

## The Second Workshop of Knowledge Management & E-Learning

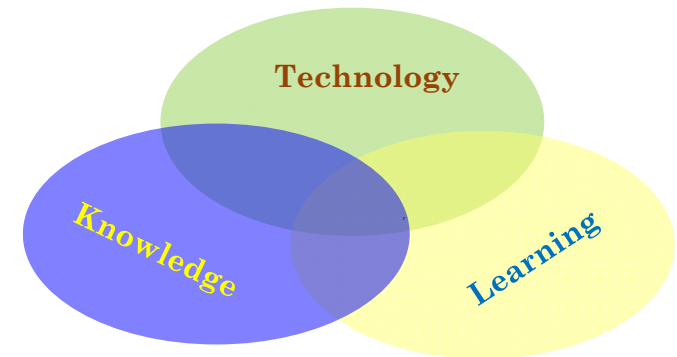
KM&EL Lab, Faculty of Education

The University of Hong Kong

5 May 2010



## Introduction of the Workshop



<http://kmei-lab.org/website/>

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## Pedagogical Considerations in e-Learning Systems Design

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5 May 2010



## E-Learning: A Multidisciplinary Area

- Diverse themes
  - Impact of technology on learning and education
  - Adoption of technology for learning and education
  - Design of new learning environment using technology
  - Design or improve technology for more effective learning support

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## Current E-Learning Systems

- More
  - Technology-centered
    - "what is technologically possible becomes implemented"
  - Information acquisition
    - Learning based on info
    - Learner: receive info
    - Teacher: present info
  - Knowledge is objective
- Less
  - Learner-centered
    - Help people to learn through the aid of technology
  - Knowledge construction
    - Learning based on sense-making
    - Promote understanding of the presented materials
  - Knowledge is subjective

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## Current E-Learning Systems (cont')

- How to go further
  - Practical considerations
    - Start from practical problems in e-learning
  - Theoretical considerations
    - Seek more pedagogical underpinnings
      - Science of learning – how people learn
      - Science of instruction – how to design effective instruction
  - Integrate
    - Basic research and applied research
      - How to design more effective e-learning systems
      - How the designed/developed system works for learning

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## Practical Considerations

- Features of e-learning
  - Resource-based
  - Self-regulated
- Problems to learners
  - Cognitive overload
  - Conceptual and navigational disorientation

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## Theoretical Considerations

- Cognitive Theory

How the human mind works in learning

Information presentation – sensory memory – working memory – long term memory

  - Limited capacity of humans in information processing
  - Active learning as the outcome of active cognitive processes
    - A coherent mental representation of incoming materials
    - Selecting, organizing, and integrating

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## Theoretical Considerations (cont')

- Perspectives in cognitive theories
  - Cognitive processing
    - Knowledge is *objective* – Knowledge delivered by teachers or experts
    - Learning is transmission and reception of knowledge
      - Representation of knowledge resource
  - Cognitive constructivism
    - Knowledge is *subjective* – Knowledge built by learners
    - Learning is sense-making, construction of understanding/meaning
      - Articulate and revise thinking
      - Apply knowledge in problem solving

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## Theoretical Considerations (cont')

- Incorporate objectivist and constructivist views in learning systems design
- How can technology help e-learners in terms of the two views?

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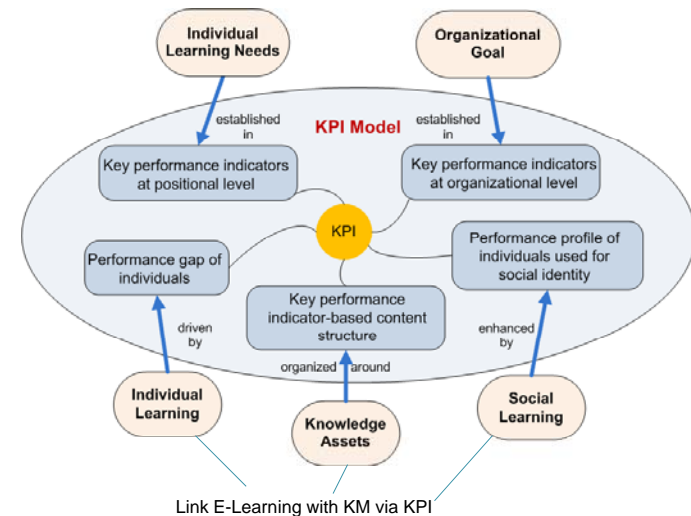
## Our Work

- Design and develop new technology solutions to e-learning
  - Computer-based cognitive structure
  - Computer supported learning process
- Evaluate the effectiveness of the solutions
- Examine how the solutions work for learning
- Examine the factors that may affect the effectiveness of the solutions
- Examine the impact of our solutions to learning, training, knowledge management and human resource management

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## Our Projects

- Performance-based e-Learning in the workplace



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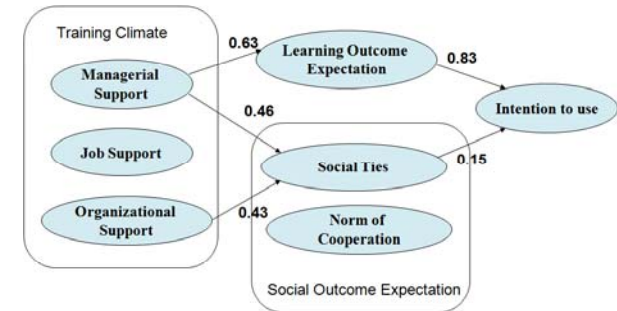
## Our Projects (cont')

- Performance-based e-Learning in the workplace (cont')
  - Experiments for system evaluation
    - Positive comments and preference on the KPI-based system
  - Survey on employees' perception on the KPI-oriented learning system and intention to use it
    - Sample: 172 (98 male, 47 female)
    - Positive perception on its support to individual learning (5.86/7) and social learning (5.13/7)
    - Strong intention to use (5.73/7)
    - No significant difference between male and female

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## Our Projects (cont')

- Performance-based e-Learning in the workplace (cont')
  - Influence of organizational training climate on employees' perception on the KPI-oriented learning system and intention to use it



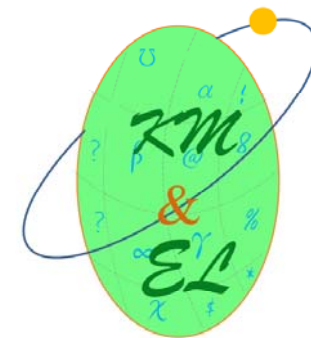
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## Our Projects (cont')

- Java e-Teacher



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Welcome to collaborations!

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