

You Want to Know: What's the Point?

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The You Want to Know activity is just one example among many similar activities. This **instructors' activity** explores ways you can construct many similar activities for your students.

How to make your own activity

The key steps to creating these activities are

1. Determine the learning objectives. These might include
 - a. Making key distinctions like case/variable, categorical/quantitative, explanatory/reponse, etc.
 - b. Identifying key elements of study design.
 - c. Selecting appropriate analysis methods.
 - d. Use of software to achieve a task (have students write R command or describe how to use other software)

2. Design the questions.

Depending your goals, you might ask very different things about your scenarios.

3. Create scenarios that elicit answers targeted at your learning objectives.

Once you have determined the learning objectives and the related questions, it can be fun to design scenarios. Pick a theme (how many ways can you get donuts into the scenarios?); piggy-back on something in the news; etc.

Uses

These activities can be used in class as group discussions, but they also make good assessment items for homework, quizzes, or tests. These scenarios are easy to design at all different stages in a course, modifying the types of scenarios and the questions asked to correspond to the learning objectives covered to that point in the course. They can be used as review or as an introduction to one of the topics involved.

Variations on the Theme

Here's a chance for you to try your hand at creating a "You Want to Know" activity of your own.

1. Additional Questions

The questions on the example activity sheet are about identifying the variables, their types, the parameter(s) of interest, and a plot that might be used to explore the data.

Come up with some additional questions that might be used with these (or other scenarios).

2. Digging deeper: Want to dig deeper on an item? Add a follow-up question. Here is an example:

- Example: Choose one of the scenarios that could be designed as a randomized experiment. Explain how randomization would be used.

Come up with some additional follow-up questions of your own. How can you bring multivariable thinking into this activity?

3. Different Scenarios

Create additional scenarios.

You might like to work backwards from an answer you would like. Examples:

- a. Create a scenario that has a quantitative response and a categorical predictor.
- b. Create a scenario that has a categorical response and a quantitative predictor.
- c. Create a scenario that requires three variables.
- d. Create a scenario that should be done using a paired design.
- e. Create a scenario that could be analyzed using ANOVA (or some other method of your choice.)
- f. Create a scenario where side-by-side boxplots might be a good way to show the data.
- g. Create a scenario that could be done in more than one way. Is one of the ways clearly better than the other? Why or why not?

Be flexible

For some scenarios, there may be more than one reasonable answer. There may also be better answers and less good answers, in addition to wrong answers. If using these activities it is important to help students see that there can be judgement involved; don't get fixated on the answer you had in mind. But these can also be used to discuss better and worse methods for the same goal and why some designs are preferred. (Or why which is preferable might depend on something not specified by the scenario.) The important thing is to get students thinking about how to learn from data.