For Online Participants

- Keep camera on and mic off (unless you talk) all the time
- Test the connection: audio, video
- Participate as in the classroom (ask, answer questions, chat with peers, do activities)
- Join group activities when needed
- Indicate your engagement

Computer Supported Collaborative Learning (CSCL)

Dr. Wang Qiyun

Contents

- Concept of collaborative learning
- Educational benefits of collaborative learning
- Key concepts and challenges in collaborative learning
- Cognitive tools for collaborative learning
- Computer supported collaborative learning (CSCL)

Recap: Focus of MP3

- Self-directed learning
- Collaborative learning

http://ictconnection.edumall.sg/cos/o.x?c=/ictconnection/pagetree&func=view&rid=744

The Self-directed Learning Spectrum

- Incidental self-directed learning
- Teaching students to think independently
  - Self-managed learning
  - Self-planned learning
  - Self-directed learning

Learning outcomes, activities, guides
http://www.selfdirectedlearning.com/SDLProgram.html

Recap: New developments of cognitive tools

- Individual cognition → group cognition
  - Think together → Shared meaning, common ground
- Individual cognitive tools → collaborative cognitive tools
  - E.g., Google Docs; CMap: CMapper
- Research shifts to:
  - Using cognitive tools for collaborative learning
  - Social cognitive tools
Collaborative learning is “a situation in which two or more people learn or attempt to learn something together” (Dillenbourg, 1999)
- Situation: learners with similar background, learning objectives
- 2 or more: Small group, a class, or a community
- Learn something: study a course, perform learning activity
- Together: interactive
- Focus on: co-construction or knowledge & Mutual engagement of participants

Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other’s learning (Johnson, Johnson, & Smith, 2013)
- Competitive learning (work against the others) & individualistic learning (unrelated to others)

Collaborative Learning     Cooperative Learning

Knowledge society
- The complexity of work, tasks
- The division of work becomes more precise
- Students start to learn how to work cooperatively/collaboratively

E.g. the aerospace project: rocket, fuel, camera, solar battery, monitoring
Educational benefits of collaborative learning

- Collaboration does not guarantee improved learning, then
- What are the educational benefits of CL?

http://tep.uoregon.edu/resources/librarylinks/articles/benefits.html
http://www.gdrc.org/kmrgnt/c-learn/44.html

Cooperative/collaborative learning strategies

- Think-pair-share
- Jigsaw
- Debate (proponent vs. opponent)
- Role play
- Three step interview (interviewer, reporter, interviewee)

http://www.gdrc.org/kmrgnt/c-learn/strategies.html

Key pillars

- Individual accountability
  - Every member is accountable for his or her share of the work
  - Ownership
  - is the measurement of whether the contribution of a group member has helped to achieve the group's overall goals
  - Strategy: making learning task meaningful
- Positive interdependence
  - Only when a rain drop falls into the ocean will it never go dry
  - One cannot succeed unless all members succeed; they either sink or swim together
  - Strategy: Friendship, a sense of community

- Promotive interaction
  - Mutual support: support and learn
- Social skills
  - Respect, trust
  - Manage conflicts
- Group processing
  - Monitor
  - Reflect
Challenges

- Coordination
  - All members work towards the same direction
  - External support
  - Collaboration script

- Monitoring
  - Track progress, right direction
  - Adjust the course immediately
  - Assess students fairly
  - External support
    - [link]

Do we need a computer to support collaboration?

Activity: Real time word editing (on the same document)

- [link]
- Type as many as possible words starting with 'v'

Potential benefits of computer support

- Computer: power of networking, fast speed, and huge storage...

Computer-supported collaborative learning (CSCL)

- CSCL is an interdisciplinary research field focused on how collaborative learning, supported by technology, can enhance peer interaction and work in groups, and how collaboration and technology facilitate sharing and distributing knowledge and expertise among community members (Lipponen, Hakkarainen & Paavola, 2004)

  A field of study centrally concerned with meaning and the practices of meaning-making in the context of joint activity, and the ways in which these practices are mediated through designed artifacts (Stahl, Koschmann, & Suthers, 2006).

Challenges: Assessment in CSCL

- How to support collaborative learning and fairly assess group members’ contribution?
  - Using online workspaces to support their collaboration and automatically record their collaborative processes
  - Writing weekly progress report
  - Peer evaluation
    - A sample
Challenges in learning process

- How to coordinate and monitor the collaborative learning process?
  - Using online workspaces to support their collaboration and automatically record their collaborative processes
  - Writing weekly progress report
    - What have I (we) done?
    - What are we going to do?
    - Why?
      - A template

- A sample in Google Spreadsheet

Tracking collaborative processes

- Using online workspaces
  - Wiki
  - Facebook group
  - ...
  - Using cognitive (e.g. visualization) tools

- What to track? How to analyse?

Dimensions for tracking and analyzing collaborative processes

- 5 dimensions (Pozzi, et al., 2007):
  - Participative
    - Active participation
    - Passive participation
    - Continuity
  - Interactive
    - Passive participation before posting
    - References to others’ messages
  - Social
    - Build positive relationship
    - Expression of emotions, intimacy
  - Cognitive & meta-cognitive
    - Levels of knowledge construction: recognize problems, explore, integrate, resolve, reflect
  - Teaching
    - Direct instruction
    - Facilitating discourse
    - Organizational matters

Collaboration analysis: NodeXL (Quantitative level)

- Collaboration analysis: NodeXL (Quantitative level)
  - Social Network Analysis: UCINet
    - [Website]
  - Collaboration analysis (Qualitative level)
    - Knowledge construction
Collaboration analysis (Qualitative level)

- Critical thinking

Collaboration analysis: CoI (Qualitative level)


Strategies to promote the use of workspaces

- Effective collaboration may not naturally happen in a group and students may not use ICT spontaneously to support their collaboration either (Barron, 2003; Hämeläinen, 2008; Kreijns & Kirschner, 2004)

- How to promote?

Col Coding Template

<table>
<thead>
<tr>
<th>Elements</th>
<th>Category</th>
<th>Indicators (example only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Presence</td>
<td>Triggering Event</td>
<td>Sense of purpose</td>
</tr>
<tr>
<td>Social Presence</td>
<td>Personal Impression</td>
<td>Experience</td>
</tr>
<tr>
<td>Teaching Presence</td>
<td>Instructional Management</td>
<td>Defining and varying discussion topics</td>
</tr>
</tbody>
</table>

Some other issues

- Grouping
  - Group size?
  - Heterogeneous or homogenous?
- Friendship?
- leader
  - Need a leader?
- Communication: f2f, online, a/synchronous? Why?
Tools to support collaboration in a shared space

- Knowledge forum: (demo: [link](http://www.knowledgeforum.com/Kforum/products.htm) [not working now])
- Writing Pad: [link](https://beta.etherpad.org/p/mlt803)
- Facebook Group
- Trello
- Google Groups (no longer allowing to upload pages and files from Jan 2011)
- Google Docs (Drive)
- Wiki:
- Other groups

Share concept maps

- Asynchronous:
  - [link](http://bubbl.us): Can share a concept map with others
  - [link](http://www.mywebspiration.com): Can also share a concept map with others (not free now)
- Synchronous:
  - Mind Meister
  - [link](https://coggle.it)

Share ideas

- Padlet: [link](https://padlet.com/qywang59/cogtools)
- Lino sticky notes: [link](http://linoit.com/users/qywang/canvases/Cognitive tools)

Group Assignment briefing

- Group size: <= 4
- Use the template

Reminder

- 2nd reflection
  - your understanding on the topic (5%); and
  - the application of the topic into your teaching practice (5%)
  - By the coming Wed (midnight)