

Examining the Agreement of Alternative Estimates of Category Exemplar Typicality

Abstract # 2251

Taylor Curley¹, Nichol Castro^{1,2}, & Christopher Hertzog¹

1. School of Psychology, Georgia Institute of Technology,
2. Department of Communicative Disorders and Sciences, University of Buffalo



#psynom20

VIRTUAL PSYCHONOMICS

Normative Typicality

- “Traditional” category typicality estimation method: *free response to category label*
- *Typicality = frequency of exemplar production in norming sample*
- Used in multiple norming studies
 - Battig & Montague (1969)
 - Van Overschelde et al. (2004)
 - Castro, Curley, & Hertzog (2020)



A FRUIT¹:

Apple (0.94)
Orange (0.75)
Banana (0.67)
Pear (0.5)
Strawberry (0.45)
...
Cantaloupe (0.13)
Apricot (0.09)
Blackberry (0.09)
Tangerine (0.08)
Melon (0.07)

1. Taken from Castro et al. (2020) norms

Hypotheses:

- 1) Free response method introduces unwanted measurement error especially for **less-typical exemplars**
- 2) Effect may be larger for older adults
 - Older adults do not generate as many exemplars as young adults in category fluency tasks (e.g., Troyer, 2000).
 - They may be less likely to produce low-typicality exemplars in free response



Alternative Typicality Estimates

LIKERT RATING

- “Rate each item on a scale from 1 (very atypical) to 10 (very typical) for the category label shown.”
- Rating via sliding scale.

RANK-ORDER

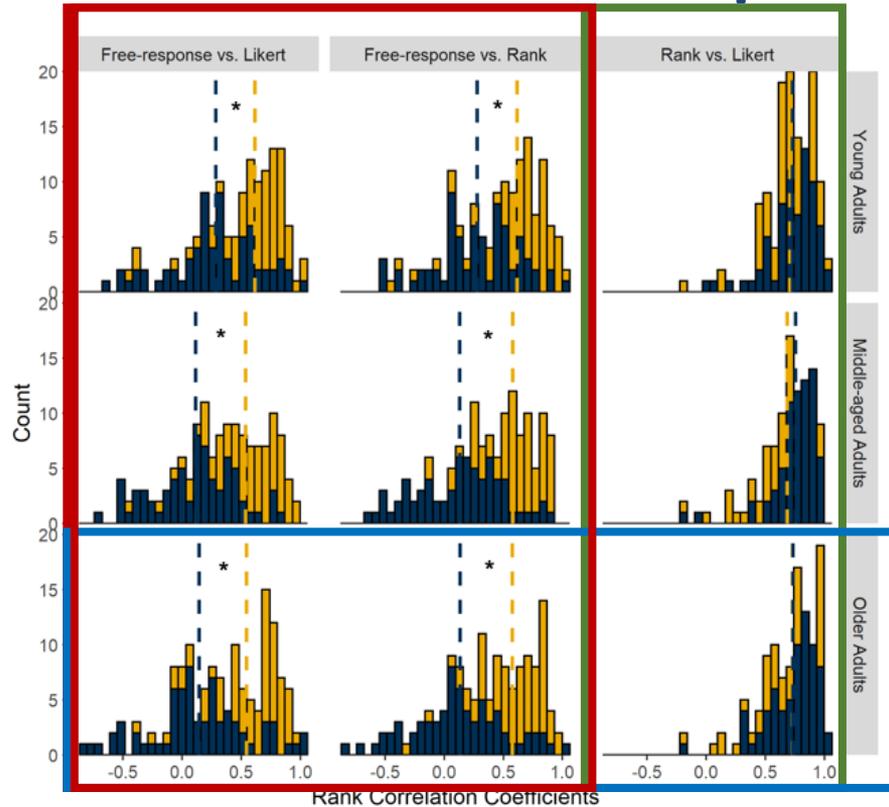
- “Order each item from most typical to least typical for the category label shown.”
- Rank ordering via drag-and-drop.

SAMPLE & METHODS

- 447 adults (*Age Range* = 18-96)
- $N_{YA} = 143$ (ages 18-39), $N_{MA} = 133$ (ages 40-59), $N_{OA} = 171$ (ages 60+)
- Participants shown normative category label + a set of exemplars.
- Same categories as Castro et al. (2020).
- The exemplars presented were ones that were reported at least 5% of time in Castro et al. norms.



Between-Method Comparisons



* T-test between means sig. at $\alpha = 0.05$.

We computed pairwise rank-order correlations of ratings w/ free response typicality separately for the most- and least-typical items (median split) within 3 age groups.

Linear contrasts show that:

- Previous free-response methods have **low average correlation** with rank-order ($r = 0.39$) and Likert ($r = 0.37$) methods.
- The new rank-order and Likert rating methods **correlated highly** with each other ($r = 0.72$).
- There are **lower average correlations** between free-response both rank-order & Likert rating for less-typical items.
- Older adults had **significantly lower average correlations of new tasks w/ free response** compared to young adults.



Conclusions

- Traditional free-response typicality norms do capture typicality of less-typical category exemplars in many categories.
- New rating tasks show high agreement for less-typical exemplars; may have better reliability and validity
- New methods have other advantages, including possibility of obtaining person-specific typicality relevant to assessing typicality effects in memory and language.

Contact Information

- Email: taylor.curley@gatech.edu
- Website: www.hertzoglab.psychology.gatech.edu
- Additional Materials:
www.hertzoglab.psychology.gatech.edu/pnomics20
 - Or scan the QR code!



References

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