

Grounded Pedagogical Models

for E-Learning

Nada Dabbagh, PhD

George Mason University

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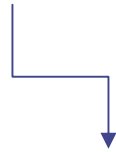
Presentation Outline

- ◆ What is grounded design?
- ◆ What is distributed learning?
- ◆ Why is distributed learning an appropriate theoretical and pedagogical construct for *e-learning*?
- ◆ What are the implications of grounded design for *e-learning* based on the principles of distributed learning?
- ◆ What is the role of learning technologies in the design of *e-learning*?

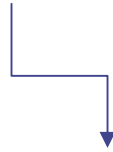
Grounded Design or Practice

- ◆ Think about design in a hierarchical fashion starting with the **roots** of any learning environment or learning system which include:
 - psychological, pedagogical, technological, cultural and pragmatic foundations (*Hannafin & Land, 1997*).
- ◆ Begin by examining epistemological beliefs, cognition, theory, and research
 - Broad to specific through successive implementations that link theory to practice to ensure that design methods are linked consistently with given foundations and assumptions

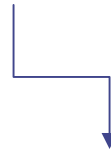
Beliefs



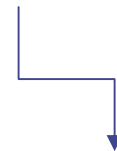
Learning Theories



Pedagogical Models



Instructional Strategies



Learning Activities

Grounded Design Framework

Epistemology, Theory, Model, Strategy, Tactic or Learning Activity

- ◆ Epistemological beliefs – theory of knowledge or cognition (objectivism vs. constructivism)
- ◆ Learning theories that attempt to explain epistemological beliefs (information processing vs. activity theory)
- ◆ Pedagogical models attempt to bridge theory and practice by providing a concrete description of the theory
- ◆ Models break into prescriptions or instructional strategies and eventually into tactics or learning activities

Example

- ◆ Epistemological beliefs align with objectivism or behaviorism
 - Cognitive Information Processing (learning theory)
 - ◆ Model for Learning and Memory
 - Instructional Strategy (Gagne's events of instruction)

Gagne's Instructional Events

Learning Processes:

1. attention alertness
2. expectancy
3. retrieval to WM
4. selective perception
5. encoding (LTM)
6. responding
7. reinforcement
8. cueing retrieval

Instructional Events:

1. gaining attention
2. informing learner of objectives
3. stimulating recall
4. presenting the stimulus
5. providing learning guidance
6. eliciting performance
7. providing feedback
8. assessing performance

For other examples see ...

- ◆ The Instructional Design Knowledge Base (IDKB)

- Theories and Models

- ◆ Instructional Strategies

Distributed Learning - Assumptions

- ◆ Reason is the source of knowledge - *rationalism*
- ◆ Knowledge is always under construction taking on new meanings relative to the activity in which it is being explored – *knowledge is situated*
- ◆ Knowledge is socially mediated or constructed
 - social framework or culture surrounding a learning context
 - Learning is a social process
- ◆ Knowledge does not belong to an individual, rather,
 - knowledge is an open network that is distributed in social, cultural, historical, and institutional contexts (Duffy & Cunningham, 1996)

Distributed Learning - Foundations

- ◆ Rooted in social constructivism
 - Attributed to Vygotsky
 - Social context and culture
- ◆ Knowledge is perceived as:
 - belonging to and distributed in communities of practice (CoP) or environments of participation
- ◆ **Distributed** cognition, situated cognition, cultural knowledge, social knowledge, social cognition

Distributed Learning – The Model

- ◆ So, if knowledge or cognition is *distributed* then learning is *distributed*
- ◆ Distributed Learning Model (*good fit for e-learning*)
 - Globalization and learning as a social process are inherent and enabled through telecommunications technology
 - The concept of a learning group is fundamental to achieving and sustaining learning
 - The concept of distance is blurred or unimportant
 - Teaching and learning events are distributed across time and place, occurring synchronously and asynchronously through various media
 - Learners are engaged in multiple forms of interaction: learner-learner, learner-group, learner-content, and learner-instructor (Dabbagh & Bannan-Ritland, 2005).

Distributed Learning Models

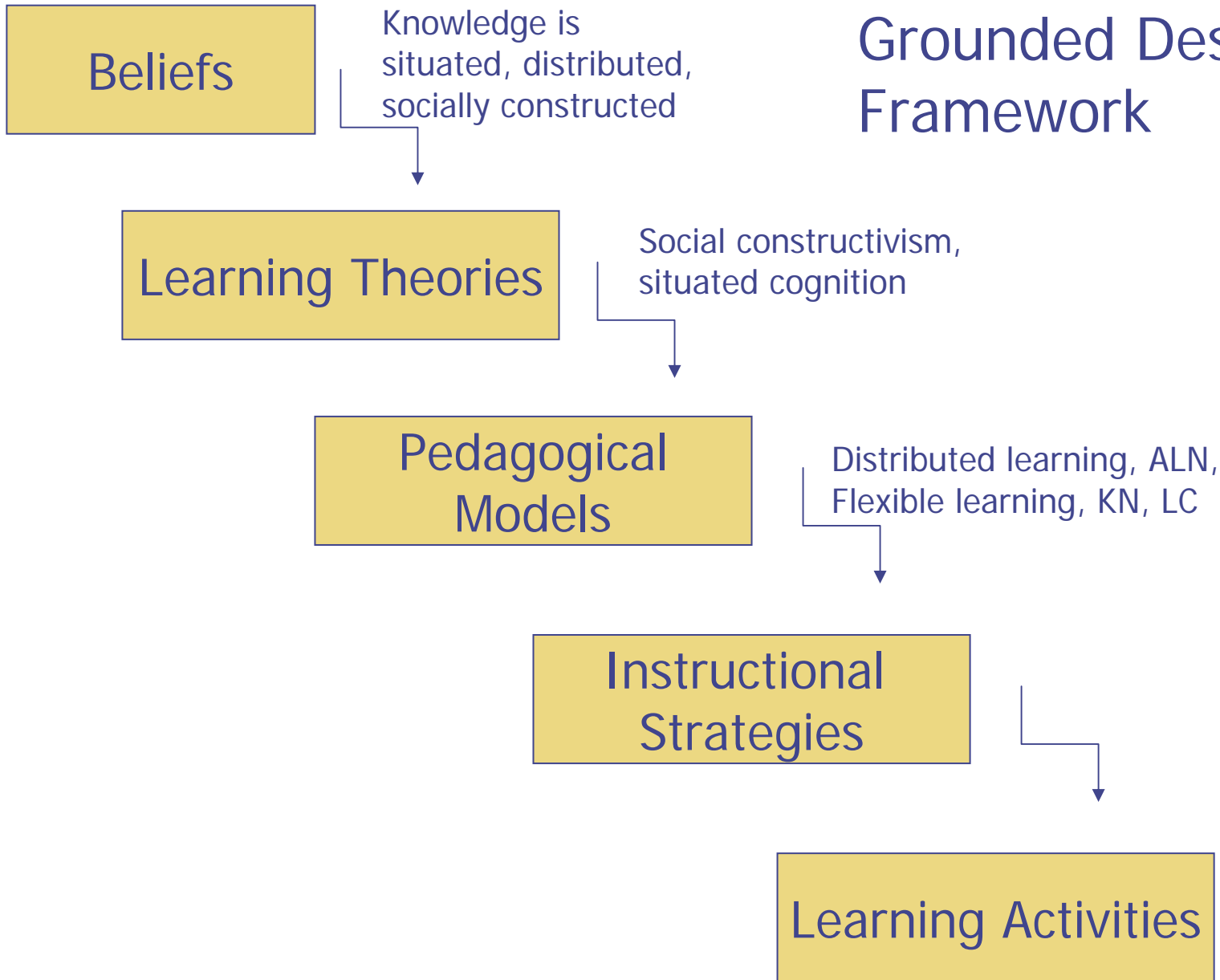
◆ Other models or pedagogical constructs that can be used interchangeably with distributed learning include:

- Open/flexible learning
- knowledge networks
- asynchronous learning networks (ALN)
- blended learning
- learning communities

Other Applicable Pedagogical Models

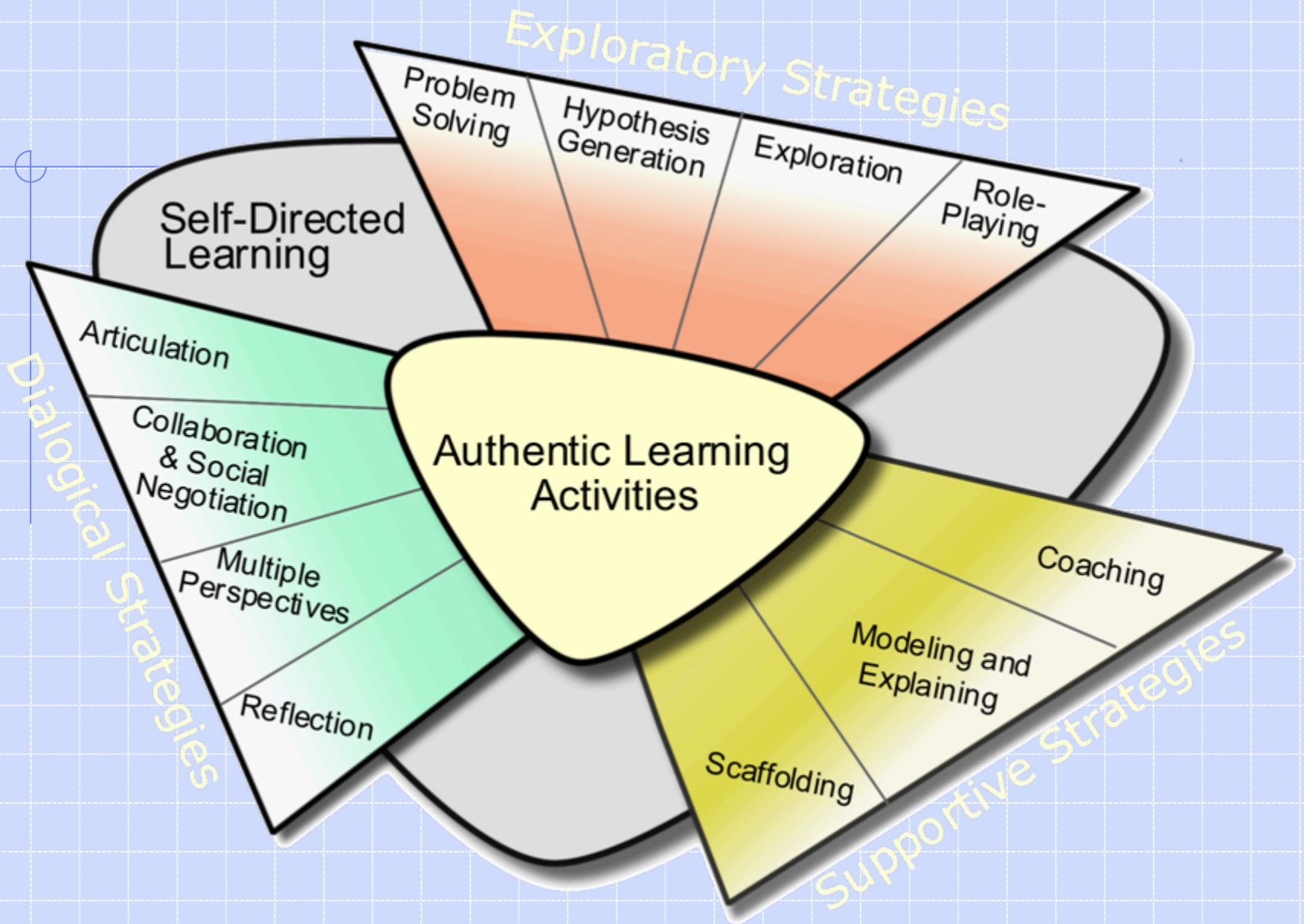
- ◆ Anchored Instruction
- ◆ Communities of Practice
- ◆ Cognitive Apprenticeships
- ◆ Cognitive Flexibility Hypertexts
- ◆ Microworlds/Simulations
- ◆ Problem Based Learning
- ◆ Case-Based Learning
- ◆ Goal-Based Scenarios

Grounded Design Framework



Characteristics of Pedagogical Models that are Grounded in Situated Cognition

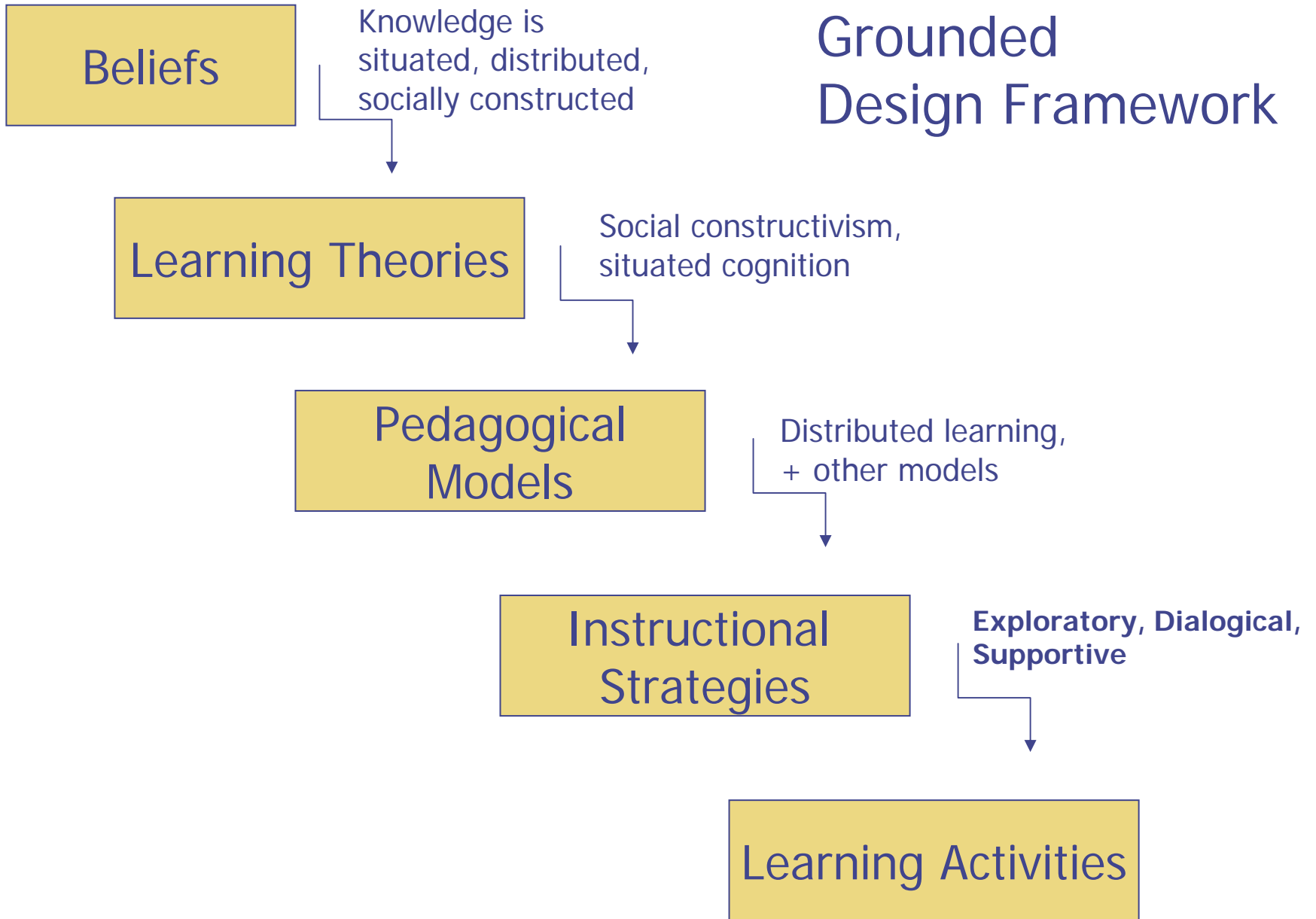
- ◆ Learning activities should be authentic and should center around the “problematic” or “puzzlement” as perceived by the learner
- ◆ Focus is on the process not the product
- ◆ Role of teacher is a mentor not a “teller”
- ◆ Encourage reflective thinking, higher-order learning or critical thinking skills:
 - exploration, articulation, problem solving, collaboration
- ◆ Encourage testing viability of ideas and seeking alternative views
- ◆ Promote self-directed learning



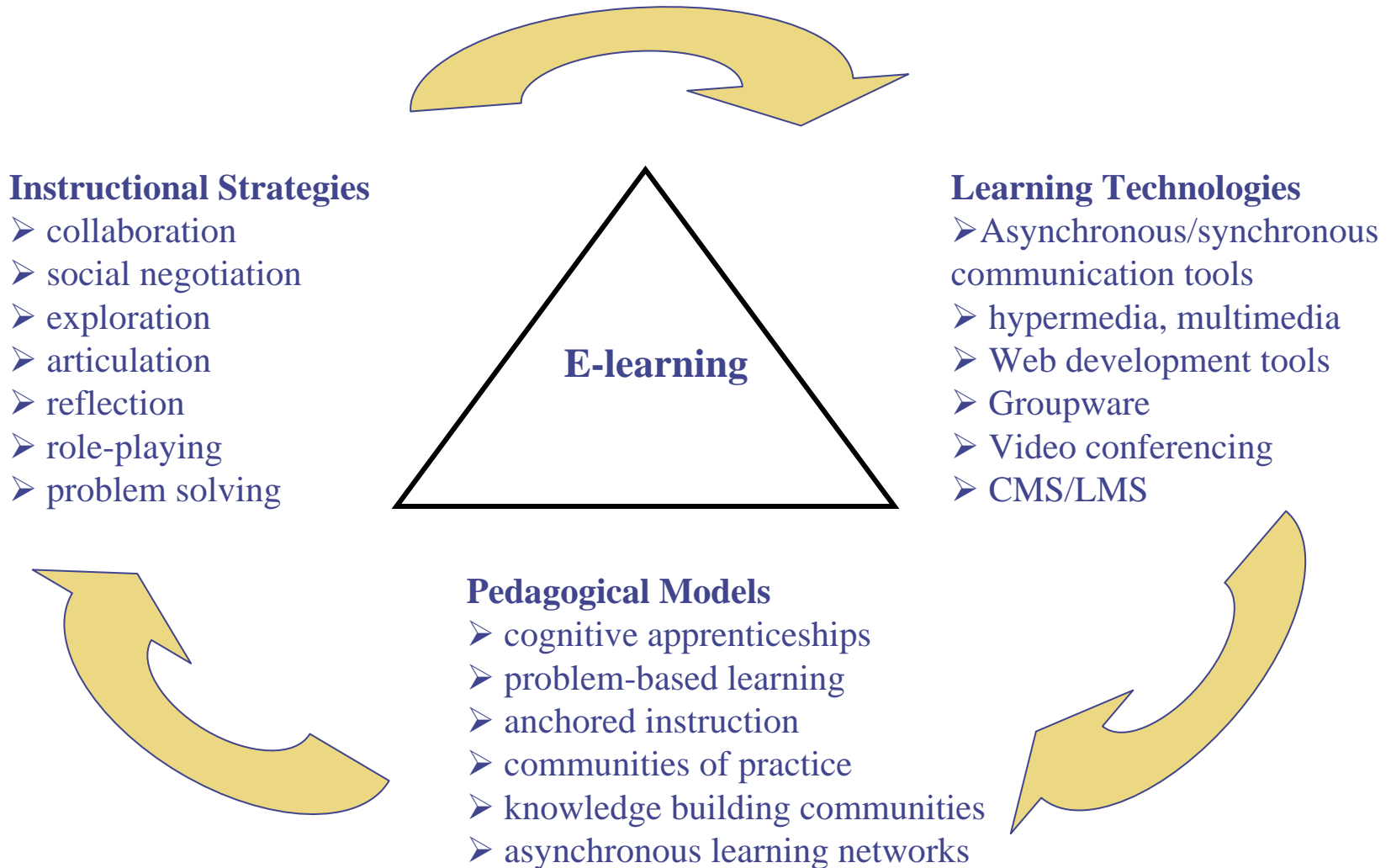
Instructional Strategies

- ◆ Exploratory-type strategies:
 - Problem solving
 - Hypotheses generation
 - Exploration
 - Role playing
- ◆ Dialogical-type strategies:
 - Articulation
 - Reflection
 - Collaboration
 - Multiple perspectives
- ◆ Supportive-type strategies:
 - Scaffolding
 - Modeling & explaining
 - Coaching

Grounded Design Framework



Three Component E-Learning Model





◆ E-Learning:

- Open and distributed learning environment that uses pedagogical tools, enabled by Internet and Web-based technologies, to facilitate learning and knowledge building through meaningful action and interaction (*Dabbagh & Bannan-Ritland, 2005*).

Examples

- ◆ The Greenville Collision (GBS)
 - WebCT 4.1
- ◆ Project Skills (SL)
 - WebCT 3.8
- ◆ Identity Theft (CFH) (or Watchers on the Web)
 - Book Website
- ◆ Learn To Teach–Teach To Learn (CA)
 - WebCT 3.8
- ◆ Community of Practice (Kramer) (3.8)

Contact Info

◆ Email: ndabbagh@gmu.edu

◆ Phone: (703) 993-4439

◆ Homepage:

<http://mason.gmu.edu/~ndabbagh>

◆ Book:

- Online Learning: Concepts, Strategies, and Application (Merrill Prentice Hall)