

KNOWLEDGE SHARING AND PROBLEM-BASED LEARNING

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- Data, Information, Knowledge, and Wisdom
- Knowledge Creation: The SECI Model
- Flow of Knowledge
- Knowledge Sharing (KS)
- Problem-Based Learning (PBL)
- PBL in the Classroom

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- Relationship Between KS and PBL in Team Projects
- Behavioral Aspects of KS and PBL
- Role of Learner in Gaining Knowledge
- Role of Knowledge Facilitator
- PBL Action Steps
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Introduction

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- Capstone Team Projects
 - ▣ Graduate and undergraduate adult students in the information technology (IT) and information systems (IS) programs
- Problem-Based Learning (PBL)
- Knowledge Sharing (KS)
- A Study on How KS Relates to PBL

Data, Information, Knowledge, and Wisdom

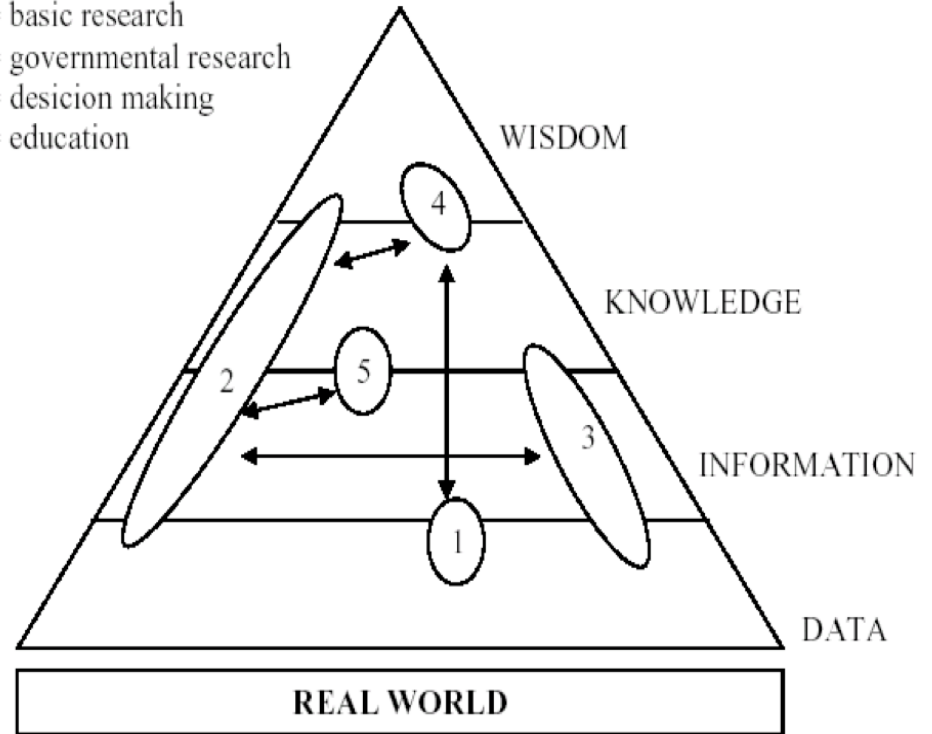
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- **Data:** discrete, objective facts about events
- **Information:** message in the form of a document or an audible or visible communication
- **Knowledge;** a fluid mix of framed experience, values, contextual information, and expert insight

(Davenport and Prusak, 2000)

- 1 = specific data collection
- 2 = basic research
- 3 = governmental research
- 4 = decision making
- 5 = education

Biodiversity Information Hierarchy (Mortitz, 2011)

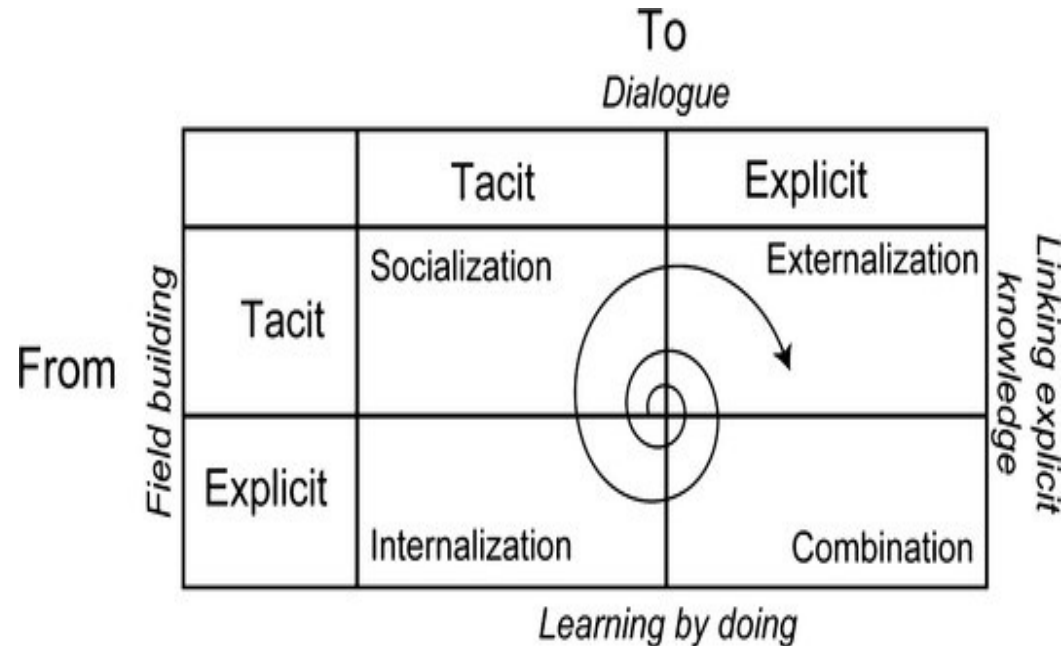


Knowledge Creation: The SECI Model

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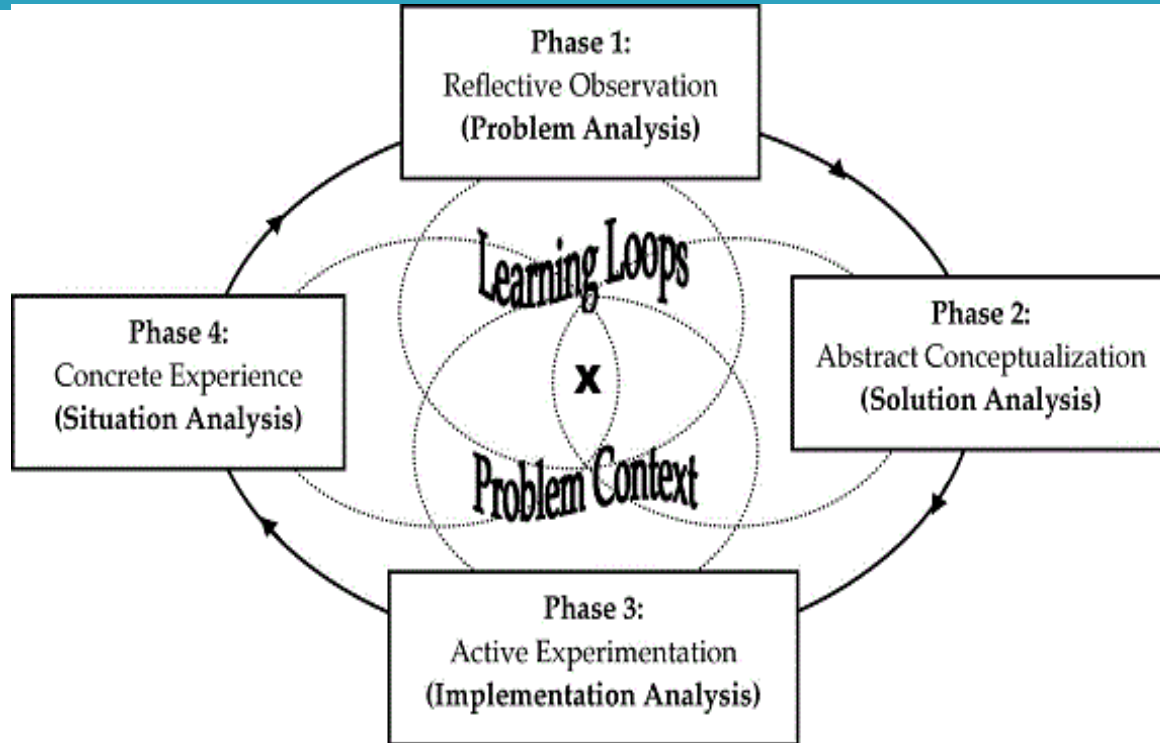
SECI Model:

- S: socialization, tacit to tacit
- E: externalization, tacit to explicit
- C: combination, explicit to explicit
- I: internalization, explicit to tacit



SECI model knowledge as a spiral (Travaille & Hendriks, 2010, p. 426)

Knowledge Creation: The SECI Model



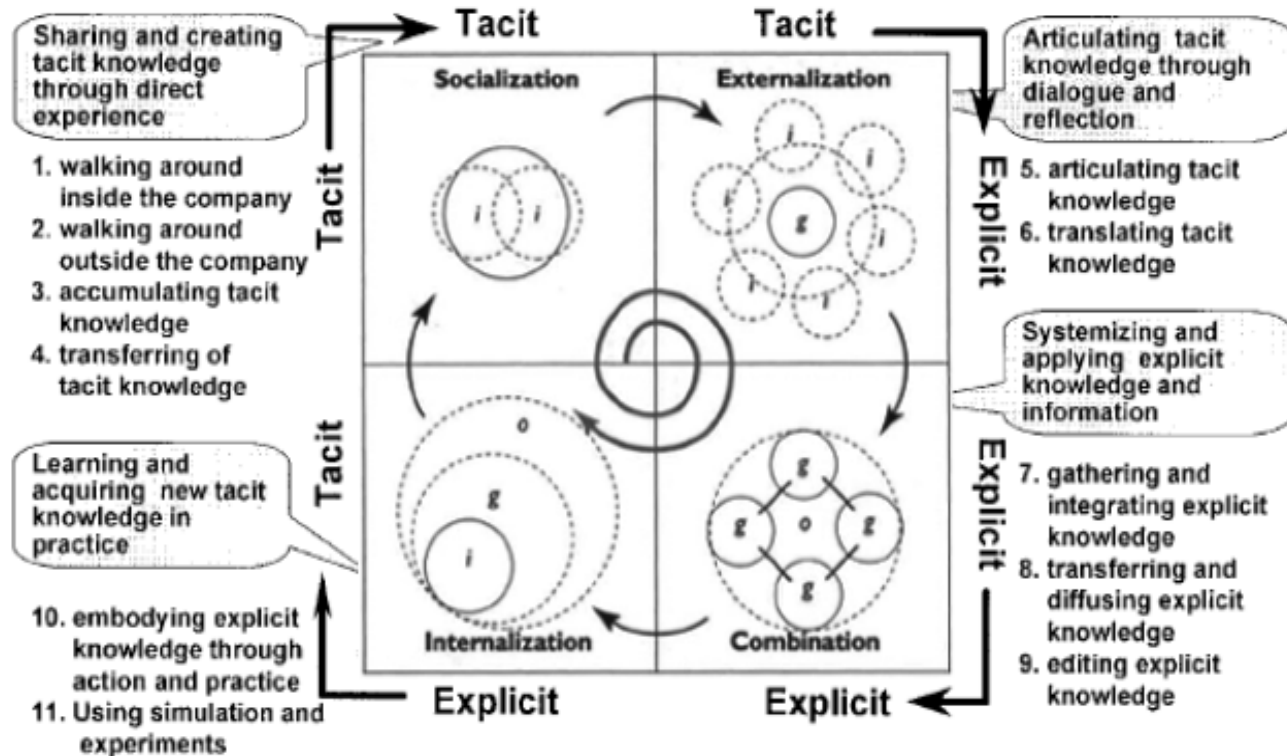
Model of PBL in workplace context

(Adapted by Yeo, 2008, p. 324, 2007, p. 48, from Kolb 1984, Cockerill et al. 1996)

Knowledge Creation: The SECI Model

SECI model of knowledge creation (Nonaka & Toyama, 2003)

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I = Individual, G = Group, O = Organization, E = Environment

Flow of Knowledge

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- Explicit versus Tacit
- Stickiness causes slowdown of flow
- Barriers to flow

Knowledge Sharing

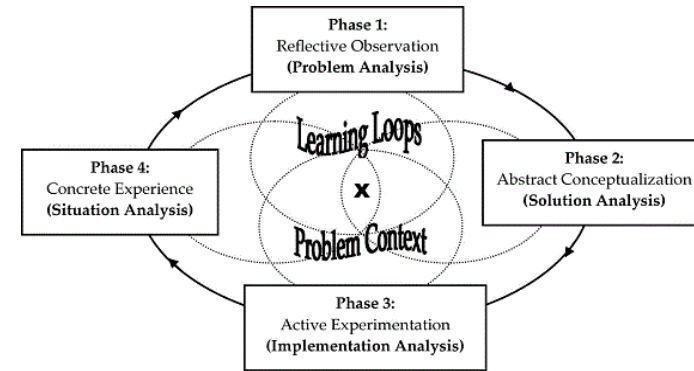
- To capitalize on KS, organizations could
 - ▣ discourage knowledge hoarding and recognize knowledge givers,
 - ▣ reinforce KS as a cultural norm,
 - ▣ invest in codifying tacit knowledge,
 - ▣ match knowledge transfer mechanisms,
 - ▣ ensure knowledge retention by the receivers, and
 - ▣ lower the cost and increase the speed of the knowledge transmission channels

(Gupta and Govindarajan, 2000)

PBL in the Workplace

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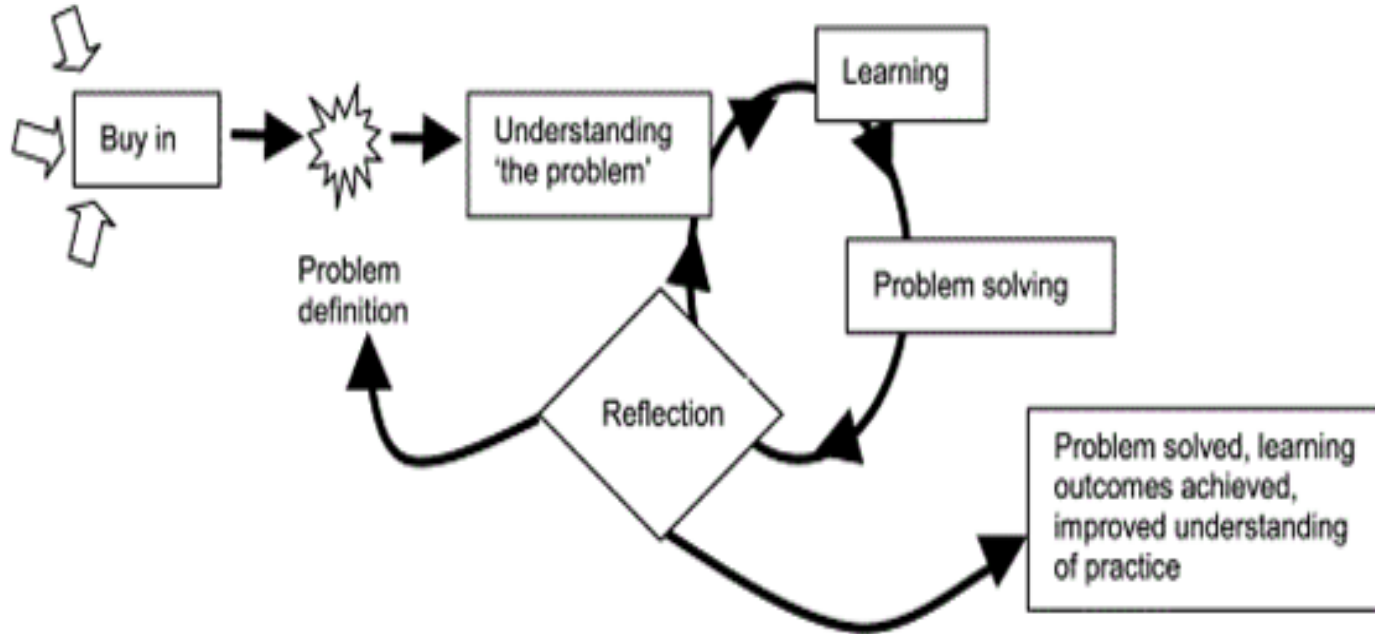
- explicit knowledge is translated into a set of defined competencies and capabilities
- knowledge is captured, developed, codified and shared in order to effectively solve problems



Model of PBL in workplace context
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PBL in the Classroom

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Basic Problem-Based Learning Overview (Stonyer & Marshall, 2002)

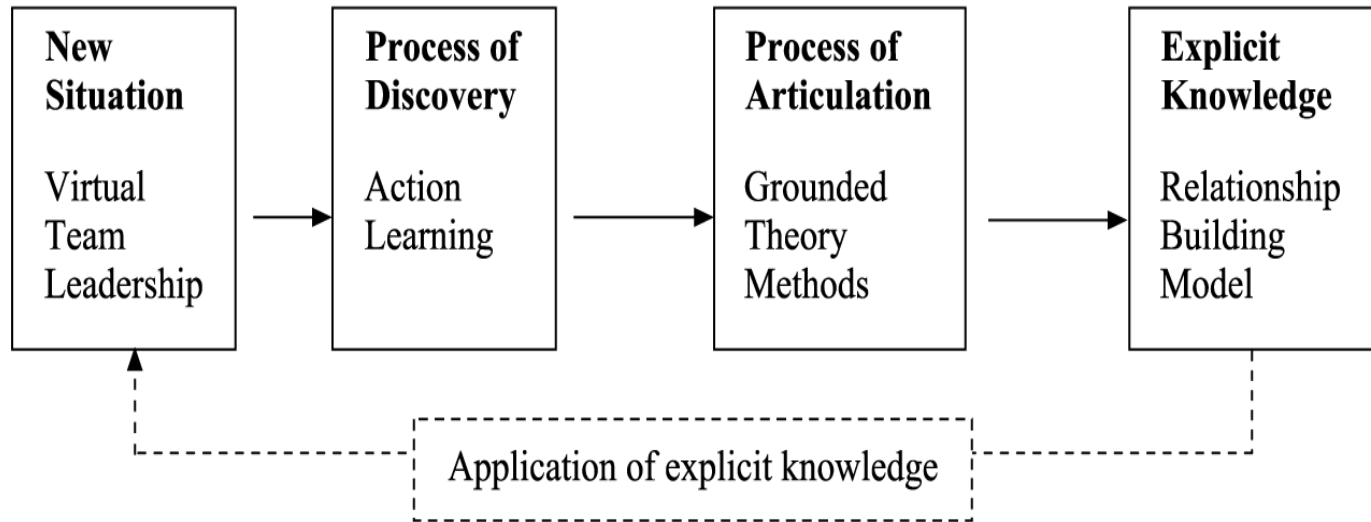
Relationship Between KS and PBL in Team Projects

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- KS yields positive outcome to all learners
 - ▣ KS is non-zero-sum
- Common barrier to KS
 - ▣ Status and award go to knowledge owners
- In student's team project, all members share a common goal
 - ▣ Barriers to KS diminish

Behavioral Aspects of KS and PBL

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Making Shared Tacit Knowledge Explicit by Action Learning and Grounded Theory (Pauleen, Cirbitt, & Yoong, 2007)

Role of Learner in Gaining Knowledge

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	Cognition Dimension	Knowledge Dimension			
		Factual	Conceptual	Procedural	Metacognitive
<i>Experts</i>	Create Evaluate	Documents			Expert advice
<i>Practitioners</i>	Analyze Apply				Examples
<i>Novices</i>	Understand Remember			Instruction	

Differentiating learners seeking knowledge (Salisbury, 2008a, p. 139)

Role of Knowledge Facilitator

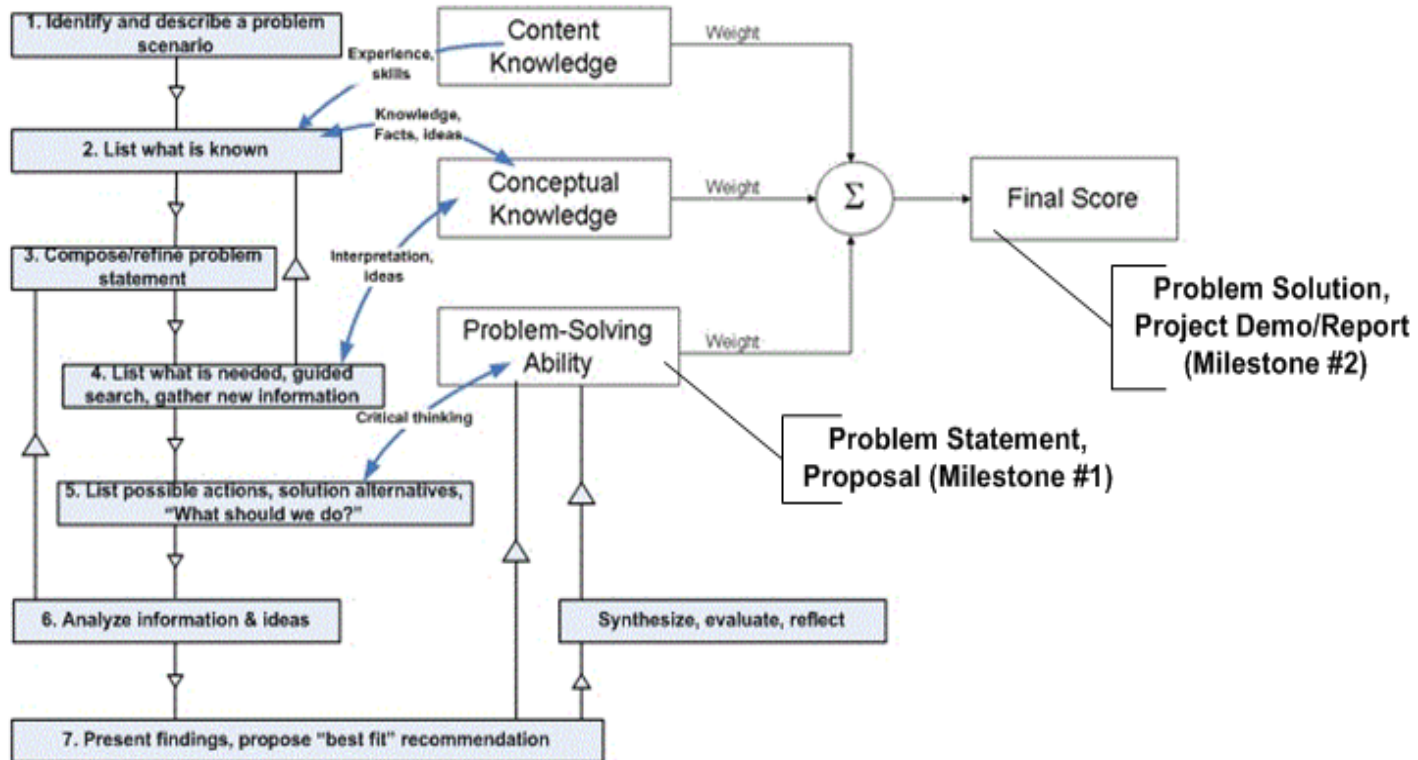
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- Techniques in inductive analysis and guiding teams
- Do these programs increase the practical knowledge of IT professional?
- What else can be done to elevate novice learners?
- What proven procedures can add value?

PBL Action Steps

PBL Action Steps Integrated with Course Assessment (Lauridsen, 2012; Masse, et al. 2009)

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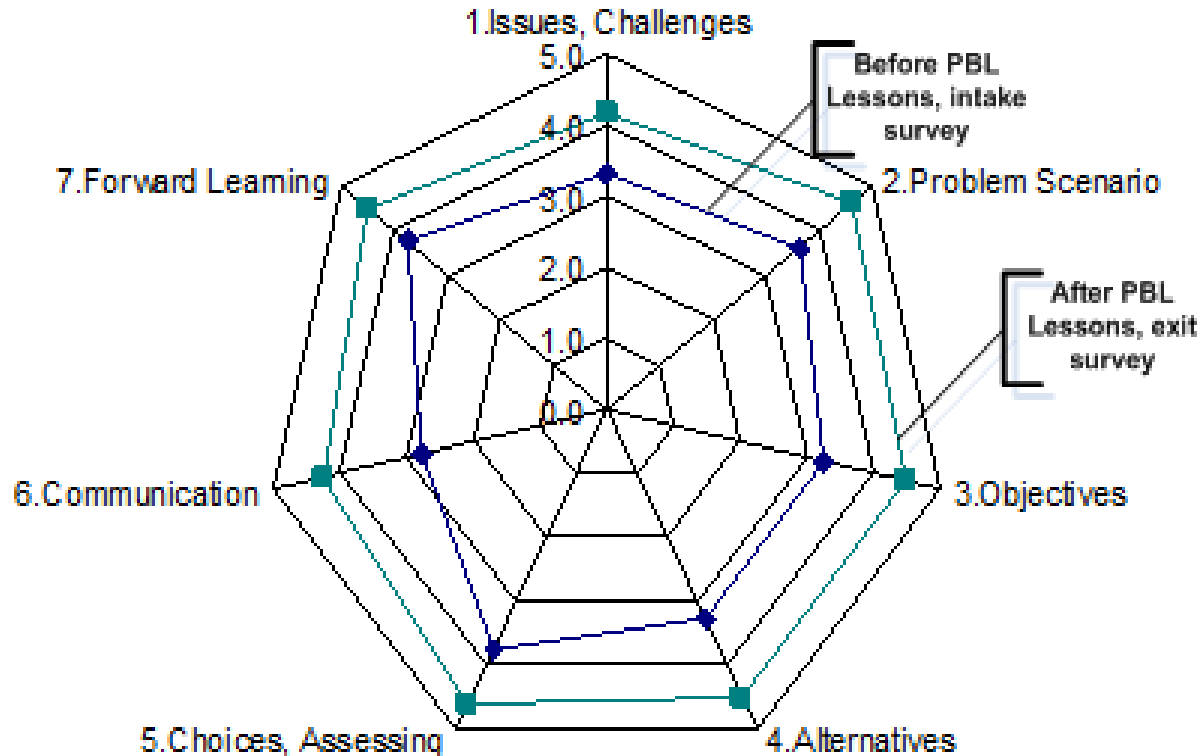


Research Findings

- PBL protocol before and again after are shown for the seven factors that reflect the seven steps:
 1. Issues, challenges to be tackled;
 2. Problem scenario clarified;
 3. Objectives composed to refine understanding of the problem;
 4. Solution awareness and information gathering;
 5. Alternatives assessment;
 6. Sharing knowledge, communicating ideas;
 7. Forward learning toward findings and a “best fit”.

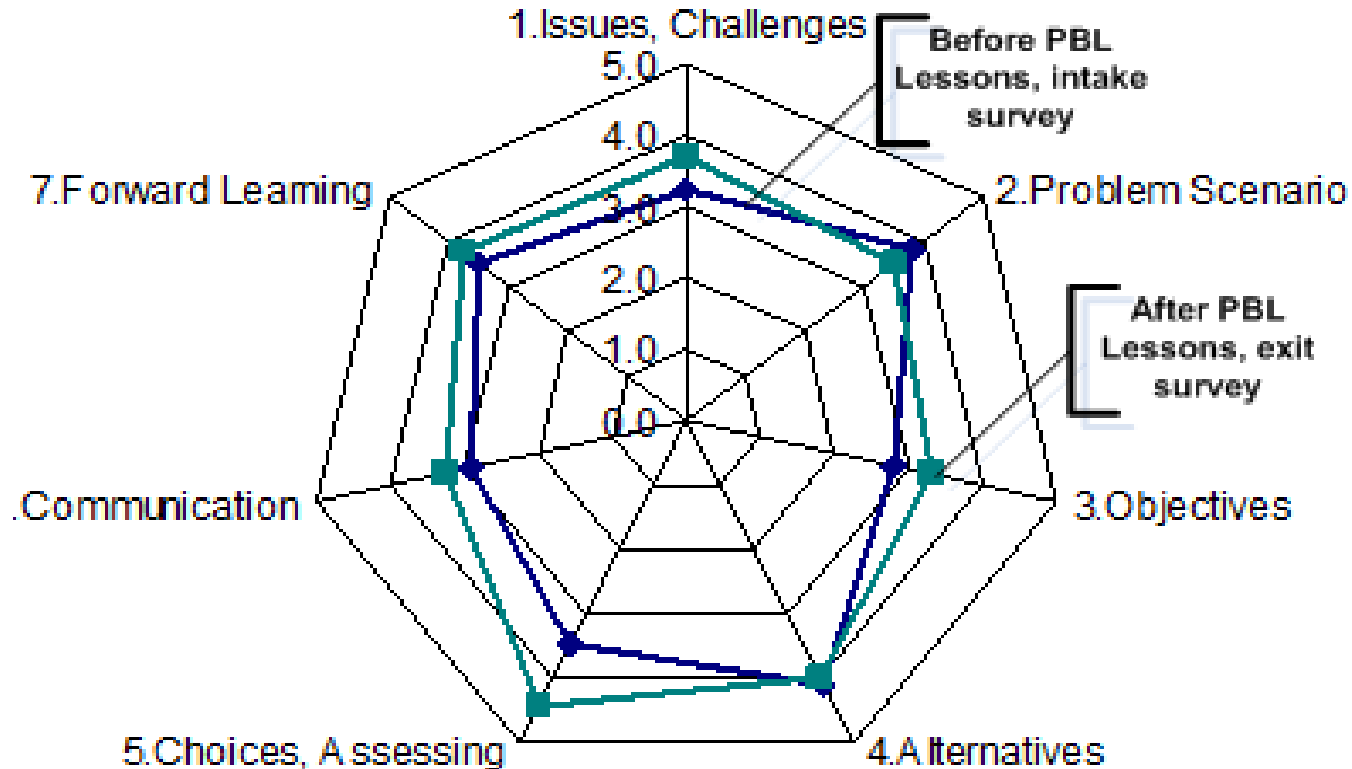
Research Findings: Undergraduate Student Participants

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Research Findings: Graduate Student Participants

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Further Research

- Extend the case study research to include distributed learners who are acquiring IS/IT skills
- “How does facilitated PBL benefit a team when collaborating on designing and producing a solution that aligns business with technology?”

Questions?

Thank You

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