

Collaborative Learning in ITS

by Athirah, Ashley, Marlene, and Sophia

What is Collaborative Learning?

- (Teasley and Roschelle, 1993) Collaborative learning can be defined as a learning situation during which students actively contribute to the attainment of a mutual learning goal and try to share the effort to reach this goal.
- (Goodyear et al. 2013) Students work together to maximize their own and each other's learning
- (Dillenbourg, 1999) Collaborative learning requires the group to complete the task together, through dialogue and joint action.
- !!! Collaborative is NOT co-operative learning
- (Dillenbourg, 1999) Co-operative learning is used to denote situations in which students (can) divide up a group task and tackle the parts with a substantial element of independence.

Why Collaborate?

“Outcomes of collaborative learning are superior to those of individualistic and competitive situations”

Advantages	Disadvantages
Students responsibility	Worry of putting forward ideas: Don't want to look silly!
Encourages convergent thinking: “Convergent thinking is needed for ideas to be relevant”	Hinders divergent thinking/exploration
Improves retention of material, motivation to learn and focus on tasks	Emphasis on communication skills
Exposed to multiple perspectives	“Bad apples” within groups, demotivation
Metacognition: Requires teaching others, self-awareness of weaknesses/strengths	

What We'll Talk About

- ~~Simulated Collaborative Learning Systems~~
- Computer Supported Collaborative Learning
(not a tutoring system) - 1 example
- Collaborative ITS - 2 example

Examples:

Medical Problem-Based Learning, Pt.1: why

- PBL teaches collaborative skills needed in professional life as well as material

+

- not enough resources/money to give individual tutor attention to small groups

= ITS :)

Examples:

Medical Problem-Based Learning, Pt.2: what

Correcting DB Actions View Help

Discussion board

Welcome to Medical PBL-ITS.
Scenario 1.
A 30-year-old engineer was involved in an automobile accident while he was driving home from work. The broken glass window cut deep into his forehead and tore a hole through the frontal bone of his skull. Bleeding and unconscious, he was rushed to a hospital where a surgeon operated on him to stop the bleeding and found out that many parts of his brain had been damaged.

Please form possible hypotheses for this case.

Text lines to send:

Hypothesis board

Create Move Delete Edit Help

```
graph TD;
  A((Head_Injury)) --> B((Skull_Fracture));
  B --> C((Intracranial_Pressure_Increase));
```

Tutoring image

Human anatomy and patho-physiology

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Examples:

Medical Problem-Based Learning, Pt.3: tutor actions

Problem Solving

- general and specific hints
- negative feedback
- jumping critical steps warnings
- other explanations prods

Social

- create open environment for discussion
- refer to expert in the group

Examples:

UML Class Diagrams, Pt.1: why

- UML - most popular object oriented model currently
- +
- Collaborative Learning - has advantages!
and can be done over distance (see earlier)
- = We should totally combine those!

Examples: UML Class Diagrams, Pt.2: what

The screenshot displays the COLLECT-UML web application interface. At the top, there are navigation tabs for 'Accounts', 'Next Problem', 'History', 'Group Model', 'Print', 'Student Model', 'Help', and 'Log Out'. The main workspace is divided into two panes, each showing a UML class diagram for an online banking system. The left pane shows a single 'Account' class with a 'Paste' button. The right pane shows two classes: 'Customer' and 'Account', with an association between them and a 'Copy' button. Below the diagrams is a chat window with messages and response buttons. A 'Pen' tool is highlighted in a callout box. At the bottom, there are four buttons: 'Group', 'Chat', 'Individual', and 'Feedback'.

1. Draw a UML class diagram for an online banking system. An **account** keeps track of the balance (the number of cents owned by the customer); it also stores **maxOverdraft** a limit on how far the **account** may be overdraft. Each customer is known by his/her name and an e-mail address and has one or more **accounts**. They can deposit and withdraw an amount of

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Feedback on Individual Solution:

1. Make sure that you have all required classes. Some concrete classes are missing.
2. Check whether you have defined all the attributes as specified by the problem. You are missing some attributes.
3. Check whether you have defined all the methods as specified by the problem. You are missing some methods.
4. Check whether you have defined all required superclasses. Some superclasses are missing.

nl:23->nl:24: I think we should make Account abstract
nl:24->nl:23: Can you explain why?

Request Infer Motivate Task Maintain Argue Acknowledge Agree Disagree

Send Introduce & Plan

Simple Feedback Submit Group Answer Show Full Solution All hints Submit Individual Answer

Pen
Get the pen, each time you want to update the group diagram and Leave it as soon as you are done

Group Chat Individual Feedback

Examples:

UML Class Diagrams, Pt.3:

tutor actions

Problem solving: already discussed

Social - Have 4 categories of constraints - present feedback when they're violated

- initial planning (at beginning)
- chat-based
- group diagram contributions
- differences between group and individual diagrams

Coursera



Video Games and Learning

by Constance Steinkuehler, Kurt Squire



Announcements

Statement of Accomplishment

Hi all,

This one is totally my fault. I have been awarded a Statement of Accomplishment and a Verified Certificate.

Statements of Accomplishment

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Specific questions about the lectures, grouped by topic.

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All Threads

Degrees In Gaming and Learning.

Started by Kieran McGregor · Last post by Kieran McGregor

Week 5: Age of Empires III Asian Dynasties

Started by María López Pons · Last post by María López Pons

Week 1, Assignment 1 - Hearthstone

Started by glen · Last post by glen (13 days ago)

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Thankyou :-)