

# **A Community of Practice**

## ***Integrating Information and Communication Technology Literacy (ICT) into a Research Methods Course***

Konstanz Workshop on Information Literacy (KWIL)

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# What are ICT Skills?

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- Critically think through an information problem to identify specific information needs
- Select appropriate information resources for those stated needs and
- Use technology and various multimedia tools to organize and create new information



## 4 Categories for Assessment

- Define/Access
- Manage/Integrate
- Create/Communicate
- Evaluate



# What is a CoP?

Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis (Wenger, 2000).

# Goals of the CoP – Professional Development

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- Promote collaboration
- Establish best practices
- Determine baseline ICT skill level
- Develop a shareable repository

# Features of Theoretical Framework

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- Active construction
- Situated learning
- Community
- Discourse

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.

# Goals of the CoP – Student Learning

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- Develop ICT knowledge
- Articulate, develop, and support a topic through research
- Evaluate and synthesize information
- Create and communicate new ideas

**Collective Knowledge:**  
Problem solving/Needs analysis  
Curriculum development

**Students:**  
Graduate  
students in  
research  
methods course



**Cohort groups:**  
Faculty  
mentors  
Librarians  
Teaching  
Assistants

**Shared Knowledge:**  
Instructional materials/Assessment tools  
Documentation/ Evaluation of student  
learning outcomes

# Three Assumptions:

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- Knowledge is socially constructed (Bandura 1977; Vygotsky, 1978; 1986)
- Real-world problems motivate students (Lave & Wenger, 1991)
- Construction of knowledge is reinforced when something tangible is produced (Lesh, 2002)

# Performance Feedback – *iSkills*™ Assessment

Task	Feedback	%/highest score
Choose a topic	You correctly reported the criteria fulfilled by the research topic	9%
Analyze poor search results	You analyzed the reason for the poor search results correctly	9%
Obtain information	You selected only the most relevant information for your project	0%

# Curriculum Integration

- Building on what the student already knows
- Examining similarities and differences (i.e. Comparing experiences; debating)
- Using instructional supports (concept maps, worksheets, dialog, peer mentoring)

# ***Level 1: Testing Ideas***

After reading various problem scenarios, the students will:

- Develop a question/hypothesis/problem statement by identifying what they already know about the given problem scenario
- Identify keywords for constructing search statements/strategies to test in various search engines

## ***Level 2: Refining Ideas***

After the problem-solving activities, the students will:

- Construct search statements and test them in a variety of electronic databases
- Conduct peer-review evaluations of the information gathered by classmates
- Revise search terms/strategies to increase quality of information found

# ***Level 3: Synthesizing Ideas***

After gathering information resources, the students will:

- Extract relevant information from multiple resources
- Synthesize information from selected sources
- Present a coherent, documented solution to the problem
- Correctly cite information used

## *Problem Statement*

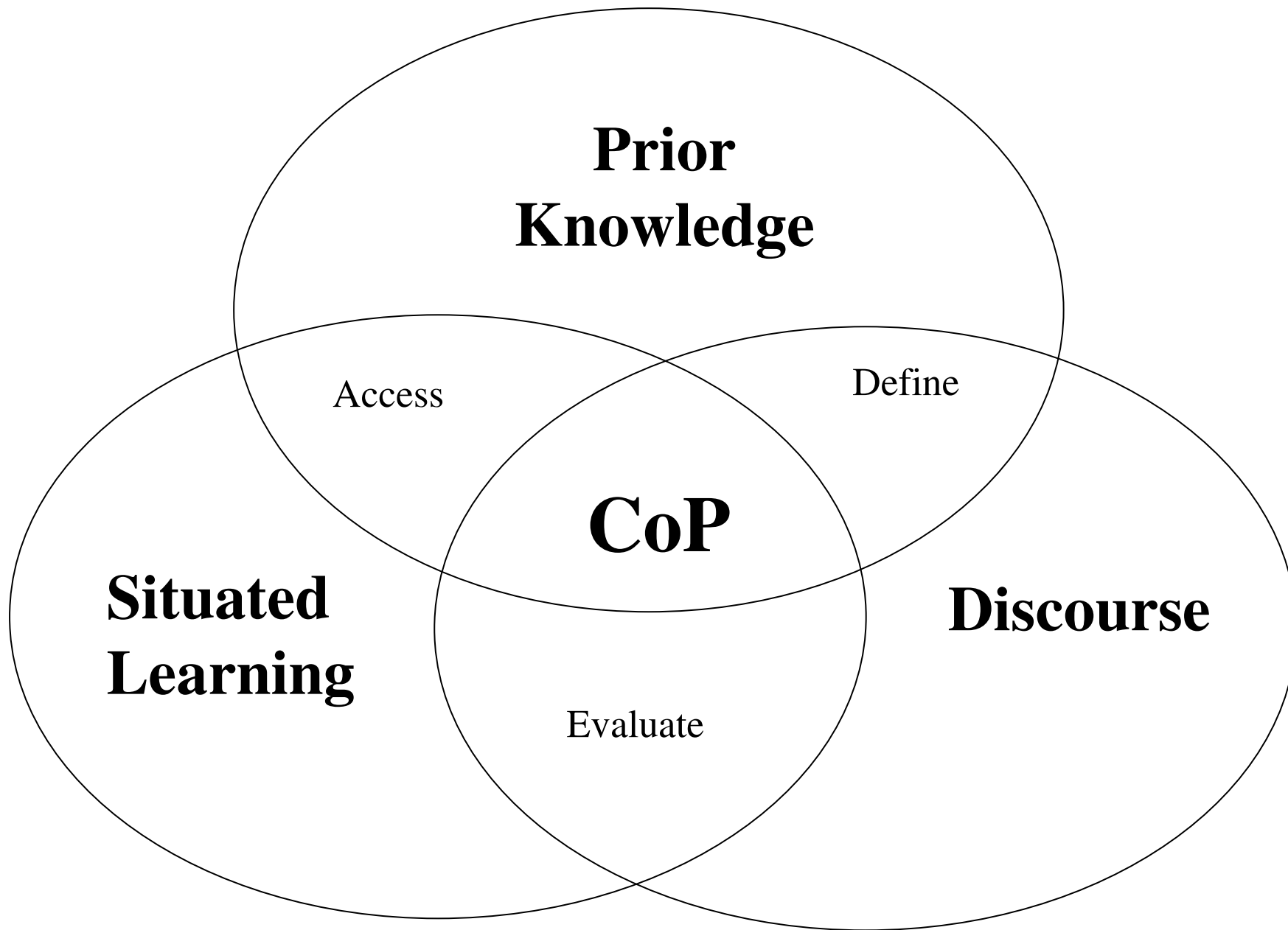
Siegrist reports that one important change during her career as a teacher was great improvements in instrumentation and technology. Today's high schools often have instruments and information technology that were not available to college students 40 years ago. Such changes in the tools of the trade are also likely for our students during their careers, and change is accelerating. Therefore it is imperative that our students understand chemistry rather than learning by rote things they expect to be on a test.

How can you engage students who could become excellent chemists but learn in different ways?

Authentic problems in a CoP = situated learning

# Findings

- Students used prior knowledge as a means of understanding or making sense of the given problems.
- Students developed a shared repertoire of everyday experiences and incorporated them into the learning process.
- Students mutually engaged in discourse and debate for task interpretation by testing, revealing, modifying, and refining problem-solving strategies.



**Prior  
Knowledge**

Access

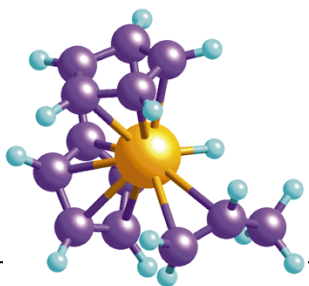
Define

**CoP**

**Situated  
Learning**

**Discourse**

Evaluate



# CHEM 699: Research Methods

## Community of Practice

Hot Topics

Buzz Words

People to Know

Stuff to Read

Our research is based on the constructivist theory of knowledge, which assumes that knowledge is created in the mind of the learner. One of our long-term interests has been problem solving in chemistry. This work has focused on differences between the way experts solve routine exercises and the techniques they use to solve novel problems; a model of the steps involved in problem solving; problem solving in non-mathematical contexts such as organic synthesis; and the role that students' beliefs about chemistry and mathematics plays in the selection of strategies they use to solve problems.

Up Coming Conferences . . .



# Assertions

- The traditional 50-minute information literacy session is insufficient to meet graduate students' research needs.
- Assessment practices for ICT skills should be conducted so that instruction can be developed and revised as needed.
- ICT literacy education is too demanding for librarians to manage alone.

Thank you for your time

Questions?

Comments?

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