

Applied Research Methods II – PMAP 8131

QUIZ: INSTRUMENTATION

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1. (1 point) A researcher investigates the relationship between teenager instances of bullying and earnings in adulthood. Examples of bullying correlate strongly with ability, therefore an instrument for instances of bullying is required. Which one should the researcher pick based on the table below?

	Earnings	Bullying	Weight (K-10)	Height (K-10)	Math score
Earnings					
Bullying	-0.7				
Weight (K-10)	-0.1	0.7			
Height (K-10)	0.7	-0.7	0.9		
Math score	0.8	0.4	0.4	0.4	

- A. Weight (K-10)
B. Height (K-10)
C. Math scores (K-10)
D. Either A) or B)
2. (1 point) In standard high school testing, students are graded against rubrics as per the tenets of _____.
- A. Item Response Theory
B. Classical Test Theory
C. Principal Component Analysis
D. Factor Analysis
3. (1 point) The SAT, GRE, and PISA test scores all rely upon _____ to score examinees.
- A. Item Response Theory
B. Classical Test Theory
C. Principal Component Analysis
D. Factor Analysis
4. (1 point) A variable for which an instrument is needed is _____ to (with) the error term.
- A. Endogenous
B. Exogenous
C. Uncorrelated
D. Unobserved
5. (1 point) A latent variable is both _____ and _____ to other variables in the model.

- A. [unobserved, correlated]
 B. [unobserved, uncorrelated]
 C. [observed, correlated]
 D. [observed, uncorrelated]
6. (1 point) An instrumental variable is both _____ and _____ to another variable in the model.
 A. [unobserved, correlated]
 B. [unobserved, uncorrelated]
 C. [observed, correlated]
 D. [observed, uncorrelated]
7. (1 point) Achievement on language tests (e.g., TOEFL) has been shown to correlate strongly with verbal reasoning as measured by the GRE verbal. Despite TOEFL purporting to measure language proficiency separately from general cognition, the test might not have enough _____.
 A. Test-retest reliability
 B. Internal consistency
 C. Convergent validity
 D. Discriminant validity
8. (1 point) A movement has backed the dismissal of IQ testing. It turned out that richer households would send their kids to preparatory classes which were boosting their test scores by as much as one standard deviation across multiple runs. Thus, IQ test scores have shown to have little _____.
 A. Test-retest reliability
 B. Internal consistency
 C. Convergent validity
 D. Discriminant validity
9. (1 point) Calculate the Cronbach's alpha for the questionnaire below.

Subject	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10
1	1	1	2	2	1	1	1	2	1	1
2	0	1	3	0	1	3	0	1	1	2
3	0	0	1	0	1	1	0	1	0	0
4	0	0	1	1	0	0	1	1	0	0
5	2	3	2	3	3	2	3	2	2	1

- A. 85.1%
 B. 89.4%
 C. 92.4%
 D. 97.1%
10. (1 point) Skim the US Census report below to find the relevant information and fill in the blanks. The study uses Factor Analysis to extract latent components from the _____. Following the eigenvalue rule, _____ factors would be extracted. The second factor loads most heavily on _____.

Manzella, J., Totty, E., Benedetto, G. (2019). *A Task-based Approach to Constructing Occupational Categories with Implications for Empirical Research in Labor Economics*. US Census Bureau, Center for Economic Studies. <https://www2.census.gov/ces/wp/2019/CES-WP-19-27.pdf>

- A. [Gender wage gap, 3, *Independence*]
- B. [O*NET job descriptors, 3, *Technology Design*]
- C. [Gender wage gap, 13, *Independence*]
- D. [O*NET job descriptors, 13, *Technology Design*]