

Observational v Experimental [Compatibility Mode] - Word

FILE HOME INSERT DESIGN PAGE LAYOUT REFERENCES MAILINGS REVIEW VIEW

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1 2 3 4 5 6 7

For each of the following examples determine

- Observational or Experimental
- Variable of Interest
- If experimental what were the treatments and how did the researcher decide on who got the treatment
- One advantage to this testing method (NOT the possible results- the design itself)
- One disadvantage to this testing method (NOT the possible results- the design itself)

9. Mrs. Johnson teaches American History and wanted to help her students do best on their exams. She wanted to see which format of tests students do better on. She flipped a coin for each student in her class. If the coin landed heads up, the student took a multiple choice test. If the coin landed tails up, the student received a fill-in-the-blank exam. Afterward, Mrs. Johnson compared the averages of the two test formats.

**A. EXPERIMENTAL**  
**B. TEST GRADES**  
**C. FLIPPING A COIN**  
**D. NO BIAS BECAUSE EVERYONE HAD AN EQUAL CHANCE OF GETTING EITHER TEST**  
**E. DOESN'T ACCOUNT FOR OUTSIDE STUDY TIME**

10. In World History, Mr. Lew had a similar question. He decided that instead of giving students different tests he would put a question on the bottom of the next test: "Which do you prefer, multiple-choice or fill-in-the-blank questions? Afterwards, Mr. Lew tallied the totals for each format.

PAGE 2 OF 3 19 OF 747 WORDS 90%



11. Mr. Mitchell was interested in the effects of music on student performance. At the bottom of one of his tests, he asked students to circle their favorite type of music: rock, county, or hip-hop. He then computed the averages of each test based on what genre of music they circled and compared results.

A. OBSERVATIONAL  
B. TEST GRADES  
C.  
D.  
E. ONLY 3 MUSIC CHOICES; DEAF; <sup>SINGLE</sup> SONG  
DIDN'T ACTUALLY LISTEN TO MUSIC  
END OF TESTS

12. Ms. Knox's senior English classes are working on theme papers. During 2<sup>nd</sup> period she allowed students to listen to music on their headphones while working but her 4<sup>th</sup> period class was required to work quietly without music. Ms. Knox averaged the grades and compared 2<sup>nd</sup> and 4<sup>th</sup> period's results.



## Unit 3: Statistical Investigations

### Day 3: Questioning (Observational) **DESIGN**

Coach Youngham wants to study if dressing for success actually helps increase test scores. She decided to do an observational study and ask her students in her classes.

1. Write the null and alternative hypothesis for this study.

$H_0$ : DRESSING FOR SUCCESS INCREASES TEST SCORES

$H_a$ : DRESSING FOR SUCCESS DOES NOT INCREASE TEST SCORES

2. What is the variable of interest?

TEST SCORES

3. Go to survey monkey and take these survey questions to test the hypothesis

<https://www.surveymonkey.com/r/DH6XHPT>

4. Are these questions a good way to test the hypothesis? Why or why not?

5. Take the new survey

<https://www.surveymonkey.com/>

6. Are these questions better than the last set? Why?

7. When creating questions for an observational study it is important to make sure your questions are not biased and that your questions will give you the best possible answers. There are two types of ways to answer questions. **Closed Questions** are when a participant is given set responses to a question/statement. The more responses available the better your results will be. Give an example of a closed question.

- ON A SCALE OF 0-10 HOW DRESSED UP WERE YOU ON YOUR LAST TEST?

- DOES DRESSING UP INCREASES  
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE

8. **Open Questions** are questions where the participant is not given set responses so they are able to elaborate on a question. Give an example of an open question.

• WHAT WERE YOU WEARING ON YOUR LAST TEST

• DOES DRESSING UP INCREASE TEST GRADES WHY OR WHY NOT?

9. A researcher must also be careful about how the questions are worded. The researcher needs to make sure that the questions are clear, easily answerable and do not incite bias. Look at the question/statement below:

"School uniforms should not be required" agree disagree

Is this a good way to ask this question or a bad way? Why? Rewrite the question so it would be more effective.

SCHOOL UNIFORMS SHOULD BE REQUIRED

STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE