Reach Anyone, Anyhow
- Integrate theory, educational methodologies, and enabling technologies

Thank You

- More information
 - <http://www.brainjolt.com/>
- Research Papers
 - <http://www.brainjolt.com/term/>
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