Slide 1

Center for Multilingual and Intercultural Communication

Stony Brook University

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Slide 2

Communication in the Global University:
A Longitudinal Study of Language Adaptation at Multiple Timescales in Native- and Non-Native Speakers

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Slide 3

The "ITA problem" (an ugrad's perspective)

42% of undergraduates report having dropped a class upon learning it would be taught by a non-native speaker of English (Rubin & Smith, 1990).

Chinese speakers of English as L2 tend to depart from standard pronunciation in (at least) these ways:
- /l/ not distinguished from /r/
- /v/ pronounced as /w/
- Non-standard vowels and lack of vowel contrasts
- Epenthesis in selected consonant clusters
- /th/ pronounced as /s/
- Non-standard prosody (pitch accents, hesitations, etc.)

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Slide 4

The "ITA problem" (an ugrad's perspective)

42% of undergraduates report having dropped a class upon learning it would be taught by a non-native speaker of English (Rubin & Smith, 1990).

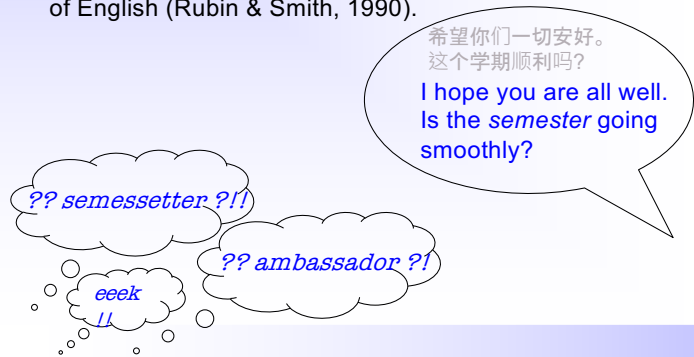ITA 1: final voicing, lexical stress, final /L/, /I/-/e/ contrasts, epenthesis for some clusters

ITA 2:/v/-/w/ contrasts), /L/ and epenthesis for some clusters, vowel contrasts, prosody

"Not much research has been done on everyday multitasking and healthy aging, or in situations that are important in everyday life, like completing errands in a mall or preparing something to eat. We'll present an experiment and a multivariate study using a virtual breakfast-making task."

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The "ITA problem" (an ugrad's perspective)

42% of undergraduates report having dropped a class upon learning it would be taught by a non-native speaker of English (Rubin & Smith, 1990).
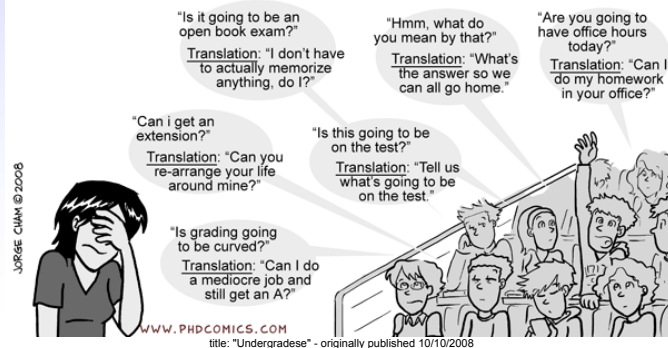
希望你们一切安好。
这个学期顺利吗?

I hope you are all well. Is the *semester* going smoothly?

?? semessetter ?!

?? ambassador ?!

eeek !!

The "ITA problem" (an ITA's perspective)

title: "Undergradese" - originally published 10/10/2008

The "problem" is not just the ITA's problem…

- how undergraduates can adapt to an ITA's foreign accent (perceptual learning, explicit and implicit interventions), and
- how ITAs and undergraduates ground meanings in one-on-one conversation.
- TODAY's talk: How ITAs' English proficiency develops over time.

Modeling ITAs' language development

Longitudinal study of Chinese ITAs new to the US
Three 2-year waves of repeated measures.
(Wave 1 is now complete.)

Inclusion criteria:
- No previous experience living in or studying in the U.S.
- Native speaker of Mandarin
- Admitted to any SBU STEM PhD program with funding

Research Questions

- To what extent does ITAs' language proficiency develop over time in the U.S.?
- Does ITAs' *confidence* in their skills matter?
- Does it matter whether they aware of their language proficiency? (*metacognition*)
- What factors are associated with high English proficiency?

Versant test

Four sub-scales are combined into a weighted score:

- Sentence mastery } Content
- Vocabulary
- Pronunciation   } Intelligibility   } <u>Versant</u>
- Fluency

<u>Versant</u> = *Sentence + Vocabulary + Pronunciation + Fluency*

<u>Versant Intelligibility</u> = *Pronunciation + Fluency*

Self-report measures

- ✓ Demographic info
- ✓ Language background
- ✓ Travel and multi-cultural experiences
- ✓ Self confidence in English language skills
- ✓ Personal interactions on and off-campus
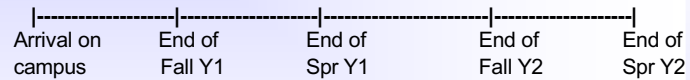
Other measures

Mint test of vocabulary

Speech recordings:
- Words selected for certain features, in and out of sentence contexts
- Short discourses
- Answers to questions (to test for felicitous focal stress in pragmatic contexts)
- Ethnographic interviews (>44 hours)

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Key Repeated Measures

5 TIME POINTS over ~2 years:

```
|-------------------|-------------------|------------------------|-------------------|
Arrival on        End of            End of               End of            End of
campus            Fall Y1           Spr Y1               Fall Y2           Spr Y2
```

Versant Score ←→ Confidence in Own Communication Skills

Versant sentence mastery	←→	Confidence in grammar
Versant vocabulary	←→	Confidence in own vocabulary
Versant pronunciation	←→	Perception of own English accent
Versant fluency	←→	Confidence in presenting research

METACOGNITION variables:
Accuracy in estimating own proficiency ($Z_{Confidence}$ minus $Z_{Versant}$)
Direction of error: +Over-confidence vs. -under-confidence

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Key Repeated Measures

School/life experience
Estimated ease of school-related activities
- Learning
- Managing time
- Getting help with schoolwork
- Interacting with faculty
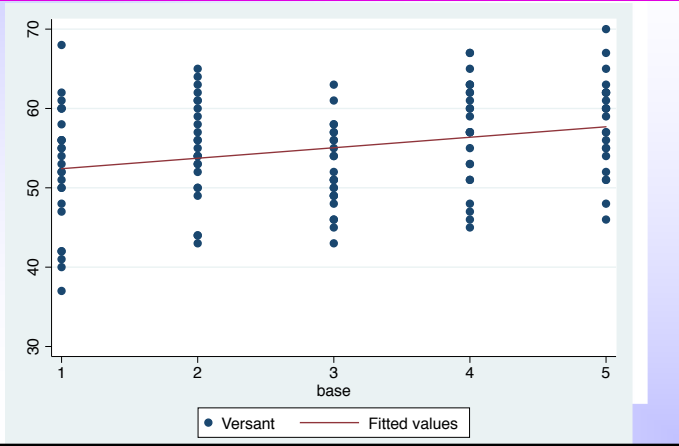
} Composite variable

Interactional Experiences
Use of English within U.S. campus home

RESULTS →

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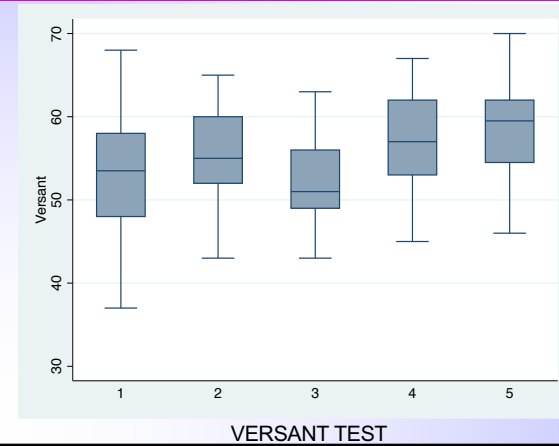## Slide 15

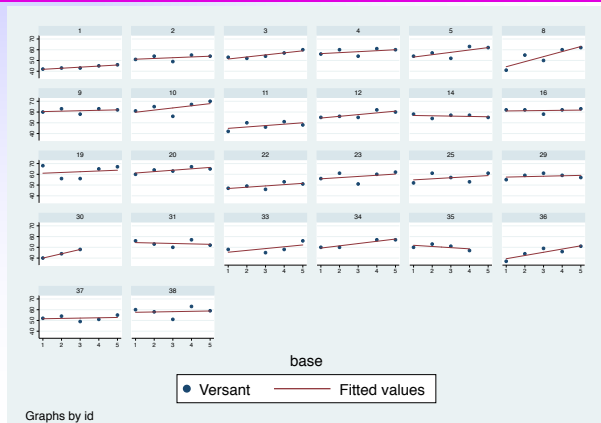### Repeated Versant scores over time
N = 26, 25, 25, 25, 24

15

Slide 16

Repeated Versant scores over time
N = 26, 25, 25, 25, 24

VERSANT TEST

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Slide 17

Versant scores over time by subject
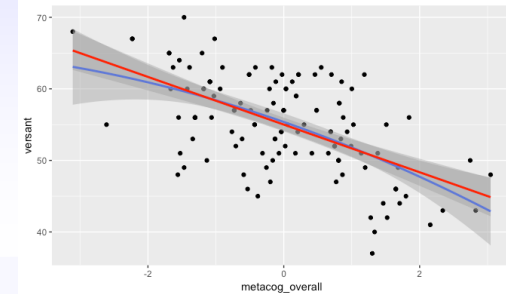

base

● Versant   —— Fitted values

Graphs by id

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Metacognition by Proficiency

Metacognition: Accuracy in estimating own proficiency

($Z_{Confidence}$ minus $Z_{Versant}$)

Direction of error: +Over- vs. -under-confidence

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Slide 19
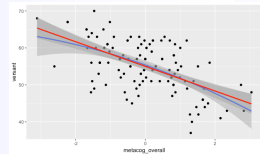
Mixed Effects Models 1A and 1B
Full Versant with Metacognition

Dependent variable: Versant overall Score

Fixed Effects:
- Base(time)
- **Metacognition (ranging from overconfident to underconfident)**
- Ease of doing school related activities
- Use of English (at US home)

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```
Linear mixed model fit by REML t-tests use Satterthwaite approximations to degrees
   of freedom [lmerMod]
Formula: versant ~ base + metacog_overall + metacog_overallsq + avgease +
   enghome + (metacog_overall | id)
   Data: mdata

REML criterion at convergence: 630.5

Scaled residuals:
    Min      1Q   Median       3Q      Max
-2.54609 -0.48758  0.05599  0.54835  2.13442

Random effects:
 Groups   Name            Variance Std.Dev. Corr
 id       (Intercept)     16.597   4.074
          metacog_overall  1.361   1.167    -0.62
 Residual                  6.682   2.585
Number of obs: 121, groups:  id, 26

Fixed effects:
                   Estimate Std. Error        df t value Pr(>|t|)
(Intercept)        46.10655    1.82468 111.19000  25.268  < 2e-16 ***
base2               1.94801    0.80134  85.99000   2.431 0.017137 *
base3               1.53949    0.82285  87.55000   1.871 0.064697 .
base4               4.57577    0.76330  85.15000   5.995 4.77e-08 ***
base5               4.96208    0.77859  86.34000   6.373 8.74e-09 ***
metacog_overall    -2.80253    0.43971  29.70000  -6.374 5.16e-07 ***
metacog_overallsq   0.07235    0.19474  22.36000   0.372 0.713753
avgease             1.93203    0.51093  92.43000   3.781 0.000276 ***
enghome             0.59056    0.63487  90.75000   0.930 0.354736
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

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Slide 21:

```
Data: mdata
Models:
object: versant ~ base + metacog_overall + avgease + enghome + (metacog_overall |
object:     id)
..1: versant ~ base + metacog_overall + metacog_overallsq + avgease +
..1:     enghome + (metacog_overall | id)
        Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
object 12 659.76 693.31 -317.88   635.76
..1    13 661.69 698.04 -317.85   635.69 0.0669      1     0.7959
```
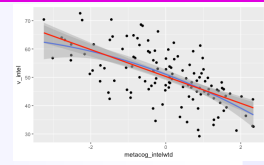
Models not sig diff
Quadratic term not needed

Slide 22:

Mixed Effects Models 2A and 2B
Versant Intelligibility w/ Metacognition

Dependent variable: Versant Intelligibility

Fixed Effects:
- Base(time)
- **Metacognition (ranging from overconfident to underconfident)**
- Ease of doing school related activities
- Use of English (at US home)

Slide 23:

```
Linear mixed model fit by REML t-tests use Satterthwaite approximations to
  degrees of freedom [lmerMod]
Formula:
v_intel ~ base + metacog_intelwtd + avgease + enghome + (metacog_intelwtd |
   id)
   Data: mdata

REML criterion at convergence: 706.8

Scaled residuals:
    Min     1Q  Median     3Q     Max
-2.5379 -0.4831  0.0250  0.4507  2.1179

Random effects:
 Groups   Name            Variance Std.Dev. Corr
 id       (Intercept)     31.436   5.607
          metacog_intelwtd 1.563   1.250    -1.00
 Residual                 14.252   3.775
Number of obs: 121, groups:  id, 26

Fixed effects:
                  Estimate Std. Error       df t value Pr(>|t|)
(Intercept)        37.5771     2.4783 108.1700  15.162  < 2e-16 ***
base2               2.8450     1.1567  87.1600   2.460 0.015888 *
base3               3.8211     1.2297  91.4900   3.107 0.002515 **
base4               6.0131     1.1203  87.9500   5.367 6.42e-07 ***
base5               6.5712     1.1214  86.9300   5.860 8.12e-08 ***
metacog_intelwtd   -3.9847     0.5520  41.7900  -7.219 7.28e-09 ***
avgease             2.6532     0.7081  92.6800   3.747 0.000311 ***
enghome             1.0373     0.8958  93.2300   1.158 0.249837
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Slide 24:

```
Linear mixed model fit by REML t-tests use Satterthwaite approximations to
  degrees of freedom [lmerMod]
Formula: v_intel ~ base + metacog_intelwtd + metacog_intelwtdsq + avgease +
   enghome + (metacog_intel | id)
   Data: mdata

REML criterion at convergence: 703.3

Scaled residuals:
    Min      1Q  Median      3Q     Max
-2.68671 -0.47439  0.05073  0.48465  2.09648

Random effects:
 Groups   Name          Variance Std.Dev. Corr
 id       (Intercept)   33.788   5.813
          metacog_intel  2.908   1.705    -1.00
 Residual               13.482   3.672
Number of obs: 121, groups:  id, 26

Fixed effects:
                    Estimate Std. Error       df t value Pr(>|t|)
(Intercept)          38.1300     2.5317 109.6400  15.061  < 2e-16 ***
base2                 2.9027     1.1311  85.3800   2.566 0.012024 *
base3                 3.5110     1.2096  89.8100   2.903 0.004656 **
base4                 5.6570     1.1095  86.6600   5.099 1.99e-06 ***
base5                 6.1328     1.1216  85.9000   5.468 4.40e-07 ***
metacog_intelwtd     -3.9850     0.5876  32.3800  -6.782 1.09e-07 ***
metacog_intelwtdsq   -0.4650     0.2326  91.8300  -1.999 0.048541 *
avgease               2.7210     0.6875  88.9800   3.958 0.000152 ***
enghome               0.7291     0.8913  89.9900   0.818 0.415522
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Linear model Quadratic model comparison

```
Data: mdata
Models:
object: v_intel ~ base + metacog_intelwtd + avgease + enghome + (metacog_intelwtd
|
object:      id)
..1: v_intel ~ base + metacog_intelwtd + metacog_intelwtdsq + avgease +
..1:     enghome + (metacog_intel | id)
       Df    AIC    BIC  logLik deviance  Chisq Chi Df Pr(>Chisq)
object 12 742.73 776.28 -359.37  718.73
..1    13 739.66 776.01 -356.83  713.66 5.0703     1    0.02434 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Results

- Proficiency increases over time
- **Those with more accurate metacognition were more proficient**
- **However, it's better to be underconfident than overconfident**
- Self-ratings of ease of doing school-related things was associated with higher Versant scores
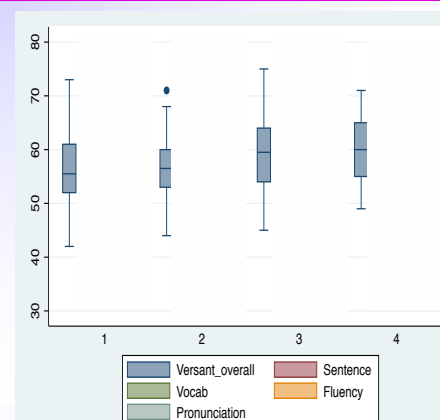- It didn't matter whether English is spoken in the home.

Conclusions from this study:

- ITAs with more accurate metacognition about their own language skills (who were neither over- nor under-confident) had higher VERSANT scores
- Being under-confident was associated with higher proficiency than being over-confident.
- ITAs are not as immersed in an English-speaking community as one would hope.
- Stable improvements in proficiency did not emerge until after the first year.
- Accents are a bundle of features; each speaker has somewhat idiosyncratic issues with English pronunciation.
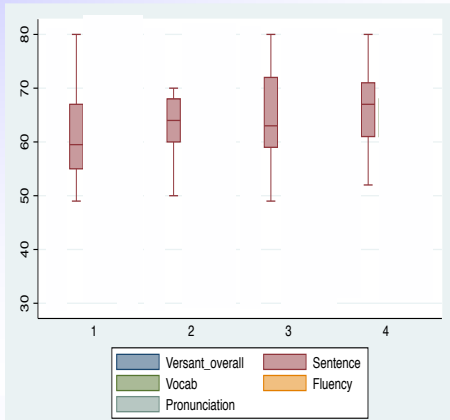
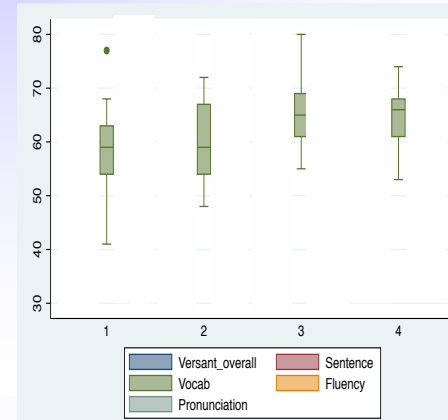## Versant overall: Wave2 Baseline 1,2,3,4 (n=16+2, 15, 18, 17)

Wave2 Sentence1,2,3,4

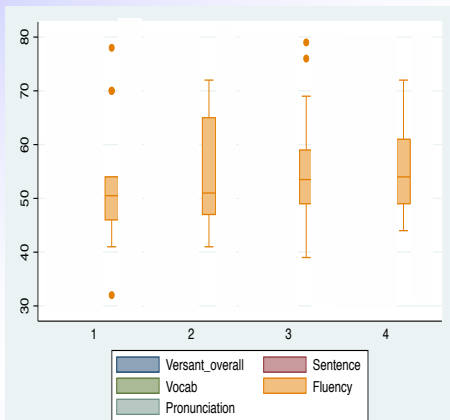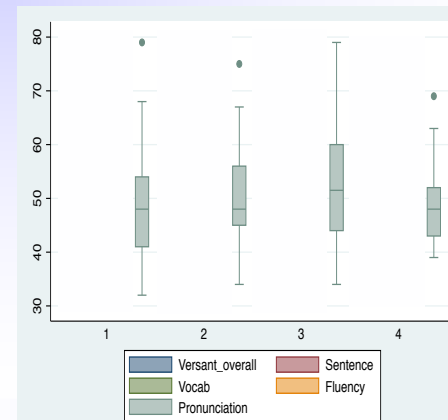Wave2 Vocabulary 1,2,3,4

Wave2 Fluency 1,2,3,4

Wave2 Pronunciation 1,2,3,4

29

30

31

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Slide 33

Wave2 Baseline 1,2,3,4

Legend: Versant_overall, Sentence, Vocab, Fluency, Pronunciation

Slide 34
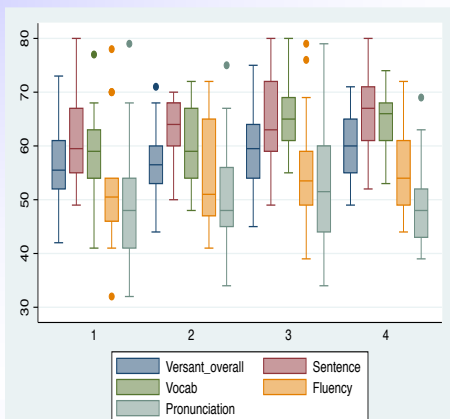
Implications

- Over time in the U.S., pronunciation and fluency don't improve as much as do vocabulary and syntax.

- This suggests that we should address the problem at the undergrad level – train the listeners to adapt!

- The "ITA problem" is not owned by ITAs, but is broadly shared by all who participate in a major university within a modern global context.

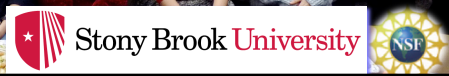- Native-non-native speaker communication is a rich and complex problem!

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Thank You! Center for Multilingual and Intercultural Communication

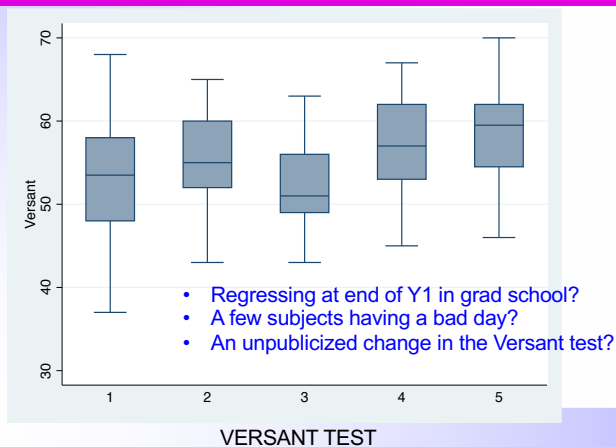|		
Ashley Brown	Lauren Kruger	Jessica Apicella
Sophia Kao	Krystalle Lyons	Lin Xue
Jeanne Charoy	Kevin Henderson	Hie Jin Shim
Yi Zheng	Anne McNulty	Ellen Broselow
Honaidah Ahyad	Hyunah Baek	Marie Huffman
Jessica Apicella	Ji Young Park	Arty Samuel

Stony Brook University

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Other findings from this project:

- Native English monolinguals rate foreign-accented speech similarly whether the speaker is Caucasian or Asian *(Zheng & Samuel, 2017)*

- When listening to audiovisual speech, accented speech is more intelligible when the listener is closer to the speaker *(Zheng & Samuel, *********)*

- Giving ITAs and undergrads experience interacting in a matching task (a 1-2 hour intervention) does *not* make the ITA's accent more intelligible to the ugrad afterward *(Charoy & Brennan, unpublished).*

Repeated Versant scores over time
N = 26, 25, 25, 25, 24

- Regressing at end of Y1 in grad school?
- A few subjects having a bad day?
- An unpublicized change in the Versant test?

VERSANT TEST

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The "problem" is not with the ITA…

Communication is fundamentally collaborative; both partners adapt their utterances to one another as they *ground* meanings (Clark & Brennan, 1991).

This is true even when a native English speaker speaks a "target" version of the language that the partner aspires to master (Bortfeld & Brennan, 1977). Native speakers produced wildly non-idiomatic expressions in order to be clear to non-native speaker:

"the chair in which I shake my body"

Both partners take responsibility for achieving meanings in conversation.

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Starting Assumptions/Predictions

- ITAs are immersed in an English-speaking culture.
- ITAs English proficiency will improve rapidly with time in the U.S.
- Undergraduates' attitudes are part of the problem (it's not all about intelligibility).
- Experience in a collaborative task that requires grounding meaning should help ugrads adjust to foreign-accented speech

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The "problem" is not with the ITA…

Communication is fundamentally collaborative; both partners adapt their utterances to one another as they *ground* meanings (Clark & Brennan, 1991).

Both partners take responsibility for achieving meanings in conversation.

Individual ITAs may or may not become more native-like in their pronunciation; however perhaps undergraduate can learn to understand their accents.

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