Identifying Independent and Dependent Variables, and Study Designs
Practice Problems

Instructions: For each research description below, identify the independent variable, the dependent variable, and the type of study (lab experiment, naturalistic observation, survey, or case study).

1. A researcher hypothesizes that blondes really do have more fun. To test this hypothesis, she interviews a natural brunette who has recently become a blonde to determine if there is any change in the amount of fun she has.

   Independent variable: _____

   Dependent variable: _____

   Type of study: _____

2. A developmental psychologist is testing the hypothesis that children in first grade know more words in the English language than children in Kindergarten. To test this, she sits in on two classes (one first grade, the other Kindergarten) and counts the average number of words children in each class speak. She then compares the counts.

   Independent variable: _____

   Dependent variable: _____

   Type of study: _____

3. A clinical psychologist hypothesizes that people who have been diagnosed as having major depression will be more likely to also be diagnosed with an anxiety disorder than will people who have not been diagnosed with major depression. To test this, he gives a survey to 100 people being treated for depression and 100 people with no known mental disorder. The survey asks them to report whether or not they have been diagnosed as having an anxiety disorder.

   Independent variable: _____

   Dependent variable: _____

   Type of study: _____

4. A pharmacologist is testing whether a new anti-anxiety medication, Moodcor, will cause people to gain weight. To test this, she gives 100 people Moodcor for one month and 100 people a placebo drug. At the end of the month, she monitors any weight gain.

   Independent variable: _____

   Dependent variable: _____

   Type of study: _____

5. A clinical psychologist believes that a particular drug will increase students' IQ. To test this hypothesis, he measures IQ, gives them a drug and measures their IQ again.

   H_0: _____

   H_1: _____

   Type I Error: _____

6. A personality psychologist believes that people who are more aggressive are more likely to purchase sports coupes than people who are less aggressive. To test this, he visits local car dealerships and asks car shoppers to complete an aggression survey. Then, he observes what types of cars they purchase (sports coupe, sedan, SUV, or pickup).

   H_0: _____

   H_1: _____

   Type 2 Error: _____

7. A clinical psychologist hypothesizes that listening to an inspirational tape will lead one to be in a better mood. To test this, she has 50 people listen to an hour-long inspirational tape. Another 50 listen to white noise for an hour. She then has them rate their mood on a 10-point scale.

   H_0: _____

   H_1: _____

   Type I Error: _____

   Type 2 Error: _____

Answers (With Explanations)

1. IV: Hair colour
   DV: Amount of fun
   Type of study: Case study, because one person is being interviewed.

2. IV: Age (first grade or Kindergarten)
   DV: Number of words known
   Type of study: Naturalistic observation. She is sitting in on classrooms and observing what the kids are doing without their knowledge.

3. IV: Whether one has depression or not
   DV: Presence of anxiety disorder
   Type of study: Survey

4. IV: Getting the medication
   DV: Weight gain
   Type of study: Lab experiment. This is because the researcher is the one giving the people the medication or the placebo drug. That is, the researcher is manipulating or controlling the presence of the IV.

5. H_0: drug will not increase students' IQ.
   H_1: drug will increase students' IQ.
   Type 1: You say the drug does increase IQ when it actually doesn't

6. H_0: people who are more aggressive are NOT more likely to purchase sports coupes than people who are less aggressive
   H_1: people who are more aggressive are more likely to purchase sports coupes than people who are less aggressive
   Type 2: you say that aggressive = sports cars when they are really more likely to buy them

7. H_0: listening to an inspirational tape will not lead one to be in a better mood
   H_1: listening to an inspirational tape will lead one to be in a better mood
   Type 1: you say that the tape does lead to mood increase when it actually doesn't
   Type 2: you say that the tape doesn't lead to mood increase but it actually does