

Pitch #1

Can behavioral and neural indices predict language learning ability?

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Overview: I am interested in whether brain measures improve, above and beyond behavioral measures, the identification of adults who excel in language learning. An additional goal is to understand more precisely which behavioral and neural characteristics were most predictive of learning success, either independently or in combination.

Data = 42 native English speakers were taught a novel miniature artificial language in the lab. Prior to learning, participants completed a large battery of cognitive and aptitude measures (ie: extant aptitude tests, IQ tests, working memory and open-loop (feedback based) forms of skill learning were predictive) and completed an fMRI scan while performing three separate tasks and during rest.

The artificial language (MAL) was learned somewhat naturalistically over the course of 4 days.* After each learning session, participants were tested for knowledge of all aspects of the language.

Tasks during scanning measured neural recruitment during working memory, skill learning and language processing.

**234 potential features (at least)

Analysis - Learning outcome is median split on measures of grammatical learning and semantic processing (meaning and content of the language)

Run classifier model on:

1. Behavioral predicts good vs bad learners
2. Brain data predicts good vs bad learners
3. Behavioral + Brain

Figure out which characteristics are most predictive of learning success:

1. which behavioral feature
2. which neural features (ie tasks, which brain regions)

If this works, it could be the first demonstration that brain measure can help identify successful learning and contributes to our understanding about which aspects of cognitive and neural architecture contribute to learning success.

Potential problems: Data set is small small small. We need to reduce features like mad.

*participants observed 360 narrated scenes on a computer and repeated the narrations while trying to learn the language, which was comprised of 30 nouns, 4 verbs, 2 determiners, followed subject-object-verb word order, and had regular determiner-word pairings and subject-verb agreement.

I find toxins and birth rates interesting
and schooling/health outcomes wrt to pollution
graduation rates

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Pitch #2

fuck I forgot about the duckworth persistence data

Longitudinal dataset following seniors in highschool through college (n=1754)

- 1. Can we predict who is going to persist and who does not?
- 2. Which features are most predictive?

Persistence = college graduation or how many years they stayed in college and what kind of college

Data - SO MUCH

1. Cognitive assessments, teacher reported measures, self reported measures, personality measures, GRIT, grades, SAT scores, SES, 1078 features pretty much.
- 2.