

Individual and Organizational Learning as Dialogue

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Learning as Dialogue

Dialogue:

- Techniques to learn
- Models/techniques for analyzing and understanding learning
- Models/techniques for designing learning environments

= 'Dialogical' models and techniques

Learning as Dialogue

■ Goal of the talk:

- To present some examples of 'dialogical' models and techniques
- Examples prompted by KMSS participants' contributions (6 in particular)

KMSS:

Collaborative Learning

Facilitating learning in knowledge intensive organisations

(Angela LACERDA NOBRE, KMSS'02 participant)

- Collaboration, co-operation, co-ordination
- Language action theories

The Role of Dialogue in Learning

An approach to learning through dialogue (LIPMAN)

- Reasoning and judgement about knowledge
- Teacher-guided community of inquiry: emphasizes a social interaction and cooperative learning (reflective model of education practice)

KMSS:

Collaborative-constructivist Learning

KM Quest

(Robert DE HOOG, KMSS'02 speaker)
(Haldane, van Heijst, Shalgi, de Hoog, and de Jong, 2001)
(Leemkuil, de Jong, and Ootes, 2000)



■ Constructivist approach to instructional design

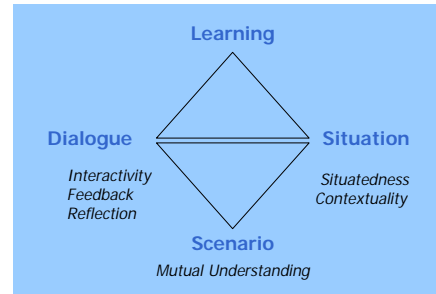
- An active, experiencing student in a situation where knowledge is not transmitted to the student but constructed through activity or social interaction
- **KITS**
 - a collaborative learning environment comprising a KM game to acquire KM skills

KMSS: Collaborative-constructivist Learning

KM Quest: How KM is learnt

- Learning KM in an exploratory way
- by doing/acting
- by interacting
- by interacting in situation
- about a situation
- with the situation
- with other actors

Learning as a Situated Dialogue



Learning *Design-as-Conversation*

(SCHÖN, 1996)

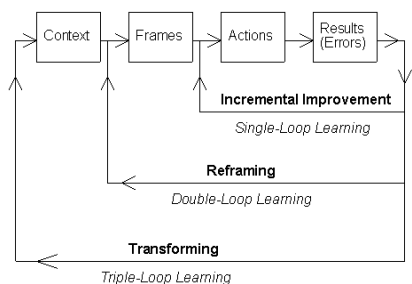
- Design situation
 - Designers + external representations
- Conversation
 - an interactive communication
 - between designers
 - between designers and design representations
 - ‘ conversation with the situation ’
 - ‘ reflection-in-action ’
 - Cf. ‘ reflective practitioner ’

Learning *Design-as-Conversation*

(SCHÖN, 1996)

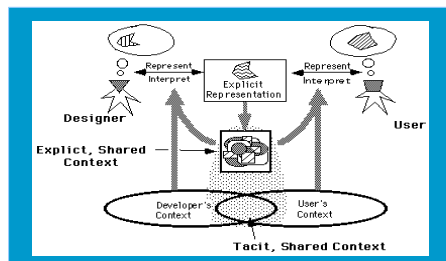
- Among the sources: Theory of Enquiry (Dewey)
 - **Internal dialogue**: personal deliberation in a situation (cf. dialogue with the situation)
 - **Social dialogue**: communicating with others in a situation
- Related models:
 - 1/2/3-Loop Learning
 - Collaborative Knowledge Construction

Learning *Design-as-Conversation*



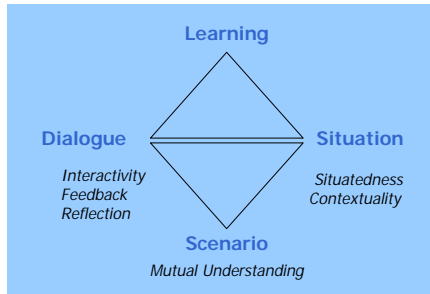
1/2/3-Loop Learning (ARGYRIS AND SCHÖN; HARGROOVE)

Learning *Design-as-Conversation*

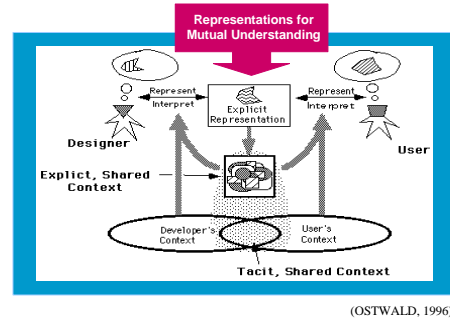


Model of Collaborative Knowledge Construction (OSTWALD, 1996)

Learning as a Situated Dialogue



Learning Design-as-Conversation



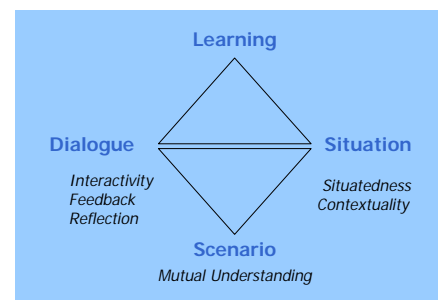
Learning Design-as-Conversation

(OSTWALD, 1996)

- Representations for mutual understanding (or reflective artifacts)
 - Texts and graphics
 - concept papers, annotations to descriptions, sketches, diagrams...
 - Scenarios
 - Textual or video representations
 - Simulation games
 - Prototypes



Learning as a Situated Dialogue



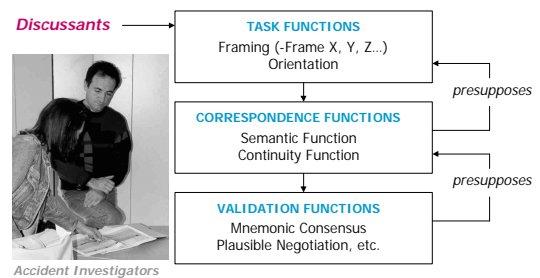
KMSS: Knowledge Retrieval

Understanding the retrieval of knowledge in the aerospace domain

(FRANCISCO M. DEL REY-CHAMORRO, KMSS'02 participant)

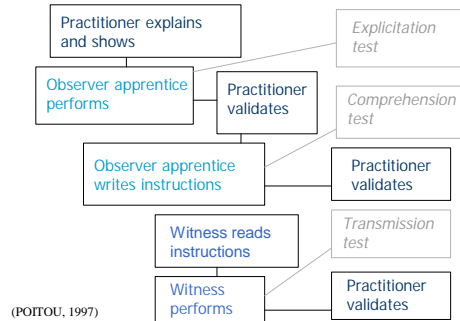
- Key Issue: Context of Knowledge Use
 - 'To match the characteristics of the context in which the knowledge is going to be used'
- Research actions
 - Developing a methodology to understand how designers would like to retrieve information
 - Developing retrieval tools

The Conversational Remembering Model



(EDWARDS AND MIDDLETON, 1986, 1990; GIBOIN, 1998, 2000)

The Observer Apprentice Technique



KMSS:

The ' Knowledge Book '

Generation of personalized virtual document from knowledge models

(JEAN-YVES FORTIER, KMSS'02 participant)

■ Dialogue between Book and Users

- The knowledge book ' acts as a portal for the memory and initiate[s] a dialogue with the users ' to refine their requests, and to organize the presentation of contents

Diary as (an Asynchronous) Dialogue

(KOVALAINEN et al., 1991)

■ Diaries

- Used by teams of papermill operators to communicate about troubles in paper roll production
- create dialogues of a special type

■ Diary dialogues

- are analogous to talking-out-loud and overhearing in face-to-face work situations

Diary as (an Asynchronous) Dialogue

(KOVALAINEN et al., 1991)

■ Talking out-loud

- Reporting events in the diary (entries) without specifying the addressees

■ Overview

- For workers returning from days off to 'catch up'

■ Overhearing

- Getting peripheral awareness allowing to take collaborative action
- Discretion: having the possibility not to respond when there are other things to do

■ Grounding

- Later entries can be made in the light of earlier ones (common frame of reference, or common ground)

(See CLARK., 1992, 1996)

KMSS:

Reluctance to Explicit Knowledge

- Several KMSS'02 participants

Dialogue vs. Discussion

(SENSE, 1991)

■ Dialogue function, or enquiry mode:

- where actors simply share facts, ideas, and viewpoints,
- without making any judgement

■ Discussion function, or advocacy mode:

- where actors are "selling" ideas or positions, and
- try to come up with an idea that is going to achieve some kind of consensus

Forms of Conversation

(BÖHM, FACTOR, AND GARRETT, 1991)

- **Discussion**
 - shares its root meaning with 'percussion' and 'concussion'. Both involve breaking things up
- **Debate**
 - (together with discussion) contains an implicit tendency to point forward a goal, to hammer out an agreement, to try to solve a problem or have one's opinion prevail
- **'Salon'**
 - a kind of gathering that is both informal and most often characterized by an intention to entertain, exchange friendship, gossip and other information
- **Dialogue**

Forms of Conversation

(BÖHM et al., 1991)

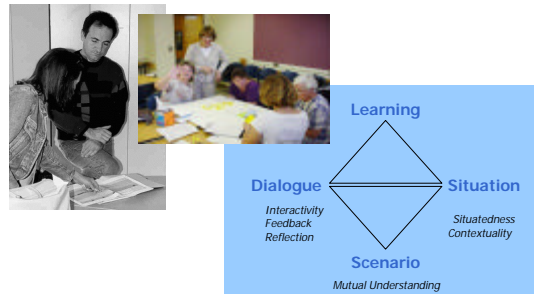
- **Dialogue**
 - A way of observing, collectively, how hidden values and intentions can control our behavior, and how unnoticed cultural differences can clash without our realizing of what is occurring
 - **An arena in which collective learning takes place** and out of which a sense of increased harmony, fellowship and creativity can arise

Forms of Conversation

(BÖHM et al., 1991; LEVI)

- **Dialogue**
 - Dialogue requires shifts from
 - Knower to **Learner**
 - Competence to **Vulnerability**
 - Arrogance to **Humility**
 - Observer to **Participant**

Scenarios: Representations for Mutual Understanding



KMSS: Knowledge Transfer via Storytelling

Telling stories about innovations

(SIMON BURNETT, KMSS'02 participant)

- **Narrative schema**

(BRANIGAN, quoted by S. BURNETT)

 - Introduction of setting and characters
 - Explanation of state of affairs
 - Initiating event
 - Emotional response or statement of a goal of a protagonist
 - Complicating actions
 - Outcome
 - Reactions to the outcome

Scenarios of Use : Definition and Interest

Scenarios of use / task scenarios

(Carroll & Rosson, 1992 ; Carroll, 1997)

- **Definition** : Incomplete, but heuristic description of activities that a user can perform to achieve a specific goal, and of what the user learns and feels from this
 - Set of scenarios : concrete representation of the real or possible use of a system
- **Interest**: To analyze an existing system or to create a new system

Reasons for using scenarios

(CARROLL, 1999)

- Scenarios evoke reflection in design
- Scenarios are at once concrete and flexible
- Any scenario has many views
- Scenarios can be abstracted and categorized
- Scenarios promote work-orientation

Scenarios types

- Textual/graphical/... scenarios
- Past/present/future scenarios
 - Theory-based/observation-based scenarios
- Generic/specific scenarios
- Individual/collective scenarios

Scenario types

Textual scenario

« Opportunistic interaction with DisplayWriter »

- The learner is on the Create or Revise menu which offers various « items » (format and storage options) to be specified. There is a highlighted prompt: « type ID letter to choose item; press « Enter ». The learner types the ID letter of a menu item and presses Enter, a message appears at the bottom of the screen. « Change Alternate Format is not available on the Training Displaywriter ». After trying several other items, with analogous effects, the learner presses Enter to proceed to the Typing Area (the next system state).

(CARROLL AND ROSSON, 1992)

Scenario types

Story-board

« A day in the life »



(TOLLMAR, SANDOR, AND SCHOMER, 1996)

<http://www.media-bits.org/jsp/aiw/at-work/at-work-report-01.htm>

Scenario Structure

■ Example 1: individual scenario

- Context
 - Work context
- Goal
 - Specific goal to be achieved
- Action
 - First-person story of the actions performed to achieve a goal

(ERSKINE, CARTER-TOD, AND BURTON, 1997)

Scenario Structure

■ Example 2: collective scenario

- Setting
- Agents/actors
- Goals/objectives
- Sequences of actions and events

(POTTS, 1995)

Scenarios and Claims

Telling and Arguing

- **Scenario** : narrative description (story)
- **Claim** : causal description

(CARROLL AND ROSSON, 1992)

Scenarios and Claims

■ Claims

- Claims about the **performing of the scenario**
- Claims about the **psychological consequences** resulting from the performing of the scenario

-
5. Returning the user to the Create or Revise menu is adequate feedback that an option change attempt is successful
(but may not be enough feedback for users who are unsure or confused)
-

(CARROLL AND ROSSON, 1992)

Scenario-based design

Steps for redesigning a web site: a 'dialogical technique'

- Identification of user classes
- Recruitment of representative users in the design team
- Training of user participants regarding relevant digital technologies
- Elicitation of scenarios from the user participants
- Retooling of the user-participant scenarios
- Claims analysis of the original and retooled scenarios
- Evaluation of the existing web site using the scenarios and claims
- Redesign of the web site using the scenarios and claims

(ERSKINE, CARTER-TOD, AND BURTON, 1997)

Retooled scenario

Context

I'm Mary, a doctoral student in Curriculum and Instruction. I am teaching full time in the Alternative Education Program in Roanoke City Schools.

Goal

My goal is to find an alternative method of student assessment. To get away from the traditional letter grade. The battery we will probably be using is the "Rubric" method. I would like to find hands-on information about its method as well as other methods of ability assessment.

Action

Using a tool for searching web sites, I find a link to the home page of the Virginia Tech web site. From the Virginia Tech home page, I follow links to the College of Education home page. I scan the page, looking for a reference to the Curriculum and Instruction program. At the Curriculum and Instruction home page, I find a link for Teaching Strategies and a list of items such as student assessment criteria and methods for student ability assessment. I click on "methods for student ability assessment". The next page begins with an explanation that keywords can be clicked to search the full text of the various documents describing student assessment. I scan the documents and find that there is hands-on information that can be transferred to my computer use.

(ERSKINE et al., 1997)

Claim Analysis

5a A reference to the Curriculum and Instruction Program

Having quick access to an academic program from the College of Education home page is useful for locating resources because students often associate a resource with the program that provides it.

But, listing the college's programs on the home page may not leave enough room for links to other things.

But, arrangement by program may not be useful for some situations.

But, users outside the College may not be familiar with the College's programs.

(ERSKINE et al., 1997)

Design propositions elicited from claims and scenarios

9c. Home pages : A home page should introduce the user to the site's purpose, primary navigational tools, and metaphor (if any).

But, to be effective, these concepts and tools must be adhered to throughout the site.

But, changes caused by accessing other information should occur in a manner that is predictable and useful—including initial access to information outside the site.

(ERSKINE et al., 1997)

Scenario Tools

Document Manager (ERSKINE et al., 1997)



<http://www.shes.com.au/erskine/erskine/erskine.htm>

Document Manager: Original Scenario



Document Manager: Retooled Scenario



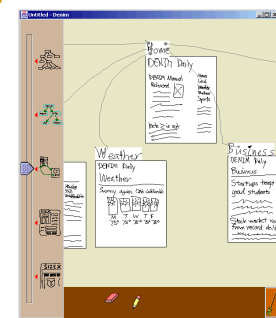
Scenario Tools

DENIM

(LIN, THOMSEN AND LANDAY, 2002)

A Tool for Sketching large and complex interactive design

Editing of storyboards



http://www.cs.berkeley.edu/projects/denim/docs/quick_ref/quick_ref.html

Use of scenarios for designing ontology-based KM tools

- Cf. Fabien Gandon's talk

Conclusion

- Learning as Situated Dialogue: A heuristic perspective on learning
- Related perspectives:
 - Situated Learning/Cognition
 - e.g., Lave and Wenger:
 - Knowledge needs to be presented in an authentic context, i.e., settings and applications that would normally involve that knowledge
 - Learning requires social interaction and collaboration
 - Distributed Learning/Cognition
 - e.g., Resnick, Distributed Constructionism