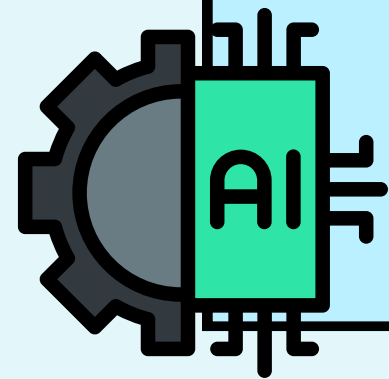


Exploration of chatgpt adoption among Italian University Students: An application of the technology acceptance model



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Today the world is confronting the **widespread availability of Artificial Intelligence (AI)**. **ChatGPT**, one of the most prominent examples of generative AI, has become one of the fastest growing consumer applications in history with an estimated one hundred million users (Hu, 2023). A particularly notable application of ChatGPT is in **education**, where it plays a pivotal role by supporting online learning, aiding research, assisting teaching, and helping with writing tasks (Bahrini et al., 2023).

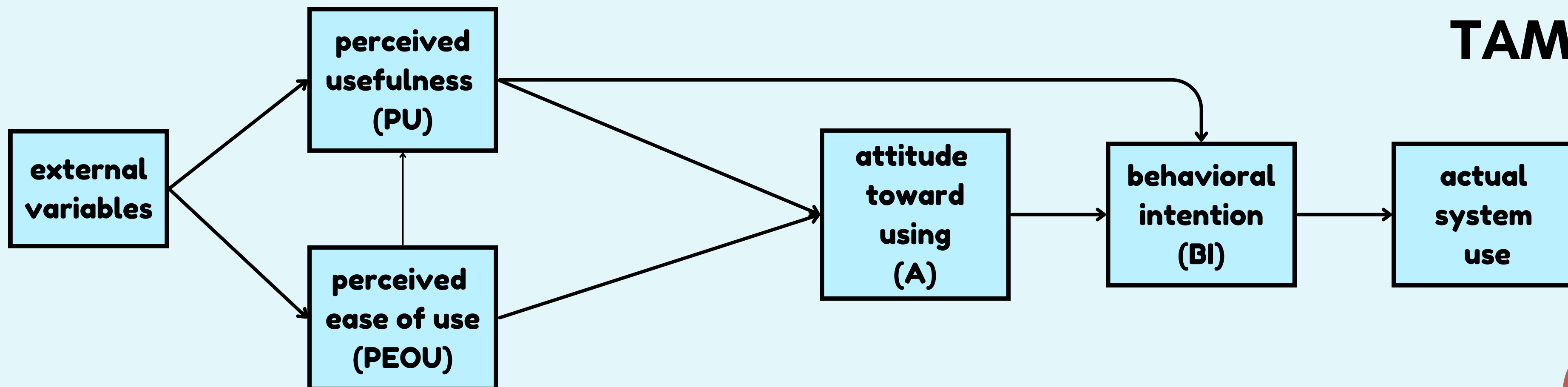
HOWEVER,

there is a paucity of research investigating the **acceptability of ChatGPT** specifically within **university settings**.



AIM

Utilizing the **Technology Acceptance Model** (Davis, 1989) as the theoretical framework, this study aims to examine the intention of university students to use ChatGPT and its relative use in an academic context. In the basic TAM model, we add ChatGPT knowledge as a control variable, and three external variables related to technology: social norms, technology self-efficacy, and anxiety.



TAM

Participants were asked to complete an anonymous online survey that includes:

- Demographic variables;
- TAM'S BASE VARIABLES assessed by adapting the items used in the study by Huang and colleagues (2022) to the context of ChatGPT use:
 - Perceived usefulness of ChatGPT use (PU)** – 3 items ($\omega = .907$)
 - Perceived ease of ChatGPT use (PEOU)** – 3 items ($\omega = .800$)
 - Attitude toward using ChatGPT (A)** – 5 items ($\omega = .905$)
 - Behavioral intentions using ChatGPT (BI)** – 3 items ($\omega = .965$)
 - ChatGPT use in the academic context was assessed by one ad hoc item
- TAM's external variables:
 - Social norms related to technology use (SN)**, 2 items from Aburbeian and colleagues (2022) (Spearman $\rho = .452$)
 - Technology self-efficacy (TSE)**, 4 items from Ni and Cheung (2022) (McDonald's $\omega = .887$)
 - Technology anxiety (AX)**, 4 items from Guner and Acarturk (2020) (McDonald's $\omega = .830$)
- One ad hoc item was constructed to assess university students' **knowledge of ChatGPT** and was used as a control variable.

MEASURES



METHOD

SAMPLE

The sample comprised **410 university students** (58.4% female) in Italy, aged 19-36 years ($M=23.24$, $SD=2.61$). The majority of participants report having at least heard of artificial intelligence (91.2%) or ChatGPT (92.9%) 61.6% reported that they have never used ChatGPT for academic reasons, 13.5% rare use, 11.3% occasional use, 8.6% frequent use, and only 4.9% reported using it often.

For each scale adopted, we tested its factorial structure (CFA). The relationships between predictors and outcome were tested performing **path analysis**. All models were run in Mplus.

DATA ANALYSIS



RESULTS

The model fits well: $\chi^2 = 44.951$, $df = 13$, $p < .001$; $RMSEA = .078$ (.054 – .103) $p = .031$; $CFI = .978$; $SRMR = .024$.

The figure showed the model tested:

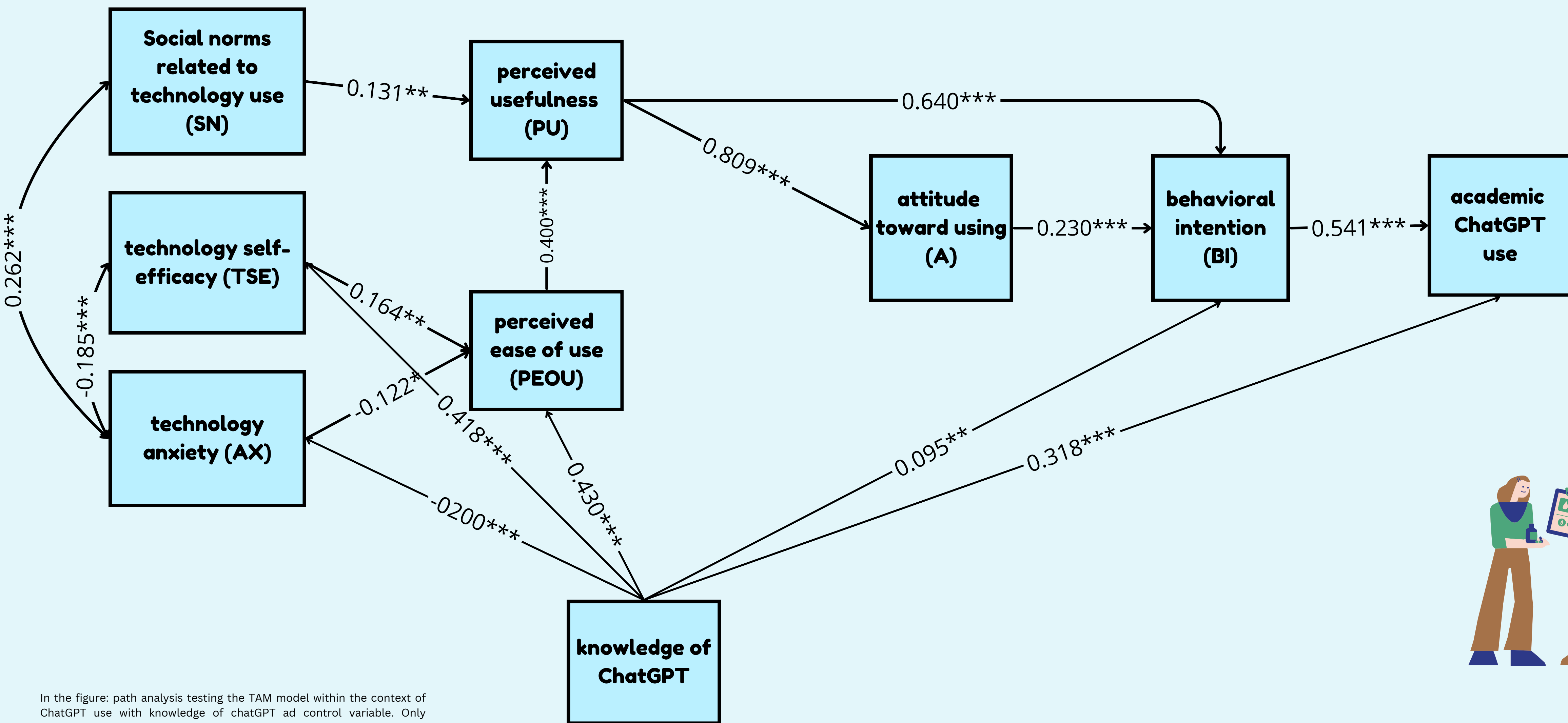
- PEOU is negatively influenced by AX and positively by TSE.
- PU is positively influenced by SN and PEOU.
- A is positively influenced by PU.
- BI is positively influenced by A and PU.
- Academic ChatGPT use is positively influenced by BI.
- Knowledge of ChatGPT negatively influences AX and positively influences TSE, PEOU, BI, and academic ChatGPT use.



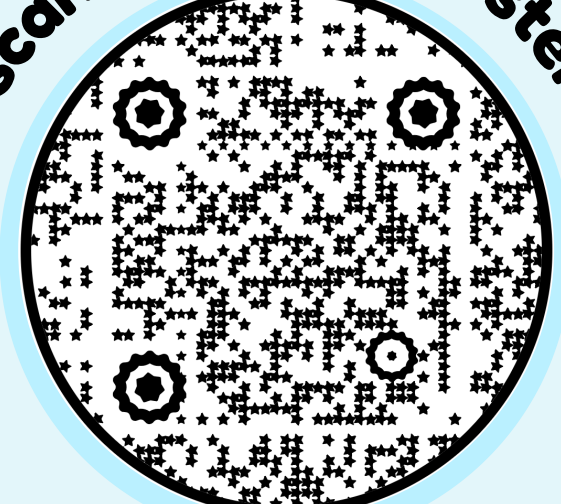
DISCUSSION

The results highlight that enhancing students' knowledge of ChatGPT can significantly reduce technology anxiety and increase technology self-efficacy, ultimately fostering a positive attitude and stronger intention to use the technology in an academic setting. Our findings highlighted the importance of developing training to increase positive knowledge of ChatGPT in order to promote its conscious academic use.

In the figure: path analysis testing the TAM model within the context of ChatGPT use with knowledge of chatGPT ad control variable. Only significant correlational and regression paths are represented (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$). Standardized values are reported.



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