

# Indie: An Authoring tool for building simulated Investigate-and-Decide Learning Environments

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# Roadmap

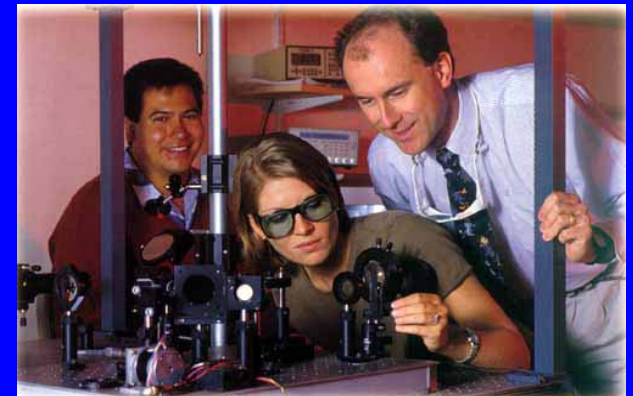
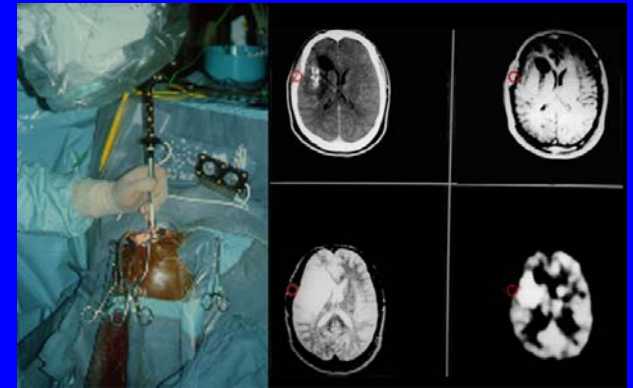
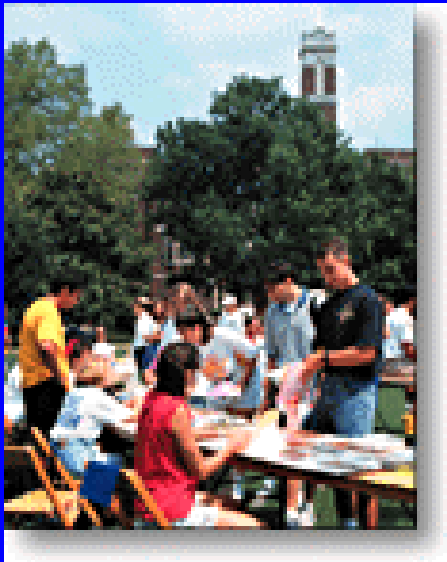
- **Underlying learning theories**
- **Overview of Indie**
- **Software Demo**
- **Future work**

# The Challenge: Educating Adaptive Experts

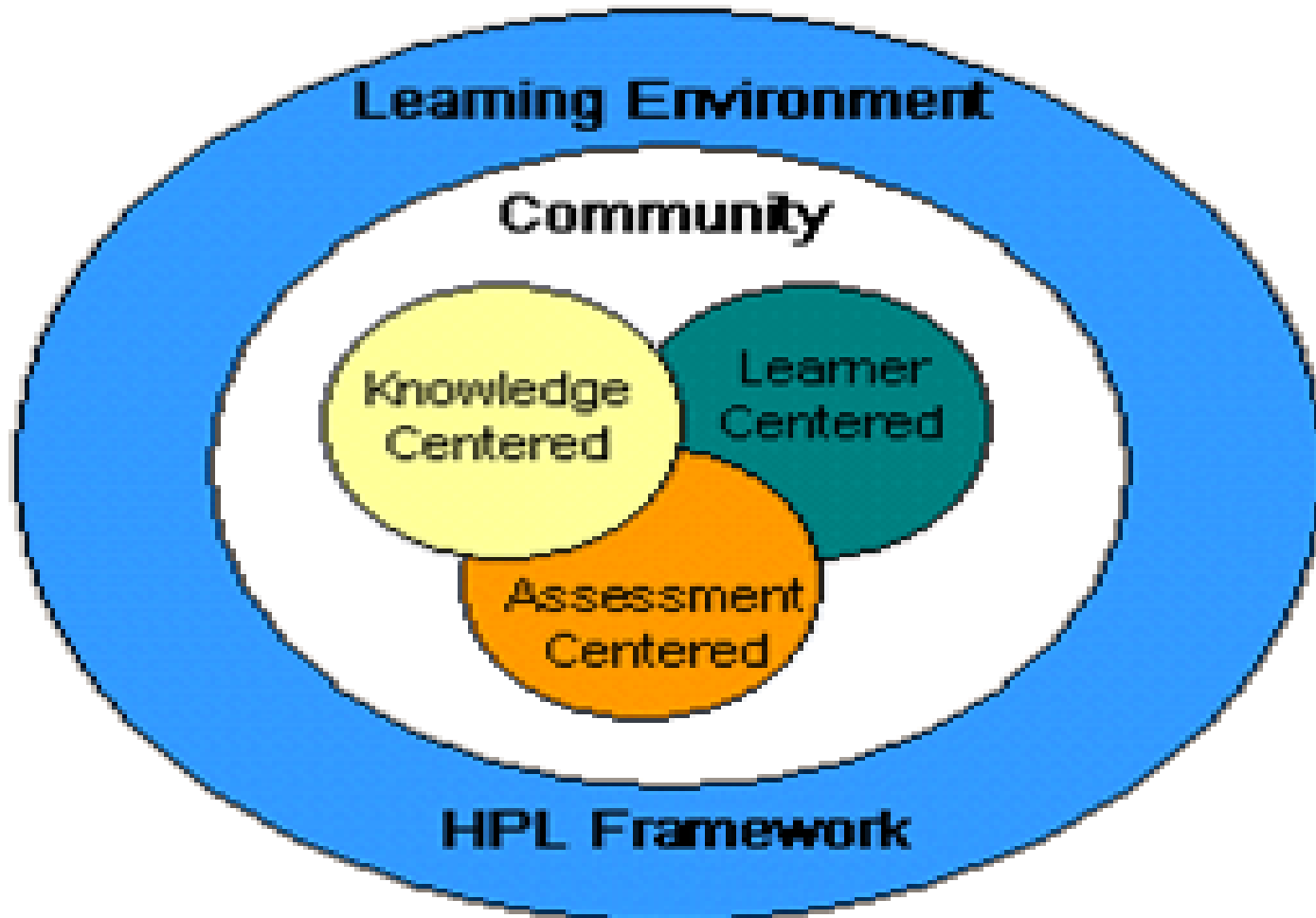
**Students**



**Experts**



# How People Learn



# Knowledge Centeredness

- **Constructivism**
  - Assimilation
  - Accommodation
- **Critical concepts**
- **Expert's knowledge**
  - Explicit patterns (e.g. Simon, 1980 ; Bransford et al., 1989)
  - Conditionalized knowledge (Simon, 1980; Glaser, 1922)

# Learner Centeredness

- Learning goals (Dweck & Leggett, 1988)
- Appropriate Challenge
- Usefulness of learning
- Just-in-time learning
- Apprenticeship Learning (Suina and Smolkin, 1994)

# Assessment Centeredness

- **Constructive critique**
- **Instant feedback**

# What is Indie

- **Software-based “Investigate and Decide”**
- **Challenge**
- **Investigate**
  - Run experiments, research domain, analyze data
- **Decide**
  - Select claim, attach evidence, get critiques



# Why Indie

- Time & cost
- Expertise for critiquing
- Consistent with HPL framework

# Where are we

- “Corrosion Investigator”
- Analyze emails
- Interview expert
- Data generator

# **New Indie vs. Old Indie**

- **Java instead of Lisp**
- **Domain knowledge & scenario in XML**
- **More complicated experiment data**
- **Display of cost & date**

# Future work

- **Web-based version**
- **Content Authoring tool**
- **New critiquing framework**
  - **Complementary role of computer critiquing**