

I have noticed 3 common issues with research FRQ's I have been grading

1) Knowing the difference between correlation and causation, and your ability to identify whether a study can claim causation, **is critical**.

In order for causation (often stated by using words such as *causes, leads to, means, ensures,*) to be a possibility the researcher has to **manipulate variables**. That means that the researcher has to set up 2 or more conditions, one of which will be the control condition, and one will be the experimental condition. There should also be **random assignment**. If these things do not happen, **causation (causes, leads to, means, ensures,) cannot be claimed**. ***So, if asked if the researcher can claim causation, this can only be a "yes" if the manipulation of variables and/or random assignment took place.***

A key buzz word is "**manipulated variables**." So, if you can say that the researcher "did" or "did not" **manipulate variables** in your answer, you will be covered if you made the correct determination.

For example:

Q: A restaurant manager notices that last year when she did not have live music on Saturday nights, she made 20% less money than this year, when she did have live music on Saturday nights. She concludes that having live music in her restaurant leads to better sales.

Do you support the manager's conclusion? Explain your response.

Ask yourself: "Did a researcher manipulate any variables in this study?"

Ask yourself: "Did a researcher use random assignment in this study?"

The answer to both questions above is "no". She did not set up groups, she did not randomly assign anyone to conditions. So, she CANNOT state that "having live music in her restaurant leads to better sales."

*Whenever a person just "looks at data" it is NOT an experiment, so NO CAUSATION CAN BE IMPLIED. The most that can be said is that the variables are related, and that there may be a **correlation**.

Your answer to the question above should look something like: "No, I cannot support this conclusion because the restaurant manager did not **manipulate any variables** or **use random assignment**. So, this does not prove that live music "leads to" better sales. There may be a correlation, but no causation."

(Possible alternative explanations for the sales increase: Maybe it was the economic conditions, maybe it was weather, maybe last year was the year of COVID)

****To address whether causation can or cannot be claimed, be sure to address the aspects of the experimental design, not the results.**

2) Being able to identify ethical concerns in the study, and offer ways to correct them. Please see the simple chart below. If there is a question about ethics, the answer will revolve around one of these principles.

Ethics are a set of guidelines that should be followed by psychologists carrying out research. They are provided by the British Psychological Society (BPS) which oversees the work of psychologists.

Ethics are not simply a question of right or wrong.

⑦ Giving advice

Psychological advice must only be given if the psychologist is qualified in the area that the advice is requested in.

① Informed consent

Participants should give informed consent, they should be aware of the true nature of the study. In studies involving children, informed parental consent should be obtained. Payment should never be used to induce risk taking behaviour.

② Deception

Intentional deception over the purpose of the investigation should be avoided when possible. There must be strong medical or scientific justification for any deception.

③ Debriefing

Participants should be fully debriefed. Their experiences should be discussed to assess any negative effects. Debriefing should be in the form of active intervention before leaving the research facility.



⑥ Right to withdraw

Participants should be aware of their right to withdraw from the investigation at any time. This may be done retrospectively by revoking permission for their data to be used.

⑤ Confidentiality

The source of all information should remain confidential. Participants should be informed as early as possible if confidentiality cannot be guaranteed.

④ Protection from harm

Participants should be protected from emotional and physical harm. They should be asked about any factors which may create risk; i.e. medical conditions - Any risk should be no more than could be expected in the course of daily lifestyle.

3) Operational Definitions have been giving students a difficult time. The thing to remember when writing operational definitions is that the variables must be described in terms that can be **OBSERVED and MEASURED**. If you remember (or look back at your notes, look back at the Weebly from the Methods unit to see,) the practice that we did for operational definitions, you will remember we talked about things like “when it gets cold” and how that cannot be measured. “cold” is abstract and cannot be observed or measured. However, if we operationally define “cold” to be “40 degrees or below,” that can be **observed AND measured**. We have changed an abstract concept to a concrete variable.

See the chart below for some other examples, and then complete the ones for practice on your own

Table 5.1 Dictionary and Operational Definitions of Several Terms Commonly Used by Psychologists

For each concept, other operational definitions are possible.

TERM	DICTIONARY DEFINITION	OPERATIONAL DEFINITION
Punishment	Harsh or injurious treatment for an offense	Presentation of 3 milliamp shock for .5 second following certain (specified) behavior
Attraction	the act, process, or power of liking.	An increase in heart rate of 10% or more
Anxiety	State of being uneasy, apprehensive, or worried	Sweat gland activity (amount), heart rate (amount), physiological changes (specify), self-reported anxiety on a scale of 1 to 7
Intelligence	Ability to learn or understand from experience	Score on the Stanford–Binet Intelligence Test, score on the Wechsler Intelligence Scale for Children
Learning	Acquisition of knowledge or skills via experience, study, or being taught.	Scores 60% or above on a content exam 1 month after the experience.
Sleep	Recurring condition of rest, no conscious thought, eyes closed, etc.	Specific brain wave frequencies (EEG) for different sleep stages
Guilt	A painful feeling of self-reproach	Score on a personality inventory, self-reported guilt on a scale of 1 to 10

OPERATIONAL DEFINITION PRACTICE:

- Does playing *Animal Crossing* improve my mood?
IV: (give operational definition):
DV (give operational definition):
- John wants to test whether studying more increases his test scores.
IV: (give operational definition):
DV (give operational definition):
- Are young people or old people more susceptible to change blindness?
IV: (give operational definition):
DV (give operational definition):
- I give 2nd period a reward if they finish their in-class assignment on time but not 3rd period to determine if extrinsic motivators are effective at motivating students.
IV: (give operational definition):
DV (give operational definition):

CAUSATION OR NO CAUSATION PRACTICE:

1. A principal collected data on all students who graduated from her high school in the last 10 years. She found that students who took 3 or more AP classes ended up with GPA's of 3.2 or higher in their Freshman year, while those who took 0 AP classes in high school ended up with an average GPA of 2.5. She announces at a PTA meeting that all students will be required to take at least 3 AP classes, and guarantees all graduates will have GPA's of 3.2 or higher in college.

Do you support the principal's conclusion? Explain your response.

2. A researcher studies difference threshold among mothers and babies. The sample group of mothers is randomly assigned to hear either their own baby, or someone else's baby cry. The researcher observes that, on average, mothers who hear their own baby cry recognize that a baby is crying at a level of 10 decibels below the volume needed for mothers to recognize the cry of another baby. The researcher concludes that mothers will recognize the cry of their own baby quicker than another baby.

Do you support the researcher's conclusion? Explain your response.