



# GÖTEBORGS UNIVERSITET

STUDENT

**0003-ZKK**

TENTAMEN

## TIG109 Tentamen

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|-----------------|------------------|
| Kurskod         | --               |
| Bedömningsform  | DT               |
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| Skapad av       | Beatrice Hedly   |

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**i****TIG109: Metod 2 och projekt, 15 hp, VT 2024****Delkurs 1: Experimentdesign, 4 hp****TENTAMEN**

**Maxpoäng** är 25, gränsen för **Godkänt** är 13 och för **Väl godkänt** 20 poäng.

Frågorna är formulerade på engelska.


**Tillåtet hjälpmedel:** tryckt engelskt lexikon (utan anteckningar)

**i****Multiple-choice**

Please select the best alternative.

- 1 The matched groups design is used when separate groups are needed for the levels of the independent variable, when a good matching variable is available, and when

**Välj ett alternativ:**


- an adjustment needs to be made for nonequivalent groups.
- a relatively small number of participants is available. 
- a relatively large number of participants is available.
- extreme groups need to be tested.

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Rätt. 1 av 1 poäng.

- 2 Which of the following types of variables is most likely to be an independent variable in a natural groups design?

**Välj ett alternativ:**

individual differences (subject) variables 

matching variables

extraneous variables


environmental variables

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Rätt. 1 av 1 poäng.

- 3 Which of the following conclusions is possible when a study contains a confounding?

**Välj ett alternativ:**

The effect of neither the independent variable nor of the confounding variable can be unambiguously interpreted. 

The effect of the independent variable can be unambiguously interpreted.

The effects of both the independent variable and the confounding variable can be unambiguously interpreted. 

The effect of the confounding variable can be unambiguously interpreted.

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Fel. 0 av 1 poäng.

4 When a study is free of confoundings it is said to have

**Välj ett alternativ:**

- reliability.
- external validity.
- internal validity.
- confidence intervals.



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Rätt. 1 av 1 poäng.

5 The results of an externally valid study are ones that

**Välj ett alternativ:**

- are not likely to replicate if the study is repeated.
- apply only to the subjects, conditions, and settings tested in the original study.
- apply to a wider range of subjects, conditions, and settings than those tested in the original study.
- are likely to be difficult to interpret unambiguously.



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Rätt. 1 av 1 poäng.

- 6 One approach for the use of inferential statistics to decide whether an independent variable has a reliable effect on the dependent variable begins by assuming that the independent variable had no effect. This approach is called

**Välj ett alternativ:**

- significance level (alpha) testing.
- confidence interval testing.
- null hypothesis significance testing.
- overlapping error testing.



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Rätt. 1 av 1 poäng.

- 7 The goal of random assignment to experimental conditions is to

**Välj ett alternativ:**

- balance individual differences variables across conditions.
- hold conditions constant across conditions.
- make sure the dependent variable does not differ across conditions.
- select different levels of a natural groups variable.



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Rätt. 1 av 1 poäng.

8 In scientific research, what distinguishes an experimental study from a survey study?

**Välj ett alternativ:**

- to find correlations between factors
- to describe factors
- to test the causality of factors
- to predict one factor from the other



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Rätt. 1 av 1 poäng.

9 In order for a study to be called an experiment, it has to include

**Välj ett alternativ:**

- at least one variable.
- at least two variables.
- at least three variables.
- an established causal relation.



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Rätt. 1 av 1 poäng.

10 A potential problem in a repeated measures design experiment is

**Välj ett alternativ:**

- individual differences.
- intact groups.
- differential transfer.
- random assignment.



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Rätt. 1 av 1 poäng.

11 What is the general rule for balancing practice effects in an incomplete repeated measures design experiment?

**Välj ett alternativ:**

- Each condition must appear in each ordinal position exactly once.
- Each condition of the experiment must appear in only one ordinal position.
- Each condition must appear only in the first ordinal position.
- Each condition of the experiment must appear in each ordinal position (first, second, third, etc.) equally often.

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Rätt. 1 av 1 poäng.

12 Practice effects are described as nonlinear when participants experience

**Välj ett alternativ:**

- individual differences in the conditions of the experiment.
- relatively constant change across the conditions of the experiment.
- abrupt changes in a condition and little or no change in subsequent conditions.
- lingering effects of one condition when they participate in subsequent conditions.

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Rätt. 1 av 1 poäng.

13 Which of the following sequences constitutes two blocks in an independent groups design with the conditions A, B, C, and D?

**Välj ett alternativ:**

AB

ABCD

ABCDDCBA



AA

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Rätt. 1 av 1 poäng.

14 Which of the following patterns indicates that there has been no interaction effect in a complex design experiment when the results are plotted in a line graph?

**Välj ett alternativ:**

when the lines are parallel



when the lines intersect forming a crossing pattern

when the lines start out at the same point and diverge from each other

when the lines start out apart and converge to the same point


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Rätt. 1 av 1 poäng.



15 An interaction effect may be uninterpretable when this problem in measurement occurs:

**Välj ett alternativ:**

- nonparallel lines.
- simple main effect.
- highly reliable measurement of the dependent variable.
- ceiling or floor effect. 

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Rätt. 1 av 1 poäng.

**i**

### Factors, variables, and conditions

Please enter numbers.




16 A repeated measures group design in which the participants are tested at at three time points has:

- a total of   independent variable(s)
- a total of   condition(s)
- a total of   (1) separate group(s) of participants

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Delvis rätt. 2 av 3 poäng.

17 A 2 x 3 complex design with independent groups has:

- a total of   independent variable(s)
- a total of   condition(s)
- a total of   (6) separate group(s) of participants

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Delvis rätt. 2 av 3 poäng.

**i**

### Experimental designs

Below are four brief descriptions of research procedures. Read each description carefully and identify which type(s) of design is illustrated (each could be *one* or *several* of a–g, such as “a” or “a and f” or “a, f, and g”).

- a. independent groups: random groups design
- b. independent groups: matched groups design
- c. independent groups: natural groups design
- d. repeated measures: incomplete design
- e. repeated measures: complete design
- f. complex design (not mixed)
- g. mixed complex design

- 18** A researcher wishes to test a hypothesis about transfer of physical abilities between professional sports. Specifically, she believes professional football players will have more difficulty hitting a baseball than will professional basketball players. From the rosters of two local professional teams she randomly selects 10 football players and 10 basketball players to compete in a baseball hitting contest.

**Välj ett eller flera alternativ:**

independent groups: random groups design

independent groups: matched groups design



independent groups: natural groups design



repeated measures: incomplete design

repeated measures: complete design

complex design (not mixed)



mixed complex design

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Delvis rätt. 0 av 1 poäng.

- 19** A researcher explored the relation between cognitive workload, feedback and emotions for car drivers. There were 30 participants in the experiment, aged 21 to 29 who each carried out four tasks. Tasks had the difficulty levels easy and hard, and there was either no delay or a slight delay on actions while carrying out a task. During the experiment, video recordings of the participants facial expressions were collected. Moreover, each participant was asked to report their experienced level of emotions after each task.

**Välj ett eller flera alternativ:**

independent groups: random groups design



independent groups: matched groups design

independent groups: natural groups design



repeated measures: incomplete design



repeated measures: complete design

complex design (not mixed)



mixed complex design



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Delvis rätt. 0 av 1 poäng.

- 20** A researcher asks for volunteers from a large psychology lecture class to participate in a psychology experiment involving two groups. He obtains 30 volunteers. Each person's name is put on an index card. The cards are shuffled and then divided into two piles of 15. Students whose names are in the first pile are placed in the experimental group and those in the other pile are assigned to the control group.

**Välj ett eller flera alternativ:**

independent groups: random groups design



independent groups: matched groups design

independent groups: natural groups design

repeated measures: incomplete design

repeated measures: complete design

complex design (not mixed)

mixed complex design

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Rätt. 1 av 1 poäng.

- 21** Right ear advantage in language perception was studied (the phenomenon that speech sounds are better recognized when coming from the right than from the left). The aim of the study was to investigate whether speech perception is affected by the integrated perceived direction of self or only by the direction of the ears. Right-handed participants (N = 35) were tested in a single response dichotic listening task with consonant-vowel-syllables presented in 144 pairs, while instructed to listen in one direction. Each participant was tested in three head direction conditions: straight, left, and right, with the gaze held straight in relation to the seating position in all conditions. Each participant was tested in two blocks of each combination of attended listening direction and head direction, of which order was randomized and ABBA counterbalanced.

**Välj ett eller flera alternativ:**

independent groups: random groups design

independent groups: matched groups design



independent groups: natural groups design



repeated measures: incomplete design

repeated measures: complete design



complex design (not mixed)

mixed complex design



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Delvis rätt. 1 av 1 poäng.