Students arrive in our courses with varying levels of knowledge about the material and learn in diverse ways. Surveys are an indispensable tool for gauging students' preparation, for obtaining feedback on what they are learning, and for informing the revision of course components.
This session:

Questions
- Why?
- What?
- When?

“Technology”
- How?
- Paper/Pen vs. Technology?
What do they know?

What are they learning?

How are they feeling about the class and activities?
At the beginning…

- Background and demographics
- Beliefs and feelings
- Learning preferences
- Level of existing knowledge (pre)
- Basic conceptual knowledge
Background Knowledge Check

When designing questions, ask:

- What do you assume students already know?
- What kinds of questions will help you confirm your assumptions?
- What are some common misconceptions or myths related to your subject?
Example of Knowledge Assessment

MOLECULAR GENETICS DIAGNOSTIC QUIZ

NO NAMES; NO GRADES

1. What is an allele?

2. Distinguish among the following:
   - Haploid and diploid cells
   - Mitosis and meiosis
   - Transcription and translation
   - Eukaryote and prokaryote

3. What does it mean if two genes have a synthetic interaction?

4. If a molecule has a molecular weight of 50,000, how many picomoles are in 50,000 nanograms?
Background

- I am in this class because...
- Three things I want to get out of this class are...
- I hope to connect this class to...
- (basic demographic information)
Is there something you would like to know right now?

- Write down something that you would like to know about your students right now (as the class starts).
- Share with someone - develop the question(s) you might ask.
During the semester...

- Feedback on instruction and activities
- Feedback on course components
- Identify student preferences
- Evaluate student comprehension of the material (learning)
Something to try…
Ask about what helps students learn

How much did each of the following aspects of the class help your learning?

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<thead>
<tr>
<th></th>
<th>Very much help</th>
<th>Much Help</th>
<th>Moderate Help</th>
<th>A Little Help</th>
<th>No Help</th>
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<tbody>
<tr>
<td>Lecture presentations</td>
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<td>Group work in class</td>
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<td>Hands-on class activities</td>
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<td>Written laboratory instructions</td>
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<td>Teamwork in laboratories</td>
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<td>Laboratory reports</td>
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</tbody>
</table>
Something else to try…

Ask for feedback on a specific thing you are trying.

Please rate how strongly you agree with the following statement:
I feel comfortable participating in class discussion.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

Display This Question:
If Please rate how strongly you agree with the following statement... Neither Agree nor Disagree is Selected Edit
And Please rate how strongly you agree with the following statement... Disagree is Selected Edit
And Please rate how strongly you agree with the following statement... Strongly Disagree is Selected Edit

Please provide 2-3 suggestions that would make you more comfortable participating in class.

Center for Teaching Excellence
Ideas Today That You Can Use Next Week
What would you like to find out about *during* the semester?

- Write down something that you like to know about your students learning during the semester.
- Share with someone - develop the question(s) you might ask.
At the end…

- Level of existing knowledge (post)
- Whether (and how) learning outcomes were achieved
- What course components contributed to learning
When Using Surveys…

1. Determine what you want to know.
2. Explain what/why you are doing (give clear instructions!)
3. Ask your question(s)
4. Gather and analyze the data.
5. Share what you learned and discuss changes.
Consider

- Is an on-line survey the best tool to use?
- When is the best time to do a survey?
- What should you do with the information?
- How do you get a better response rate?
- How do you get better responses?
What can you try?

Anything you might try?

Questions?
Is there anything that you would like to discuss further or know more about?

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CENTER FOR TEACHING EXCELLENCE

www.cte.cornell.edu

For additional resources and information on upcoming events.
CENTER FOR TEACHING EXCELLENCE
Ideas Today That You Can Use Next Week
Additional Survey Ideas

- **Student research projects**
  - Part of a student project in a course or research project

- **Conduct research on Teaching and Learning**
  - Do students and teachers hold similar views about classroom interaction?
  - Is there a relationship between teaching techniques and the amount of participation that occurs?

- **Determine attitudes, preparation, and positions of alums.**
Framing Questions

- Writing a Question
  - What is the purpose of the question?
    - Content? Scope?
    - Keep respondent’s perspective in mind.
  - What question wording will you use?
    - Ten principles
  - What response format do you want to use?
    - Open ended (unstructured)
    - Closed ended (structured)
# Ten Principles of Question Design

1. Avoid jargon, slang, and abbreviations
2. Avoid ambiguity, confusion and vagueness
3. Avoid emotional language and prestige bias
4. Avoid double-barreled questions
5. Avoid leading questions
6. Avoid asking questions that are beyond the respondent’s capabilities.
7. Avoid potentially false premises
8. Avoid asking about future intentions
9. Avoid double negatives
10. Avoid overlapping or unbalanced response categories
Survey Design and Organization Issues

Organization of Questions:
- Begin with easy, non-threatening, objective questions (think about the respondent’s first impression)
- Place more difficult, subjective or threatening questions near the end (but not too far -> fatigue)
- Ask about one topic at a time
- Cluster items on same topic together
- Cluster by response scale
- Use transition statements when changing topics
- Use a flow diagram for filter/contingency questions
Select References and Resources

References:


Resources

- General Self Efficacy Scale
  http://userpage.fu-berlin.de/~health/engscal.htm
- Views on Science and Technology Society Survey
  http://www.qualtrics.com/
- http://surveys.cornell.edu/
Framework: Ten Principles of Question Design

1. Avoid jargon, slang, abbreviation
   - 8th grade vocabulary
     - “Do you skip out on class a lot?” VS.
     - “Approximately how many classes do you miss in a week?”

2. Avoid ambiguity, confusion and vagueness
   - Don’t use vague/undefined words (regularly)
   - Use short, simple sentences
     - “In a typical week, how many hours do you study for this class?” VS.
     - “Do you study a lot for this class?”
Framework: Ten Principles of Question Design

3. Avoid emotional language and prestige bias
   ➤ Use neutral language
     ➤ “The well-respected ABC Report documents that 40% of your tax dollars are wasted each year. Is eliminating government waste important to you?” VS.
     ➤ “How important is it the measures are adopted to reduce government waste?”

4. Avoid double-barreled questions
   ➤ Ask two separate questions.
     ➤ “How satisfied are you with the instructor and TAs of the course?” VS.
     ➤ “How satisfied are you with the instructor of the course?” and “How satisfied are you with the TAs of the course?”
Framework: Ten Principles of Question Design

5. Avoid leading questions
   - Do not word questions in a way that leads the respondents to choose a particular answer.
     - “Are you a good, responsible student who completes the assigned readings?”
     - “Do you complete the assigned reading?”

6. Avoid asking questions that are beyond the respondent’s capabilities.
   - “How many hours did you study this academic year?”
   - “In the past week, how many hours did you study?”
9. Avoid double negatives
   - They are confusing
     - “As you know, the term Holocaust usually refers to the killing of millions of Jews in Nazi death camps during World War II. Does it seem possible or does it seem impossible to you that the Nazi extermination of the Jews never happened?” (Roper Starch Worldwide)
       - 1992 survey: 20% of Americans doubted that the Holocaust had occurred, another 12% were not sure.
     - “Do you doubt that the Holocaust happened or not?” (Gallup)
       - 9% doubted the truth of the Holocaust, another 4% were unsure.
Framework: Ten Principles of Question Design

10. Avoid overlapping or unbalanced response categories
   - Use mutually exclusive and mutually exhaustive response categories.
   - “Overall, was this class outstanding, wonderful, fantastic or superior?”
   - “Overall, was this class outstanding, very good, adequate or poor?”
BIOCHEMISTRY AND MOLECULAR BIOLOGY
MOLECULAR GENETICS DIAGNOSTIC QUIZ

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   - Eukaryote and prokaryote
   - Dominant and recessive alleles
   - Heterozygotes and homozygotes

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