

# Questionnaire Design

## Designing a questionnaire to assess knowledge, skills and interests

Cooperative groups should be carefully structured to maximize the active participation of all students in the group. In general, instructor-assigned groups of mixed ability tend to perform better than student-selected groups. Further, in fields where students are historically underrepresented based on their social identities (e.g., race/ethnicity, gender, etc.), we recommend instructors assign groups so that these students are not isolated on teams, especially in lower division courses (Oakley et al., 2004).

To determine a priori how students might work together in a group, a background questionnaire can serve as a guide to assigning these groups. Consider the following three types of questions:

### **1. Knowledge-based questions address students understanding of *facts* at various levels of complexity.**

- *What is the enzyme used in PCR?*
- *What argument could a defense attorney use to damage the credibility of DNA evidence?*
- *Who wrote *The Jungle*?*
- *How did the 1904 beef strike in Chicago and Upton Sinclair's subsequent response affect U.S. governmental policy on meat standards?*

### **2. Skills-based questions assess students' ability to *perform a task* at varying proficiencies.**

For example, rate your comfort in performing the following task:

*Measure the  $[H^+]$  of a solution using a pH meter.*

Not confident at all  
(I'll ask someone)

Somewhat confident  
( $H^+$  is acidic, right?)

Confident  
(I did it in lab)

Very confident  
(I have a PhD)

### **3. Interest-based questions measure students *values and attitudes* towards the subject by rating them (often on a sliding scale).**

*Are you interested in campaigning for stricter EPA vehicle emission standards?*

No  
(I love smog)

Indifferent  
(check out my SUV)

Perhaps  
(I signed a petition)

Sign me up  
(I was President of the Sierra Club)

Some other common descriptors are:

*Easy - Difficult*

*Strongly Agree-Neutral-Strongly Disagree*

*Enthusiastic - Disinterested*

*Worried - Confident*

*Took Class as Requirement – Took it as Elective*

## **Designing Questions to Assess Students Backgrounds**

Think about a typical introductory course in your discipline. Imagine that you are trying to assess the preparation, ability, knowledge, and enthusiasm of students on the first day of this class.

1. What is one question that would assess their preparation to take the course?
2. What is one question that would investigate their motivations and/or enthusiasm for taking the course?
3. What is one question that would evaluate students' experiences with and willingness to work in small groups together?
4. Are there other aspects of your students' backgrounds that are important for you to know given your goals for student learning (e.g., demographics, work experience, availability to meet outside class, etc.)?