Term Projects

Assignment 6 (Due after Spring Break)

- **Monday**: bring your draft presentations, bring your questions and concerns, you’ll have some in-class time to work on your Presentations.

- **Wednesday**: Each group gets 35 minutes, split into 15 minutes for presentations and 20 minutes for feedback and discussion.
Warm Up Questions

- Your main takeaway message from this paper?
- What do you think about group versus individual assessment?
- What are the (dis)advantages of doing group assessments?
  - Have you ever been in the position of being assessed as part of a group?
Theoretical Frameworks

- What connections do you see between Webb’s work and Piaget or Vygotsky?

- Would you say Webb is more of a socio-cognitive or a socio-cultural scholar?
Debilitating Group Processes

- Poor balance of expertise in a group
- Poor communication
- Poor coordination due to differences in expectations
- Negative affect within a group
- Social loafing due to dysfunctional motivational dynamics
- Unelaborated explanations or no explanation
Heterogeneous Groups

- In what ways can groups be heterogeneous?
- How has Webb’s work changed our beliefs and knowledge about processes in and performance of heterogeneous groups (wrt. high ability students)?
Correlates of Performance in Heterogeneous Groups

- Quality of group discussion
  - Articulation of justifications (active/passive)
- Level of help given and received
  - HA students: giving no help has negative impact, receiving help (e.g. correction of misconceptions) has positive impact
- Giving correct versus incorrect/incomplete work
- Negative socio-emotional behavior
  - Indirect correlation with performance
Correlates of Performance in Heterogeneous Groups

- Quality of group discussion
  - Articulation of justifications (active/passive)

Group interaction predicts student performance more strongly than either student ability or the overall ability composition of a group.

- Level of help given and received
  - HA students: giving no help has a negative impact, receiving help has a positive impact.
  - HA students: receiving help (e.g., correction of misconceptions) vital for assimilation.

- Giving correct versus incorrect/incomplete work

- Negative socio-emotional behavior
  - Indirect correlation with performance
One of the key findings

“(…) the knowledge of even high-ability students was often sufficiently fragile and tenuous that negative experiences in group interaction interfered with their retrieving and/or expressing answers they gave previously. Articulating responses they gave previously and receiving corrections and elaborations seemed to help them learn new information that they did not know, retrieve information they forgot, and stabilize their ideas.”
Role of Elaborated Explanation

- Webb explores the value of **elaborated explanation**
- Consistent finding that more elaborated explanations are what are valuable for learning
- Sometimes *only* elaborated explanations are shown to be valuable

➤ Self-Explanation Effect
Self-Explanation Effect

- Students make bridging inferences

Why is it valuable for learning?

(→ cognitive conflict theory)
Self-Explanation Effect

- Students make bridging inferences
- Why is it valuable for learning?
- Think about Piagetian model of learning
  - Students may experience a “failure” or cognitive conflict as they try to explain something
  - In response to that experience of cognitive conflict, the student may enter a state of disequilibrium
  - In the equilibration process, cognitive restructuring may take place
Cognitive Conflict in Group Learning

- What factors influence cognitive conflict in group environments?
- How does the group composition influence the equilibration process?
- Self-explanation vs. receiving help
  ➔ Status effects and balance of respect
Socio-emotional factors

- Negative socio-emotional behavior correlated w. other behaviors that correlated w. performance scores
  - Average level of help given/received
  - Frequency of giving work at lower level
  ➔ \textit{Indirect effect on performance}, mediated by other behavior variables

- How does socio-emotional behavior influence group functioning?
- Differences between f2f and online groups?
Performance vs. Mastery Orientation

- Which orientation is more beneficial for group functioning? In particular in heterogeneous groups?

- How could the framing of the group task modify the students’ orientation?
What are other ways this rating scheme could have been set up?

Do the positive and negative scales make sense?
Relative Value of Help

- "More important than the level of elaboration in the help HA students gave was whether their offered work matched the level of their answers prior to group work."

- Lower-level responses detrimentally influenced performance.

- What is the reason for that?
Application to other domains

- Does the idea of relative value of the different help levels apply in a MOOC?
- How should we apply findings from this paper in a MOOC context?
- Would you expect **status effects** in MOOCs?
Bridge to Scripting

Helping behavior plays an important role in group tasks

How could collaboration scripts mitigate negative effects of group composition on the level of help exchange?
Task Design

- How does group-behavior differ between
  - Well-defined tasks with unambiguously correct answers
  - Group tasks that requires skills and knowledge that no single group member possesses alone
  - Ill-structured tasks without clear-cut answers or procedures (e.g. design tasks with many possible solutions)

- Initial learning vs. demonstration of existing knowledge
Discussion

According to what you have learned from the paper, do you think the performance of HA students in heterogeneous groups is more determined by individual factors or group factors?
Discussion

- Using the results/data from this paper, would you be an advocate of heterogeneous-ability or homogeneous-ability group composition for group learning activities? Why?
Discussion

- What sort of support would you provide for high-ability students in heterogeneous groups?
- What about low-ability students?
- Would the support be different for different ability levels?
Design Activity

“The previous study concluded that HA students suffered a disadvantage by working in heterogeneous groups. The present study, in contrast, suggests that the performance of HA students suffers only in poorly functioning heterogeneous groups.”

- How could the QuickHelper be extended to support e.g. help provision in CSCL environments?
- How would you account for different group compositions?
Questions?