Communities of Practice of E-learning “CoPE” - Definition and Concepts

Azeddine Chikh
Associate Professor
King Saud University
Saudi Arabia

Lamia Berkani
PhD Student
Informatics National Institute “INI”, Algeria

Akila Sarirete
Lecturer and Cisco Coordinator, Effat College, Saudi Arabia

Presented by Lamia Berkani

The International Workshop on Advanced Information Systems for Enterprises
Constantine, April 19-20, 2008
Objectives (1)

The development of the e-learning domain faces a number of challenges related to:

- The difficulty in the interpretation of the concepts: scenario, learning situation, activity, role, etc.

- the multiplicity of approaches, models, methods, techniques and tools used in the development of the online systems.

- the heterogeneity of the learning platforms.

The need for a capitalization is necessary in terms of knowledge and know-how related to the e-learning with the development of distance learning tools and their use, the exchange resulting from techno-pedagogic knowledge, and the collaboration between the various actors (teachers, tutors, designers, administrators...).
Objectives (2)

Problem asked: How to capitalise the know-how and the experience feedback in terms of E-learning?

Communities of Practice (CoPs) → a new form of learning based on exchange, sharing and collaboration.

Objective → set up a structure for sharing tacit and explicit knowledge and the rapprochement of different actors related to a given domain.

Extend the application of the Communities of Practice (CoPs) to the E-learning field.
Plan

- Communities of practice: New Form of Learning
- E-learning domain: Online Learning Systems
- Synthesis and Definition of Objectives
- Contribution
  - Communities of Practice of E-learning – CoPEs:
    Concepts and Definitions
- Case study Presentation
- Conclusion and perspectives
Plan

- Communities of practice: New Form of Learning
  - Definition
  - Duality « Participation – Reification »
  - Structure

- E-learning domain: Online Learning Systems
- Synthesis and Definition of Objectives
- Contribution
- Case study Presentation
- Conclusion and perspectives
What is a Community of Practice (CoP) ?

- **Definition:**
  - Groupe of professionals who gather and organize themselves, face to face or virtually.

- **Objectives:**
  - Share information and experience, related to their field of intervention.
  - Exchange / cooperate to solve together the problems confronted in their activities.
  - Build together knowledge:
    - Explicit knowledge (documents, methods, ...)
    - Tacit knowledge (know-how, experience, ...)
  - Formalize the best practices to be followed in their activities.
  - Learn from each other.
Duality « Participation – Reification »

- CoPs are characterized by:

**Permanent Negotiation**

**Participation**

Make, speak, think, … face up their opinions, make proposals, build up relationships, engage efficiently in the CoP.

**Reification**

Produce, conceive, represent, etc., gives shape to the experience by producing artefacts.

Alimenter enrich
Characteristics of CoPs

- CoPs are characterized by three fundamental features:
  - A Mutual Engagement
  - A Shared Repository
  - A Joint Enterprise

*From Information*  
*To Transformation*
Plan

- Communities of practice: New Form of Learning
- E-learning domain: Online Learning Systems
  - Definitions
  - Life Cycle
  - Problems encountered by the actors of E-learning
- Synthesis and Definition of objectives
- Contribution
- Case study Presentation
- Conclusion and perspectives
E-learning: Online Learning Systems

- The introduction of Information Technologies for Teaching (ITT) aims to **improve the quality of the online training** by facilitating the access to the resources and services of the Web and remote collaboration.

- E-learning is seen as a process of learning:
  - **The learner** plays an **active** role in his learning.
  - + Interactive **Online Learning Systems**.

Proposing learning scenarios for learners.

- A learning scenario helps in:
  - the description of the context of use,
  - the identification of the actors and the clarification of their role,
  - the definition and orchestration of activities, using adequate environment.
Life Cycle of Online Learning System

Two main phases are distinguished:

- Acquisition Phase
- Utilization Phase

![Diagram](image)
Acquisition Phase in detail

**Description (informal) of the scenario**

**Enseignant**

**Pedagogical resources**

**Ingénieur pédagogique**

**Informations on the end platform**

**Learning scenario**

**Analysis**

**Design**

**Implementation**

- Provides

- Fournisseur de ressources pédagogiques

- Ingénieur pédagogique

- Informations on the end platform

- New functionalities to develop

- Développeur composants
Problems encountered by the actors of E-learning?

- Can't find solutions for some problems faced.
- Absence of means and mechanisms for collaboration between actors of different platforms.
- Generally, solutions exist elsewhere. But this information is not always known?
- Difficulty to find experts in a given domain and at a given situation.
- Solutions not always capitalized.

Ressources:
- Knowledge
- Know-how
- Attitude

Actors involved in the two Phases of Acquisition and Utilization of an Online Learning System
Synthesis (1)

- The E-learning domain faces a problem of capitalization of technopedagogic knowledge and competences.

- CoPs aims to set up a structure for sharing tacit and explicit knowledge and the rapprochement of different actors related to a given domain.

Extend the application of the CoPs to the domain of E-learning.

- Creation of a new category of CoPs named: CoPE (Communities of Practice of E-learning)
Synthesis (2)

Two kinds of exchange:

- Exchange LMS → CoPE
- Exchange CoPE → LMS

specification language of the learning scenarios in CoPEs

Problem posed: How to automate the exchanges between CoPE and LMS?

Absence of specification language of the learning scenarios in CoPEs

Specification of learning scenarios with IMS-LD in the LMS

Experiment the solutions found in the CoPE space directly in the LMS discussions in the CoPE+real problem situations encountered in the LMS.
Definition of the Objectives

Contribution 1 (LINC’07; IWAISE’08)
Define the concept of CoPE and the underlying concepts:
• Learning Situations
• Components of the Learning Situations (actors, roles, activities, environment)

Contribution 2 (WEBIST’08)
Provide a specification language of the learning scenarios in CoPEs, to facilitate the communication between the CoPE and the Learning Management System LMS.

Synthesis
Two objectives are defined
Plan

- Communities of Practice: New Form of Learning
- E-learning domain: Online Learning Systems
- Synthesis and Definition of Objectives

Contribution
- Communities of Practice of E-learning – CoPEs:
  - Concepts and Definitions

Case study Presentation

Conclusion and perspectives
Communities of Practice of E-learning « CoPE »

**CoPs**

**Domain of definition**

- Share technopedagogic information and experiences
- Exchange and cooperate to solve problems of E-learning
- Develop their competences in the instructional engineering

**CoPE**

**Domain of application**

- Build together technopedagogic knowledge
- Formalise best practices (online learning systems)
- Promote the application of e-learning standards (IMS-LD, IMS-LIP, IMS-LOM, SCORM, ...)
- Define a terminology, a glossary, or an ontology around the standards of E-learning

**Collaboration and Cooperation**
Communities of Practice of E-learning « CoPE »

- Two dimensions during the acquisition phase of an online learning system life cycle:

  - **Exchange**
    - Product
    - Process
    - Roles; Activities; Resources, Services and Tools; Properties...
    - Approaches; Methods; Techniques;
CoPE’s Concepts

- The basic concepts of CoPE:
  - Actors with their Roles
  - Activities
  - Learning Environment
Learning Situations in the CoPE

Three types of Learning Situations:

- **Problem Situation** → **find solutions** to common problems encountered during the two phases of acquisition and utilization in LMS.

  *Example:* How to incorporate a Java Applet for a given exercise in Moodle LMS in order to make it interactive.

- **Decisional Situation** → **choosing** between several alternatives during the acquisition phase of the life cycle of an online learning system or the **validation** of some design results.

  *Example:* What type of learning situation do we select in a specific course?

- **Project Situation** → concerns the final **build up** and **realization** of the online learning system according to the acquisition cycle.

  *Example:* Development of an online learning system related to a course on system engineering for master students in computer science field.
Components of a learning situation (1)

**Actors and Roles:**

1. Coordinator
2. Moderator
3. Reporter
4. Manager
5. Administrator
Components of a learning situation (2)

- **Activities:**
  - CoPEs members carry out joint activities to exchange techno-pedagogical information.
  - Activities correspond to the stages of learning life cycle.

---

The International Workshop on Advanced Information Systems for Enterprises
Constantine, April 19-20, 2008
Components of a learning situation (3)

- **Environnement:**
  - Use of a specific environment intended to CoPEs.
  - Use of a generic environment intended to CoPs.
  - Use of an LMS environment type.
  - Use of an ad hoc environment.
Global Conceptual Model of CoPEs
Plan

- Communities of Practice: New Form of Learning
- E-learning domain: Online Learning Systems
- Synthesis and Definition of Objectives
- Contribution
  - Case study Presentation
    - Concepts and Definitions of a CoPE
- Conclusion and perspectives
Case study: Concepts and Definitions of a CoPE (1)

- CoPE developed and realized within the framework of the project of distance education **CoseLearn** “Switzerland Cooperation”

- **Promote e-learning** in a number of French-speaking countries in Africa.

- CoseLearn program leads to the professional diploma **MIEL** of “**International Master in E-learning**”.

- **Actors**:
  - principal actors of the project (Professors, Tutors, Administrators)
  - master candidates (university teachers, computer center Engineers)

- **Roles**:
  - members of support: teachers ensuring the training, technicians in charge of the technical administration of the system.
  - learning members: Participants (Candidats), Experts (tutors).
  - Invited members.
Case study: Concepts and Definitions of a CoPE (2)

- **Activities**: cover the four types of activities.
- **Technical environment**:
  - the CoPE uses the LMS Moodle
  - This solution offers the advantage of natural coupling (CoPE ↔ practice of e-learning)
- **Learning Situations**:
  - Problem situations
    - finding answers to the various questions encountered by the candidates during all their training and instruction (during the duties stated in various subjects and the final project)
  - Decisional situations
    - identifying the possible alternatives of design and development, and the criteria / arguments necessary to the selection
  - Project situations
    - exchanging the practices, which appear by a viable know-how in terms of construction of the online education courses (best practices).
Plan

- Communities of Practice: New Form of Learning
- E-learning domain: Online Learning Systems
- Synthesis and Definition of Objectives
- Contribution
- Case study Presentation
- Conclusion and perspectives
  - Conclusion
  - Perspectives
Conclusion

**Rappel:** The problem posed concerns the **capitalization of technopedagogic knowledge** (knowledge, know-how) in the E-learning domain.

Considering the **advantages** resulting from the emergence of **CoPs**

Extend the application of the Communities of Practice (CoPs) to the E-learning domain. (LI NC’07, IWAI SE’08)

The proposed category called **CoPE** is considered the center of reflection of techno-pedagogic practices and promotes **collaborative and cooperative learning**.
The feasibility of exchanges (LMS↔CoPE) is conditioned by a **formal modeling of learning situations** in their both sides. The **IMS-LD language** permits to model only the learning situations for LMS. Accordingly, a language of specification of learning situations within CoPEs is more than necessary.

We plan to provide a **specification language** of the learning scenarios in CoPEs. This language will be based on **IMS Learning Design (IMS-LD)**.

We realize the **CLD-Generator** and **CLD-Player**, in order to automatically generate the learning scenarios in CoPEs and integrate the appropriate information in the LMS.
Communities of Practice of E-learning
“CoPE” - Definition and Concepts

Thank you for your attention