Linguistic-saving hypothesis among bilinguals: The effect of language on intertemporal discounting and future perception

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Note: We may conduct a pre-pre-registered Study 3 and update the results on the ResearchGate: https://www.researchgate.net/profile/Yuepei-Xu

Introduction

The Sapir-Whorf Hypothesis : Language shapes the way we think.

❑ **The linguistic-savings hypothesis (LSH, Chen, K., 2011)**

Stronger future-time reference (FTR) of one's *native* language ← correlational relationship → Higher intertemporal discount rate

❑ **Beyond native language: Take *foreign* languages into LSH**

- Instantaneous effect of different language ?
- Different languages impact individuals' decision preference (Keysar et al., 2012) and time perspective (Pérez & Tavits, 2017).

❑ **Our hypothesis: LSH among bilinguals**

Weak-FTR language (i.e., Chinese) native speakers

- Use a weak-FTR native language (i.e., Chinese)
- Use a strong-FTR foreign language (i.e., English) → Less future orientation, More distant future perception, Higher intertemporal discount rate

What did we found ?

Native language's FTR (long-term effect) — tested by the linguistic-saving hypothesis

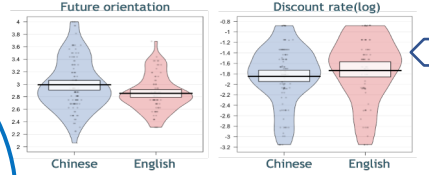
Language's future-time reference (FTR) ↔ Intertemporal discounting

A bilingual context? Foreign language's FTR (short-term effect) — which we tested here

❑ **Using English (strong-FTR) may make Chinese (weak-FTR) native speakers less future-oriented, have a more distant subjective future perception, but may not impact their intertemporal discounting.**

Results

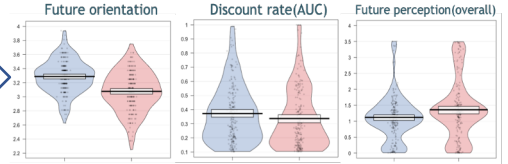
Study 1



N in Chinese = 114
N in English = 78

❑ Less future orientation in English group, $p = .006$, Cohen's $d = 0.398$, $BF10 = 3.852$
❑ Non-significant effect of language on discounting, $p = .198$, Cohen's $d = 0.190$, $BF10 = 0.347$

Study 2



N in Chinese = 215
N in English = 208

❑ Less future orientation in English group, $p < .001$, Cohen's $d = 0.728$, $BF10 > 100$
❑ More distant future perception in English group, $p = .009$, Cohen's $d = 0.256$, $BF10 = 3.122$
❑ Non-significant effect of language on discounting, $p = .362$, Cohen's $d = 0.090$, $BF10 = 0.179$

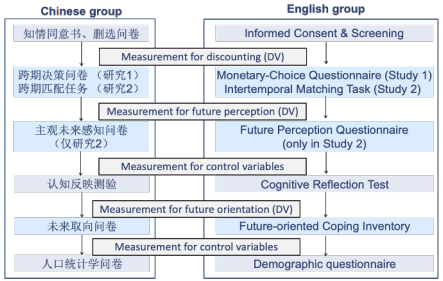
Methods

❑ **Study 1**

- **Design**: Single-factor between-group design
- **Sample**: 213 college students (use G-power, at least 156 participants are needed)
- **Independent variable (IV)**: Language (Chinese vs. English)
- **Dependent variables (DVs)**: Discounting rate, future orientation
- **Control variables**: Cognitive reflection test, demographic variables

❑ **Study 2 (generally the same as Study 1)**

- **Sample**: 472 adults (at least 352 participants are needed)
- **An extra DV** : Subjective future perception



Discussion

❑ **Consistent with Pérez & Tavits (2017)**

- Manipulation: Use a strong-FTR language in interview
- Outcome: Less future orientation, less supportive for future-oriented policy

❑ **Consistent with Chen, I. J., He, and Riyanto (2019)**

- Manipulation: An instantaneous language change (adding an auxiliary verb "will")
- Outcome : Did not change participants' intertemporal preference

❑ **Partially consistent with Białek, et al. (2020)**:

- Manipulation: Use foreign languages
- Outcome: Did not benefited one's intertemporal decision

Main reference: Białek, M., Domurat, A., Paruzel-Czachura, M., & Muda, R. (2021). Limits of the foreign language effect: intertemporal choice.; Chen, M. K. (2011). The effect of language on economic behavior: Evidence from savings rates, health behaviors, and retirement assets.; Chen, J. I., He, T. S., & Riyanto, Y. E. (2019). The effect of language on economic behavior: Examining the causal link between future tense and time preference in the lab.; Keysar, B. , Hayakawa, S. L. , & An, S. G. . (2012). The foreign-language effect: Thinking in a foreign tongue reduces decision biases.; Pérez, E. O., & Tavits, M. (2017). Language Shapes People's Time Perspective and Support for Future-Oriented Policies.