When to use what graph and test? (+ test yourself)

Managing the Employee Journey

HR Analytics

Hotel Management School Maastricht

ZU YD

Week & Class	Theme	Content	Reading **DR –** *Doing Research* **SIS –** *Statistics in steps*
WK 1 – 2nd	Hypotheses	$H_0 - H_A$ $\Pi - \mu$ $> < \leq \geq \neq =$	**DR** - chapters 4, 7 & 13
WK 2 – 1st	Type I and II errors	False negative / false positive / test power	**DR** - chapter 14
WK 2 – 2nd	Sampling, reliability and validity	Randomized sampling; 'the dartboard'	**DR** - chapters 9, 10 & 11
WK 3 – 1st	Estimation and testing	$P \pm Z_{critical}$ $(\sqrt{(P(1-P)/N)})$	**SIS** - chapter 5 (§1-5)
WK 3 – 2nd	Descriptives and graphs	Measurement levels; chart editor	**SIS** - chapters 1, 2(§1-5), 3(§2)
WK 4 – 1st	What graph and test to use	Test decision tree; (+ Test yourself)	**DR** & **SIS** - All previous chapters
WK 4 – 2nd	Crosstabs & Chi-Square	Calculate observed vs. expected values	**SIS** - chapters 3 (§1) & 9 (§1)
WK 5 – 1st	Correlation	Scatterplots; causation; correlation coefficient	**SIS -** chapter 7 (§1-2
WK 5 – 2nd	T-test(s)	Equality of variance (Levene); 1- vs. 2-sided	**SIS -** chapter 6 (§1-5)
WK 6 – 1st	ANOVA	Error bar plots, F- & Welch-tests, Post-hoc tests	**SIS** - chapter 8 (§1-4)

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1. You want to test whether the share of HMSM students who rent a *swapfiets* has increased from last year, when it was exactly a quarter of all students. How would you write down the null- and alternative hypotheses?

A. H0: π < 25 Ha: π ≥ 25

B. H0: π ≤ 25 Ha: π > 25

C. H0: μ < 25 Ha: μ ≥ 25

D. H0: μ ≤ 25 Ha: μ > 25

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1. You want to test whether the share of HMSM students who rent a swapfiets has increased from last year, when it was exactly a quarter of all students. How would you write down the null- and alternative hypotheses?

A. $H_0: \pi < 25$ $H_a: \pi \geq 25$ 0.0%

B. $H_0: \pi \leq 25$ $H_a: \pi > 25$ 100.0%

C. $H_0: \mu < 25$ $H_a: \mu \geq 25$ 0.0%

D. $H_0: \mu \leq 25$ $H_a: \mu > 25$ 0.0%

Closed

2. A Type I error is made when:

A. We reject the null hypothesis, while it is true

B. We reject the null hypothesis, while it is false

C. We accept the null hypothesis, while it is false

D. We reject the alternative hypothesis, while it is true

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2. A Type I error is made when:

A.	We reject the null hypothesis, while it is true	100.0%
B.	We reject the null hypothesis, while it is false	0.0%
C.	We accept the null hypothesis, while it is...	0.0%
D.	We reject the alternative hypothesis, while it is true	0.0%

Closed

3. A Type II error is made when:

A. We accept the null hypothesis, while it is true

B. We reject the null hypothesis, while it is false

C. We accept the alternative hypothesis, while it is false

D. We reject the alternative hypothesis, while it is true

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3. A Type II error is made when:

A. We accept the null hypothesis, while it is true 0

B. We reject the null hypothesis, while it is false 1

C. We accept the alternative hypothesis, while it is false 0

D. We reject the alternative hypothesis, while it is... 3

Closed

4. Which method is **least** likely to result in a random sample, which is representative for the population you as a researcher are interested in?

A. Clustered sampling

B. Stratified sampling

C. Snowball sampling

D. Systematic sampling

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4. Which method is least likely to result in a random sample, which is representative for the population you as a researcher are interested in?

Closed

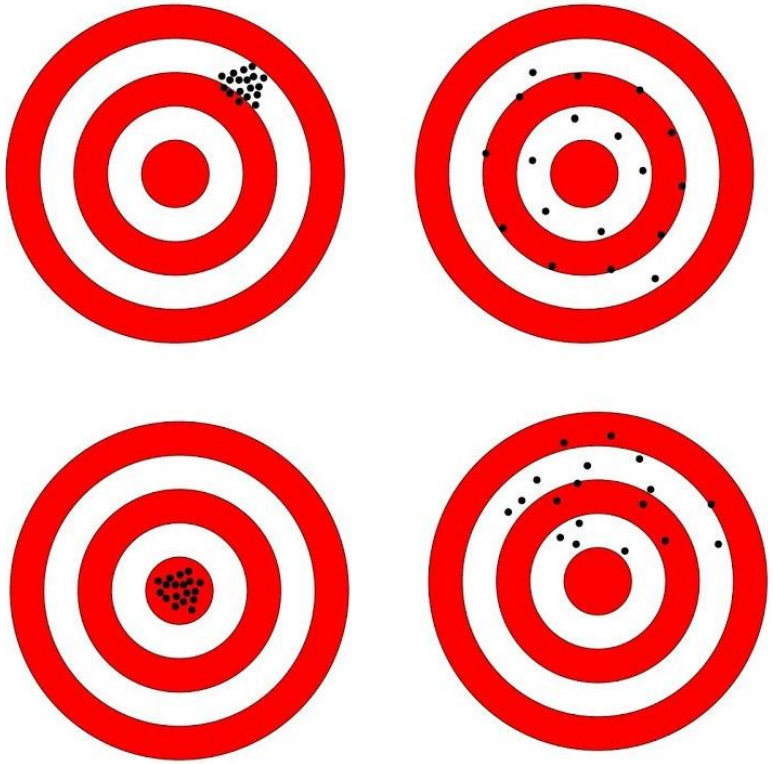
5. If a measure is **consistent** over multiple occasions, it has:

A. High reliability

B. High construct validity

C. High external validity

D. Low external validity



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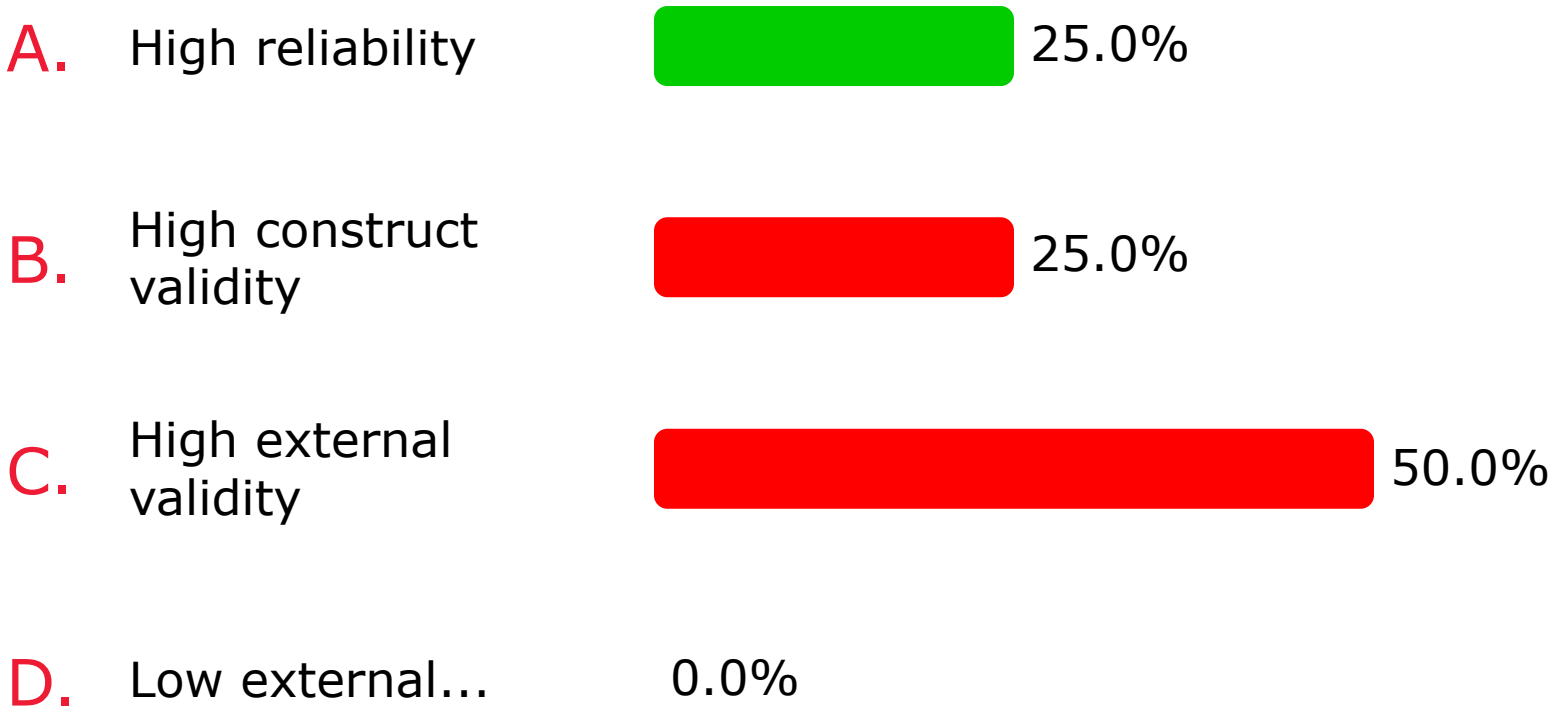
5. If a measure is consistent over multiple occasions, it has:



Closed

6. What is the definition of randomness, in relation to a (survey) sample?

A. Every member of the sample has an equal chance of ending up in the population

B. Every member of the population has an equal chance of ending up in the sample

C. Every member of the population has an unequal chance of ending up in the sample

D. That a chance element (say dice, coin flip) was involved in the sample selection

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6. What is the definition of randomness, in relation to a (survey) sample?

A. Every member of the sample has an equal chance of ending up in the population — 25.0%

B. Every member of the population has an equal chance of ending up in the sample — 75.0%

C. Every member of the population has an unequal chance of ending up in the sample — 0.0%

D. That a chance element (say dice, coin flip) was involved in the sample selection — 0.0%

7. You have asked a 100 students eating at Refresh how many of them (at least sometimes) bring their own lunch to school. What exactly will happen if you decrease your sample to just 50 students?

A. Your certainty will drop to 50%, and your interval will widen to ± 25

B. Your confidence interval will become smaller

C. Your confidence interval will become wider

D. The proportion of students bringing their lunch will decrease

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7. You have asked a 100 students eating at Refresh how many of them (at least sometimes) bring their own lunch to school. What exactly will happen if you decrease your sample to just 50 students?

A. Your certainty will drop to 50%, and your interval will widen to ± 25 — 0.0%

B. Your confidence interval will become smaller — 75.0%

C. Your confidence interval will become wider — 25.0%

D. The proportion of students bringing their lunch will decrease — 0.0%

Closed

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8. Say the military has asked us to conduct a survey among their officers, and pay special attention to the relations between **rank, gender, age** and **salary**. What measurement levels would these variables have?

A. Nominal | Nominal | Interval | Interval

B. Interval | Ordinal | Interval | Ratio

C. Ordinal | Nominal | Ratio | Ratio

D. You cannot determine the measurement level in advance

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8. Say the military has asked us to conduct a survey among their officers, and pay special attention to the relations between rank, gender, age and salary. What measurement levels would these variables have?

A. Nominal | Nominal | Interval | Interval — 0.0%

B. Interval | Ordinal | Interval | Ratio — 0.0%

C. Ordinal | Nominal | Ratio | Ratio — 100.0%

D. You cannot determine the measurement level in advance — 0.0%

Closed

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9. What is the **most important** reason to use frequencies, descriptives and graphs?

A. Because these look neat and structured for your reader

B. Because these give you much more insight into your data

C. Because these give meaning to otherwise unstructured data

D. To illustrate the output results of any statistical test

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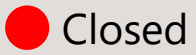
9. What is the most important reason to use frequencies, descriptives and graphs?

A.	Because these look neat and structured for your reader	0.0%
B.	Because these give you much more insight into...	0.0%
C.	Because these give meaning to otherwise unstructured data	50.0%
D.	To illustrate the output results of any statistical...	50.0%



10. The get more insight in the shape of the distribution of a single, ratio-level variable like **monthly salary in euro's**, you would use a…

A. Pie Chart

B. Line chart

C. Histogram

D. Scatterplot

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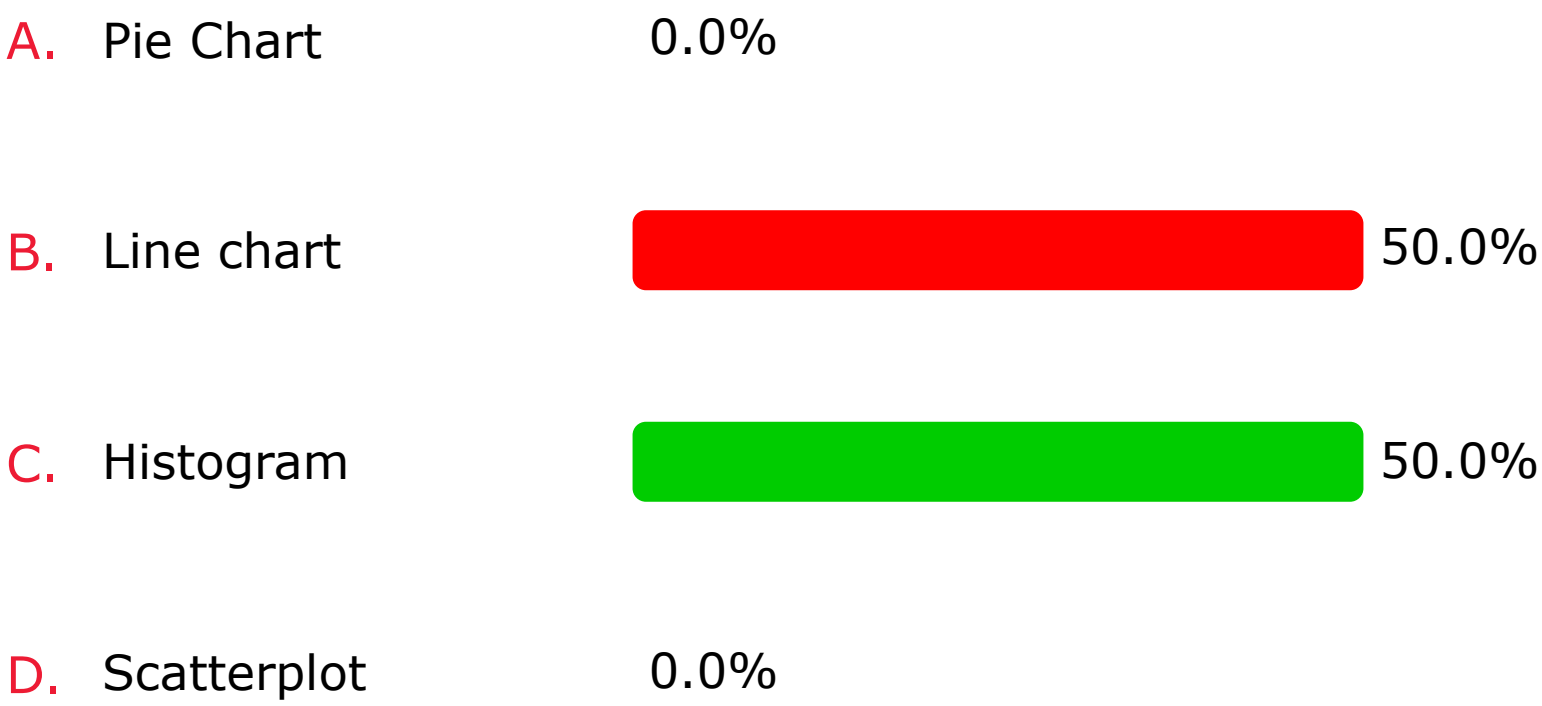
10. The get more insight in the shape of the distribution of a single, ratio-level variable like monthly salary in euro's, you would use a…



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