

TMFVC Assignment 10

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January 11, 2025

Exercise 10.1

a)

- **Example:** Use Grounded Theory to explore how students use ChatGPT for learning. The goal is to understand students' habits, challenges, and benefits from using ChatGPT and develop a theory based on their real experiences.
- **Methodology:** Grounded Theory helps uncover new insights about ChatGPT usage in education.
- **Methods:**
 - Distribute **simple online questionnaires** to students to gather information about how they use ChatGPT in their studies.
 - Conduct **small group discussions** or **casual interviews** with students to hear about their experiences in their own words.
 - Analyze the responses to find common patterns, like why students use ChatGPT and what challenges they face.

b)

I would choose **formative evaluation** because:

1. It helps during the design phase to gather the information needs of the users.
2. It focuses on understanding user needs and refining the design to incorporate them into the interface.

c)

- I would choose **within subjects** design, since each participant uses all three websites, making it easier to compare usability across the websites for the same individual.
- I would choose **between subjects** design, since it can better reveal the natural variance between groups.

d)

No, one field is exposed to the pesticide and the environment, while the other is protected from both. This introduces more than one variable. To improve the experiment, she can divide a piece of field into two equal plots and expose one of the plots to the pesticide while leaving the other untreated.

Exercise 10.2

a)

This is a **false positive** error.

b)

This is a **false negative** error.

c)

A false negative error is more harmful. Lets take the research and development of new drugs as an example. If the clinical trials incorrectly conclude that a new drug is ineffective (**false negative**), the drug will be abandoned. This could mean missing a life-saving treatment that could have benefited many patients. On the other hand, a incorrectly concluding a drug is effective (**false positive**) may waste resources, but follow-up studies often reveal the mistake.

Exercise 10.3

a)

3) Detergent

b)

2) "Detergent B removes more stains than detergent A"

c)

4) record measurements and observations

d)

2) Change one variable at a time

e)

- **Control Group:** People wearing no sunscreen.
- **Independent Variables:** The use of sunscreen lotion.
- **Dependent Variables:** The level of sunburn.

f)

No, since we have only two conditions, simply alternating the order of the conditions is sufficient to achieve the same effect as a "Latin Square."

g)

S	E	A	P	G	R	N	O	I
P	A	E	N	O	I	S	G	R
N	G	R	I	S	O	A	P	E
G	O	P	S	I	N	E	R	A
R	S	N	G	A	P	I	E	O
I	N	G	O	R	E	P	A	S
A	R	I	E	P	S	O	N	G
O	P	S	A	E	G	R	I	N
E	I	O	R	N	A	G	S	P

Figure 1: Latin Square Puzzle Solution