Overclaiming technique - a solution for self-enhancing bias in self-assessment questions?

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- Self-report – one of the fundamental research methods in social sciences (Paulhus & Vazire, 2007)
- Many advantages (Lucas & Baird, 2006), numerous disadvantages (Wetzel, Böhnke & Brown, 2016)
- Response biases (response styles, inattentive responding, faking)

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Response bias, example 1

- *„In a survey conducted by experts from the Faculty of Physics of the University of Poznań about 80-90% of the respondents declared excellent or satisfying sight…”*

(http://www.biznes.newseria.pl/news/dobra-kondycja-rynku,p757362557)

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Response bias, example 1

- *„In a survey conducted by experts from the Faculty of Physics of the University of Poznań about 80-90% of the respondents declared excellent or satisfying sight…"*

- *„Only 20% passed an objective measurement test."*

(http://www.biznes.newseria.pl/news/dobra-kondycja-rynku,p757362557)

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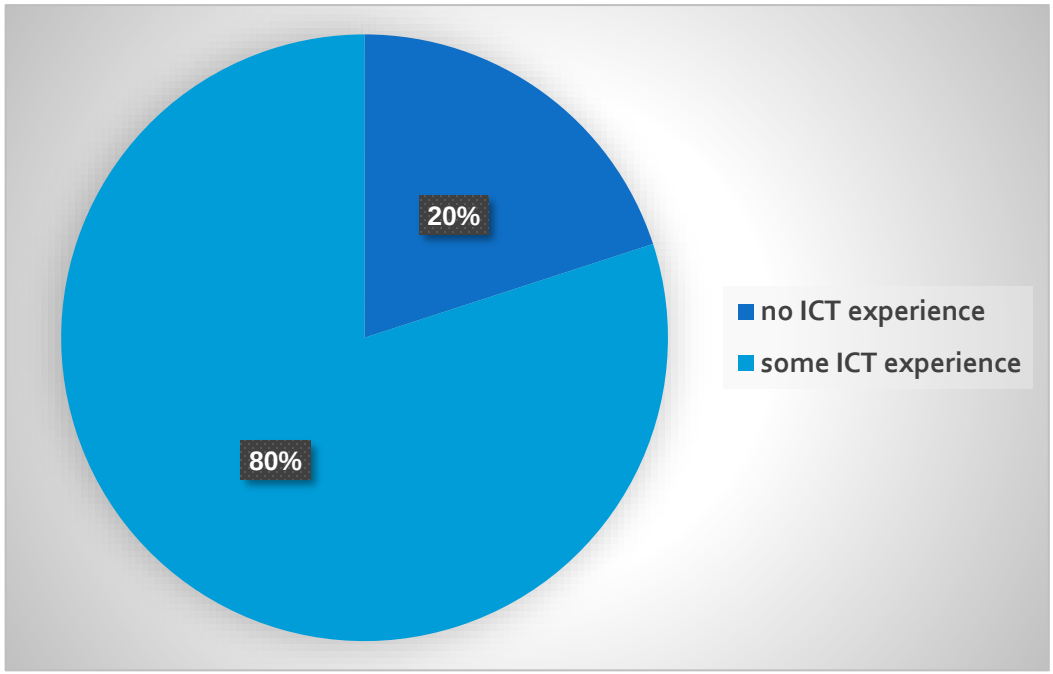
Response bias, example 2

- ICT skills (Burski et al., 2013; PIAAC study):



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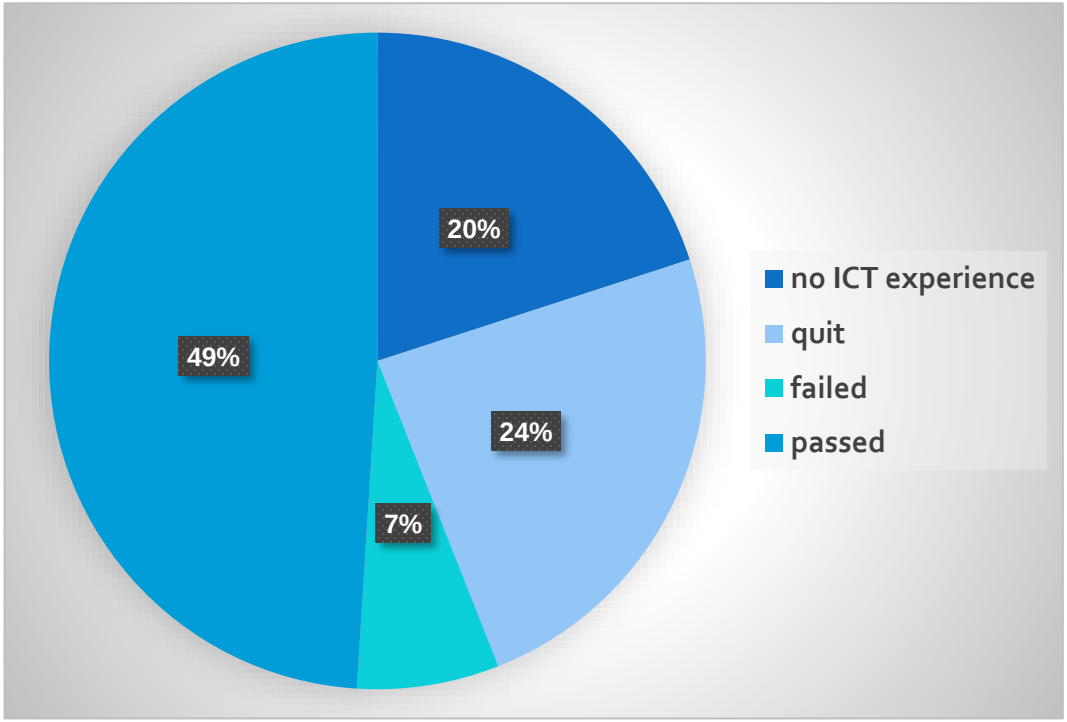
Response bias, example 2

- ICT skills (Burski et al., 2013; PIAAC study):



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Overclaiming technique (Paulhus et al., 2003)

Format of the Over-Claiming Questionnaire (OCQ)

Using the following scale as a guideline, write a number from 0 to 6 beside each item to indicate how familiar you are with it

Never heard of it — Very familiar

0	1	2	3	4	5	6

Physical Sciences

_____ Manhattan Project	_____ asteroid	_____ nuclear fusion
_____ cholarine	_____ atomic number	_____ hydroponics
_____ alloy	_____ plate tectonics	_____ photon
_____ ultra-lipid	_____ centripetal force	_____ plates of parallax
_____ nebula	_____ particle accelerator	_____ satellite

Note. Of the 15 items above, the following 3 are foils: cholarine, ultra-lipid, and plates of parallax. Other topic categories include literature, art, history, social science, language, contemporary culture, and consumer products.

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Overclaiming technique (PISA 2012)

Item	Thinking about mathematical concepts: how familiar are you with the following terms?
ST62Q01	a) Exponential Function
ST62Q02	b) Divisor
ST62Q03	c) Quadratic Function
ST62Q06	e) Linear Equation
ST62Q07	f) Vectors
ST62Q08	g) Complex Number
ST62Q09	h) Rational Number
ST62Q10	i) Radicals
ST62Q12	k) Polygon
ST62Q15	m) Congruent Figure
ST62Q16	n) Cosine
ST62Q17	o) Arithmetic Mean
ST62Q19	p) Probability
	Foils used for signal detection adjustment
ST62Q04	d) <Proper Number>
ST62Q11	j) <Subjunctive Scaling>
ST62Q13	l) <Declarative Fraction>

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Research aim

- Verify whether overclaiming technique use can lead to more valid self-assessments.
- Verify whether it can lead to an increase in criterion-related validity of other self-reports.
- Use suppression model.

(He et al., 2020; Pokropek, 2014; Vonkova et al., 2018; 2021)

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Suppression model

- **Suppressor –** „a variable, which increases the predictive validity of another variable (…) by its inclusion in a regression equation” (Conger, 1974)

- increase of regression coefficient and R2 (Friedman & Wall, 2005)
- comparison of two models, one without and one with the suppressor variable

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Research design

- PISA 2012 data (survey + objective test)
- PISA scale (500, 100)
- three-level regression model (countries, schools)
- **Criterion:** PISA math test (objective measurement)
- **Predictor:** math familiarity scale score (st62 - reals)
- **Suppressor:** overclaiming scale score (st62 - foils)

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Suppression model

Variable	Model 1	Model 2	Parameter change
Math familiarity	34.24		
Overclaiming	-		-
R2	0.15		

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Suppression model

Variable	Model 1	Model 2	Parameter change
Math familiarity	34.24	45.13	
Overclaiming	-	-23.68	-
R2	0.15	0.20	

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Suppression model

Variable	Model 1	Model 2	Parameter change
Math familiarity	34.24	45.13	10.89 (31.8%)
Overclaiming	-	-23.68	-
R2	0.15	0.20	0.05 (33%)

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Suppression model

Variable	Model 1	Model 2	Parameter change
Math anxiety	-27.67		
Overclaiming	-		
R2	0.183		

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Suppression model

Variable	Model 1	Model 2	Parameter change
Math anxiety	-27.67	-28.28	
Overclaiming	-	-5.96	
R2	0.183	0.187	

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Suppression model

Variable	Model 1	Model 2	Parameter change
Math anxiety	-27.67	-28.28	0.61 (2.2%)
Overclaiming	-	-5.96	-
R2	0.183	0.187	0.004 (2%)

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Summary

- overclaiming technique is an effective suppressor for self-assessment scales
- but, it is not effective for other self-report scales (math anxiety, math interest, mathematical behaviour)
- it looks like search for universal panacea continues
- further research on overclaiming technique needed

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Thank you!

Questions welcomed!

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Thank you !

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