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Adapting to Academic Expectations of Graduate School

What have you seen so far?

- In what ways does it appear to be similar to what you have experienced before?
- How does it appear to be different?
- What challenges are beginning to emerge?
- What approaches to studying/learning do you think will be most and least effective in graduate school?

Transitions During PhD training

- From course delimited content to limitless knowledge
- From normal curve to A, B, not ok
- From memory of facts and concepts to doing something with them
- From accepting to questioning what you read – ‘truth’ is malleable
- From knowing what is known to discovering/creating what is not
- From student/faculty to colleague

Undergraduate vs. Graduate

- What does the instructor expect me to learn?
- How do I figure out if I have learned what I need to learn BEFORE the test?
- For a given topic, how much of what I must learn is:
 - Language/words
 - Straight-forward concepts
 - Complex concepts
 - Linking concepts
 - Synthesizing from bits
 - Doing something, predicting, extending

Undergraduate vs. Graduate

- Single instructor course vs. team-taught – How does it affect what you need to do?
- Textbooks vs. primary literature as resources
 - Learning how to read and comprehend journals one of the most important and difficult challenges
- Every instructor may have different view on level and type of learning – hard to decipher
- Learning from classes vs. learning while doing in the lab – following a ‘need to know’

Individual and Group Learning

- You have to start with learning what you think you need to learn as well as you can
- Various 'group' processes can be extremely helpful after that...
 - Clarifying what to focus on
 - Clearing up misconceptions
 - Practice explaining – verbalization invaluable
 - Group can be as small as 2 – best can be a bit larger

Enhancing Learning in a Small-Group Setting

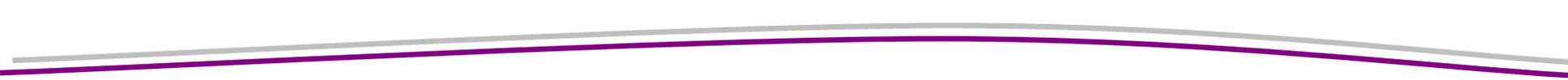
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ADVANCING UNIVERSITY LEARNING



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Value of Small-Group Learning

- Less threatening setting
- Exposure to a variety of ideas
- Opportunity to expose own & see others' misconceptions
- Encourages cognitive conflict – HUH???
- Opportunity to see others struggle, too & gain realistic idea of difficulty level
- Opportunity to develop self-efficacy through seeing similar others succeed
- Can reduce feelings of isolation



The facilitator's role

What makes facilitators effective?

Facilitator as coach, not teacher: Importance of self-discovery

- *The best kind of expert tutor is “one who knows if the students are in a quandary or are going down the wrong track; but who also knows how to get them to discover this for themselves, to learn by making mistakes, and to reason their way to the right conclusions. Such an expert can provide the students with better evaluative feedback about their learning, relevant to their own objectives.”* (Barrows & Tamblyn, 1980, p. 106; emphasis added)

Asking Good Questions

- For complex learning tasks, high-level cognitive processing is necessary
 - Making inferences, drawing conclusions, synthesizing, comparing, contrasting, etc.
- High-level processing does not automatically happen; the leader or the group needs to encourage it
- Research shows the type of question used has an effect on the level of processing
 - What does X mean? – prompts definitions
 - Explain X. – prompts interpretation
 - Why is X important? – prompts evaluation

Prompting conceptual change

- Goal: help identify and understand misconceptions and guide reconceptualization
- Process:
 - Elicit (mis)conceptions
 - Predict an outcome or explain an event
 - Explain how they understand key concepts
 - Ask each other to evaluate the validity of these conceptions
 - Identify information that creates cognitive conflict
 - E.g., “discrepant event”: situation that cannot be explained by conception
 - Revising conceptions
- “Safe” environment is necessary

Rick McGee, Ph.D.

r-mcgee@northwestern.edu

Voice: 312-503-1737

