Unraveling the impact of prolific: exploring the presence of bias when studying psychological constructs related to the use of technology

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Introduction

- **Increase in use of online paid recruitment platforms** due to cost-effectiveness e efficiency in gather data from diverse participant pools.
- **Prolific,** in particular, is noted for its transparency, high quality data, participant diversity e reliability.
- Despite **concerns** about **sampling biases, data quality, and ethical issues**, studies indicate that these platforms provide high-quality data comparable to traditional methods.

Aim

To examine **potential biases** in data collected from Prolific compared to an unpaid convenience sample → focus on **psychological constructs related to technology use.**

Results

The outcomes from the cross-sectional survey revealed significant differences between Prolific and non-Prolific users. **Prolific users scored higher on all the TAM dimentions** (PU, PEOU, A and BI), **on TSE and on the personality trait of Openness**. In contrast, non-Prolific users had higher scores in Extroversion, Conscientiousness, and technology-related anxiety. No significant differences have been found between the two groups on the personality trait of emotional stability.

	NO PROLIFIC	PROLIFIC	Indipendent t-test			effect size
	M (SD)	M (SD)	t	df	*p*	Cohen's D
PU	2.84 (1.07)	3.16 (1.13)	-2.96	406.85	.003	.29
PEOU	3.38 (.90)	3.83 (.81)	-5.21	398.24	<.001	.52
A	3.13 (.95)	3.35 (1.03)	-2.31	406.42	.021	.23
BI	2.69 (1.22)	3.11 (1.27)	-3.41	406.00	<.001	.38
TSE	3.68 (.84)	4.16 (.68)	-6.39	407.00	<.001	.63
AX	2.29 (.97)	2.00 (.80)	3.32	407.00	<.001	.33
EX	3.04 (.97)	2.63 (1.00)	4.21	404.90	<.001	.42
CO	3.50 (.79)	3.12 (.81)	4.83	404.83	<.001	.48
ES	2.75 (1.09)	2.71 (1.07)	.39	403.66	.694	.04
OP	3.49 (.98)	3.77 (.87)	-3.06	395.51	.002	.31

Discussion

This study employed a dual recruitment strategy: a convenience snowball sampling method for half of the participants and the online platform Prolific for the other half.

Despite other studies indicating that Prolific provides high-quality data compared to traditional methods, this does not ensure that the use of these platforms is free from sampling biases. Our findings revealed **significant differences between the two sampling strategies in terms of constructs related to the use of technology**. Similar to convenience samples, participation in online platforms can be influenced by personal interests and experiences.

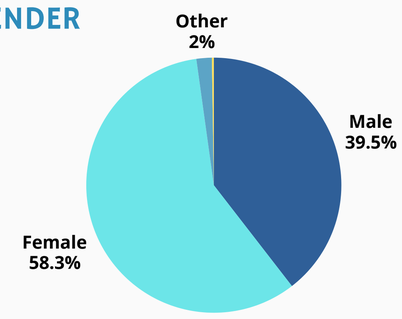
Results underline the importance of selecting the most appropriate sampling strategy to ensure accurate findings and highlight how sample-specific characteristics might affect research outcomes and their generalizability.

Method

PARTICIPANTS

The population for recruitment consisted of Italian university students. A total of **208** participants were recruited via **Prolific** platform, and **202** participants were recruited through a **snowball convenience sampling** method. The final sample size comprised 410 individuals (50.73% Prolific; 49.27% non-Prolific). The age range was from 19 to 36 years (M=23.24; SD=2.61; mdn=23).

GENDER



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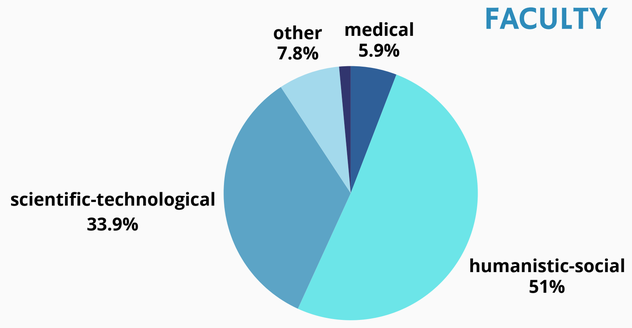

MEASURES

Participants were asked to complete an anomymous online questionnaire that includes demographic variables and:

- **Technology Acceptance Model - TAM's base variables** assessed by adapting the items used in the study by Huang et al., (2022) to the context of ChatGPT use:
  1. Perceived usefulness of ChatGPT use (**PU**) (ω = .907)
  2. Perceived ease of ChatGPT use (**PEOU**) (ω = .800)
  3. Behavioral intentions using ChatGPT (**BI**) (ω = .965)
  4. Attitude toward using ChatGPT (**A**) (ω = .905)
- **TAM's external variables**:
  1. Technology self-efficacy (**TSE**) 4 items from Ni & Cheung (2022) (ω = .887)
  2. Technology-related anxiety (**AX**) 4 items from Guner & Acarturk (2020) (ω =.830)
- **Italian BFI-10** (Guido et al., 2015). This scale included 4 out of the 5 factors based on the CFA results:
  1. Extraversion (**EX**) (Spearman ϱ = .591)
  2. Conscientiousness (**CO**) (Spearman ϱ = .312)
  3. Emotional Stability (**ES**) (Spearman ϱ = .612)
  4. Openness (**OP**) (Spearman ϱ = .331)

DATA ANALYSIS

For each scale adopted, we tested its factorial structure (CFA). Data were analyzed using descriptive statistics and t-test to compare group differences.

References

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