# Review Sheet Questions for Chapter 2

1. What 3 inferences do people make from objective observations—and how can those inferences be wrong? Hint: Think about the three kinds of validity.
2. What is the difference between random assignment and random sampling?
3. Which validity would be needed for the following research questions:
   1. Is my therapy working on my patients?
   2. Is my social skills test valid?
   3. Do most students at my school take two or more psychology classes?
4. What current ethical principle did Milgram’s famous shock experiment violate?
5. Can researchers deceive participants?
6. Given that the researcher has set up the research situation and told the research assistant what to do, can the research assistant avoid responsibility for any harm to participants (i.e., is just saying, “I was only following orders” an excuse)?
7. What is the most important decision about whether to test a hypothesis? How is that decision made?
8. Participants are invited to participate in an hour-long questionnaire study for which they will be given $10. A participant reads the first question and then quits. Does the participant get the $10?

Answers to Review Sheet Questions

**Question 1:** What 3 inferences do people make from objective observations—and how **can those inferences be wrong? Hint: Think about the three kinds of validity.**

**People who think scientifically do better than other people is realize that facts rarely speak for themselves. Therefore, to think better, you should distinguish between what happened (a fact) and what is being concluded from what happened (an inference). Specifically, you should be careful about making 3 types of inferences:**

1. **Internal validity: Inferences about what causes a certain event. We do not see one event cause another event. Instead, we think there is a pattern such that when one event happens (getting a vaccine) another event follows (getting autism) and that the “first” event causes the “second” event. Our inference could be wrong if**
   1. **Coincidence or bias has caused us to see a pattern when there is no pattern (e.g., people who think vaccines cause autism are mistaken because vaccinated people are not more likely to have autism than unvaccinated people).**
   2. **We are mistaken about which event happened first so that we are calling the cause is really the effect. Just as it is hard to say whether day follows night or whether night follows day (or whether the chicken or the egg came first), it may be difficult to determine which factor changed first. For example, suppose you find that pregnant teenagers have low self-esteem. If you then concluded that low self-esteem causes teen pregnancy, you could have cause and effect reversed: It could be that becoming pregnant lowers self-esteem.**
   3. **We have mistaken symptoms for causes because we haven’t done a good job of eliminating other possible causes. Sometimes, we fail to eliminate other possible causes because we incorrectly assume that the factor labeled the “cause” is the only thing that changed before the behavior changed. For example, advertisers often hope that we fail to realize that people going on a special diet plan might lose weight for reasons having nothing to do with the diet (e.g., they wanted to lose weight, they were losing pregnancy weight) and that a group choosing to go on a special diet plan differs from a group that chose not to go on a diet plan (e.g., the diet group is probably more motivated to lose weight). To set up a situation in which the treatment is the only systematic difference between conditions, researchers usually need to randomly assign participants to different treatments.**

**If our study does allow us to make correct cause-effect conclusions, our study has internal validity. In psychology, *only* experimental designs have internal validity. Experimental designs usually have two characteristics: (1) they manipulate a treatment (which usually allows us to know that the treatment came before the effect) and (2) they randomly assign participants to condition (which, combined with statistics, helps us rule out causes of the effect other than the treatment).**

1. **Construct validity: Inferences about psychological constructs. We do not directly see the adjectives/constructs we use to describe people, such as motivated, happy, intelligent, or anxious. Instead, we see behavior—and hope the adjective/construct we attach to that behavior accurately reflects the person’s actual characteristics. Ideally, we find a behavior that is a good clue and accurate indicator of the construct we want to measure. So, we cannot measure constructs accurately unless we *interpret* participant’s behavior accurately.**

**Similarly, if we are trying to make a person feel some emotion or think a certain way, we cannot do so directly. Instead, we must say something or do something to their environment that we hope will change how they think or feel. So, we cannot manipulate constructs accurately unless we correctly anticipate how participants will *interpret* the manipulation**

**So, for both manipulating and measuring constructs, we *may* be able to make accurate inferences if we have good operational definitions of those constructs. However, we may still be thwarted if participants fake or hide their reactions to impress, help, or thwart us.**

1. **External validity: Inferences about the generalizability of a finding. If you got a certain result from certain participants in a certain situation at a certain time, would you get the same results with different participants in a different situation at a different time? If you said “yes,” you are probably guilty of making a hasty generalization. To be more confident that a finding is generalizable, (1) the study should have (1) used random sampling, (2) had an adequate sample size, and (3) been replicated. Even then, the results may not generalize to certain groups, situations, or times.**

**Question 2:** What is the difference between random assignment and random sampling?

**Random assignment means randomly determining which treatment each participant will receive; random sampling means randomly selecting which individuals in a population will be in your study. Using random assignment helps internal validity; using random sampling can help external validity. It would be possible to select your sample using random sampling and then randomly assign members of your sample to treatment. Such a study might have good external validity (because you could generalize the results to the population you sampled from) and would, because of the random assignment, have good internal validity**.

**Question 3:** Which validity would be needed for the following research questions:

* 1. Is my therapy working on my patients? **Internal validity: Is the therapy causing a good effect?**
  2. Is my social skills test valid? **Construct validity: Is the test measuring the construct of “social skills.” Put another way, is it right to interpret certain answers to the test as indicating the test taker has social skills.**
  3. Do most students at my school take two or more psychology classes? **External validity: You would probably want a *large random sample* of students at your school so that you could generalize the results from your sample to your school’s student population.**

**Question 4:** What current ethical principle did Milgram’s famous shock experiment violate?

**That participants can withdraw from a study at any time without penalty.**

**Question 5:** Can researchers deceive participants?

**Yes, although you should usually try to avoid violating the principle of informed consent, you may deceive participants if both (a) the research’s potential benefits outweigh the potential for harm and (b) if there is no other way to get valid answers to the research question. As with any study, researchers should, during debriefing, probe for signs of harm and try to ameliorate any harm caused by the deception.**

**Question 6:** Given that the researcher has set up the research situation and told the research assistant what to do, can the research assistant avoid responsibility for any harm to participants (i.e., is just saying, “I was only following orders” an excuse)?

**No, both the investigator and the research assistant are responsible for protecting participants.**

**Question 7:** What is the most important decision about whether to test a hypothesis? How is that decision made?

**Is the study ethical? That decision is made by determining whether the potential benefits outweigh the potential risks. The benefits depend on (a) the importance of the research question and (b) the ability of the research to provide valid data about that question (note that—as you can see from the answer to Question 4-- the type(s) of validity needed will depend on the research question). Usually, an Internal Review Board (IRB) will make that decision. As a condition of approving a study, the IRB may require changes to the study that will minimize the risks to participants.**

**Question 8:** Participants are invited to participate in an hour-long questionnaire study for which they will be given $10. A participant reads the first question and then quits. Does the participant get the $10?

**Yes (and without any disapproval on your part)-- participants that the right to quit the study at any time without penalty.**