BEST PRACTICES IN PEER INSTRUCTION: EVIDENCE FROM A DISCOURSE-ANALYSIS STUDY OF ADVICE BY PEER LEADERS

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January 13, 2016
**Best Practices in Peer Instruction**

- Benefits of peer instruction to students and peer leaders
- WUSTL study on Chemistry Peer-Led Team Learning
- Identify common challenges in peer instruction and advice from peer leaders
  - Examples from our discourse study

Reflect on “best practices”
  - Discussion of how advice may relate to your teaching
PEER COOPERATIVE LEARNING PROGRAMS

- Accelerated Learning Groups (ALGs)
- Emerging Scholars Program (ESP)
- Peer-Led Team Learning (PLTL)
- Structured Learning Assistance (SLA)
- Supplemental Instruction (SI)
- Video-based Supplemental Instruction (VSI)

Annotated bibliography: Arendale, 2015
ACTIVE/COLLABORATIVE LEARNING PROGRAMS AT WUSTL

- Peer-Led Team Learning
  - Calculus
  - Chemistry

- Active Physics

- Residential Peer Mentoring
  - Calculus
  - Chemistry

- Chemistry Peer Mentoring

- In general: implemented in chemistry, computer science, biology, engineering
  - Johnson, Robbins and Loui (2015)
Benefits for Students in Peer Instruction/Collaborative Learning

- **Cognitive and affective benefits**
  - Higher achievement, retention, better critical thinking skills
  - Lower anxiety, greater intrinsic motivation
    - Felder and Brent, 2007

- **Improved student outcomes**
  - Higher final grades
    - Arendale, 2015
  - At WUSTL: Chem PLTL students outperformed non-PLTL students
    - (Hockings, DeAngelis & Frey, 2008)
BENEFITS FOR MENTORS/LEADERS

- **School-university mentors (student teachers, mentor teachers, and university tutors)**
  - Reflection on their own teaching
  - Learning from each other and their students
    - Lopez-Real & Kwan, 2006

- **Peer Leaders**
  - Improved own learning
  - Development of confidence and perseverance
  - Development of presentation skills and teamwork
    - Gafney and Varma-Nelson, 2007
BENEFITS FOR MENTORS/LEADERS

o Peer Leaders are like grad teaching assistants

o Attitude development:
  ▪ Beginning: apprehensive and uncertain
  ▪ Middle: frustrated and challenged
  ▪ End: reflective and satisfied

o Focus development:
  ▪ Beginning: being a content expert, knowing answers to questions
  ▪ Middle: student motivation, interactions between students
  ▪ End: benefits to students, finding effective teaching techniques
  • Johnson, Robbins and Loui (2015)
WHAT IS MISSING IN THE LITERATURE?

- Advice from the Peer Leaders and Mentors who do the work
SEMINAR IN ACADEMIC MENTORING (SAM) COURSE

- For new Peer Leaders and Peer Mentors
- Usually about 20-30 Peer Leaders, 3-6 Peer Mentors
- 1 credit
- Weekly meeting (Tuesdays, 4-5 pm)
  - Discussion of last week’s sessions
  - Training on Collaborative Learning Strategies (presentations, videos)
  - Learning about cognitive psychology research on learning
- Final project: SAM book
Book of MeMe’s

- Socially awkward Peer Leader
- Wait, we’re supposed to ____
- Overly attached students
- Lazy peer group
- Sudden clarity chemist

**Study data**

- 12 SAM books (2003-2014)
- Discourse analysis on content of peer leader essays
Research Questions

Facilitation
• What strategies do peer leaders consider effective in facilitating group learning?

Group Dynamics
• What strategies do peer leaders consider effective in managing group dynamics to ensure equal participation?

Environment
• What strategies do peer leaders consider effective in creating and maintaining a conducive environment for peer group learning?

Advice
• What advice do peer leaders pass on to provide encouragement, set expectations, and help foster a growth mindset?
CHALLENGE 1

How to be a peer and a leader? (facilitate more/teach less)

Advice: Implement structure in groups to promote student-student interaction

In PLTL, structures for collaboration include:

- Scribe
- Round Robin
- Small groups and pairs
How to be a peer and a leader? (facilitate more/teach less)

Advice: Use questioning to redirect and prompt students to explain

It is best to let the group members do most of the talking. So, as a general rule I would try to ask more open-ended questions. Also, I frequently found the most powerful and useful question to ask to be the simple one-liner: Why?
How to keep students moving forward and together as a group through the work? (control pace)

Advice: Combine individual and group work

I’ve found that a good tactic to help the group stay cohesive is to have the problem read out loud and then to force all of the group members to sit and individually think about the problem for a few minutes before they go off into pairs or small groups.
How to keep students moving forward and together as a group through the work? (control pace)

Advice: Control pace and direction with guiding questions

“Sometimes they would get intimidated by the more advanced students in the group and tell me they were ready to move on before they really grasped the material. They’re tricky like that. But don’t let them fool you. Ask them questions about the subject matter until it’s clear that they do get it. “

When a group gets stuck, I have found it effective to allow them to struggle on their own, but intervene before frustration overwhelms them. Then I’ll ask a few questions, and try to reenergize a failing discussion and put them back on track.
CHALLENGE 3

How to balance student participation in the group?

Advice: Actively monitor groups

“One strategy that served me very well was reconnaissance walking. Whenever the group was working in pairs or small groups, I used to walk around the table and closely look at how each student was going about interpreting and organizing the information on their own paper and then relating with one another.”
CHALLENGE 3

How to balance student participation in the group?

Advice: Assign specific roles in structured group work

**Dominant Contributors**

“If you have one student who always dominates the discussion, pick him or her to be the scribe.”

**Quiet Students**

“Sometimes getting the quieter students to open up is as easy as just splitting the students up into pairs. This feels less formal and intimidating than a full group discussion where they can rely on others to talk.”
How to develop a sense of community among learners?

Advice: Get to know your students, allow time for them to get to know one another

“One of the most important things to do as a leader is to help your students get comfortable with each other. Starting from the first session, try to mix and match your groups, give them a chance to talk to each other. Your sessions will be filled with awkwardness if you have situations like:

You: “Okay, how about Dave and Alli work together”
Alli: “…Who’s Dave?!”
CHALLENGE 4

How to develop a sense of community among learners?

“Make sure you empathize and relate with your group. Chemistry 111 is challenging for everyone—even peer leaders.”

Advice: Foster an environment of openness and intellectual challenge

It’s important to create an environment from the very beginning where it’s acceptable to be unsure about things. One way to do this is when they ask you a question that you’re unsure about, just tell them you don’t know.
APPLYING BEST PRACTICES

- How might you apply the lessons learned by peer leaders to our own teaching?

- Select 2 of the best practices listed on the handout and reflect on how you think it could apply to your teaching. (2-3 minutes)
- Discuss your reflections with a neighbor or two (5 minutes)


