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The Spanish version of the NIH Toolbox: Overview and development

Rina S. Fox, PhD, MPH

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Co-authors

Northwestern University Feinberg School of Medicine



Richard C. Gershon, PhD



Cindy J. Nowinski, MD, PhD



Ellen M. Roney, BS

University of Delaware



Jerry Slotkin, PhD

Columbia University



Jennifer J. Manly, PhD

University of California, Davis

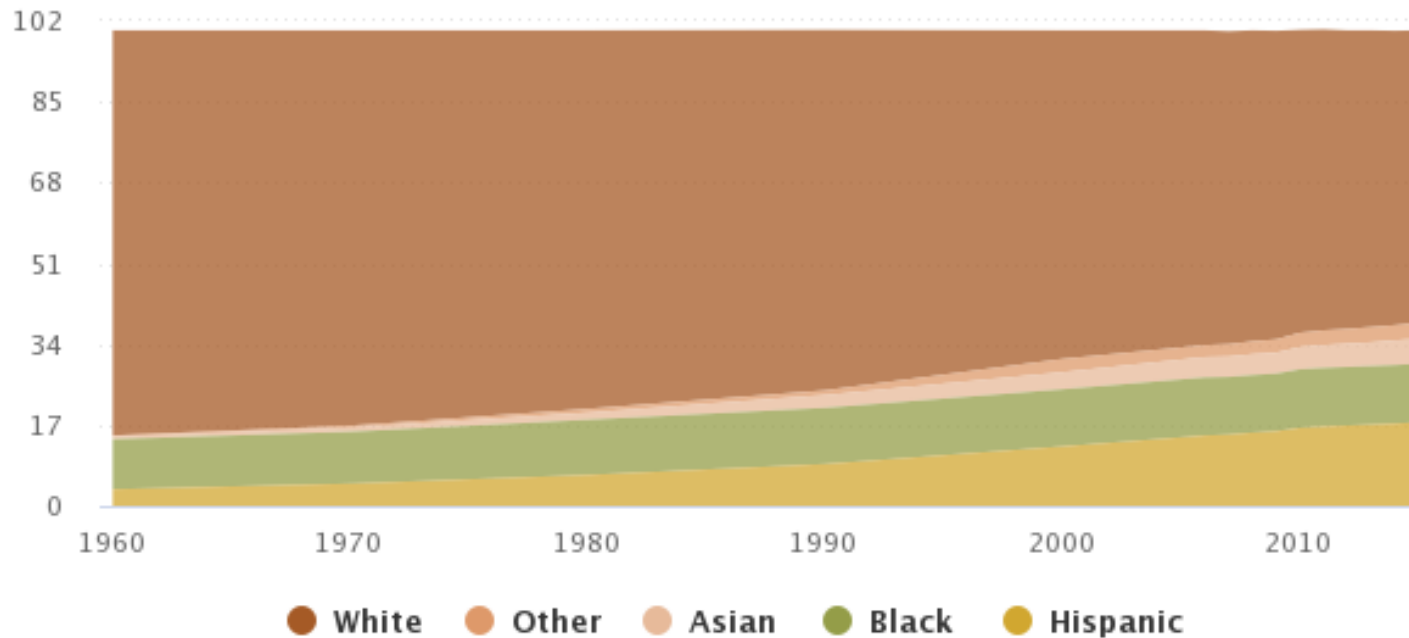


Dan M. Mungas, PhD

Hispanics/Latinos in the United States

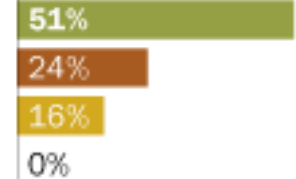
Hispanics are a rising share of the U.S. population

% of total population



1 half of total

Share of total increase



and Asian are single race, and Alaska Natives, Native Americans not shown. Bureau population estimates.

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population estimates and Vintage 2014.

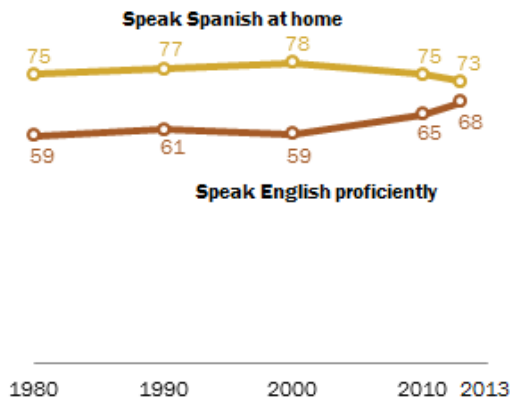
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Language Use Among Hispanics/Latinos in the United States

FIGURE 1

English Proficiency Rising Among Latinos as Spanish Use at Home Declines

% of Latinos ages 5 and older who ...



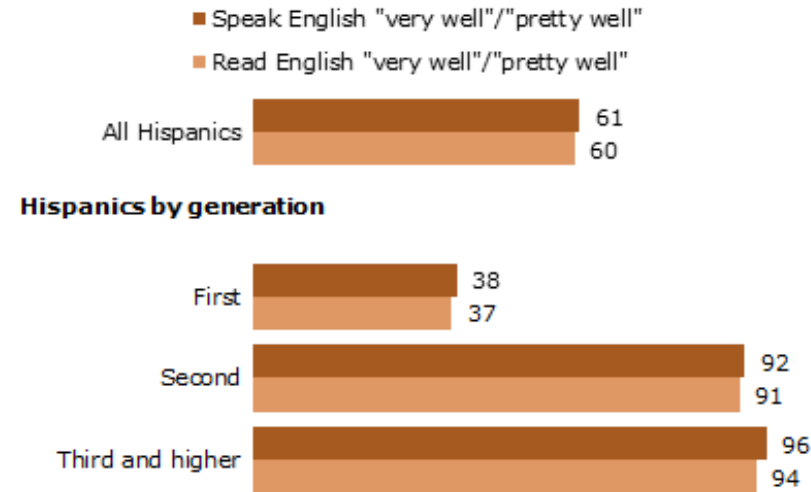
Note: Latinos who speak English proficiently are those who speak only English at home or, if they speak a non-English language at home, indicate they can speak English "very well."

Source: Pew Research Center tabulations of 1980, 1990 and 2000 censuses (5% IPUMS) and 2010 and 2013 American Community Surveys (1% IPUMS)

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Figure 3.2

English Speaking and Reading Ability, by Generation (%)



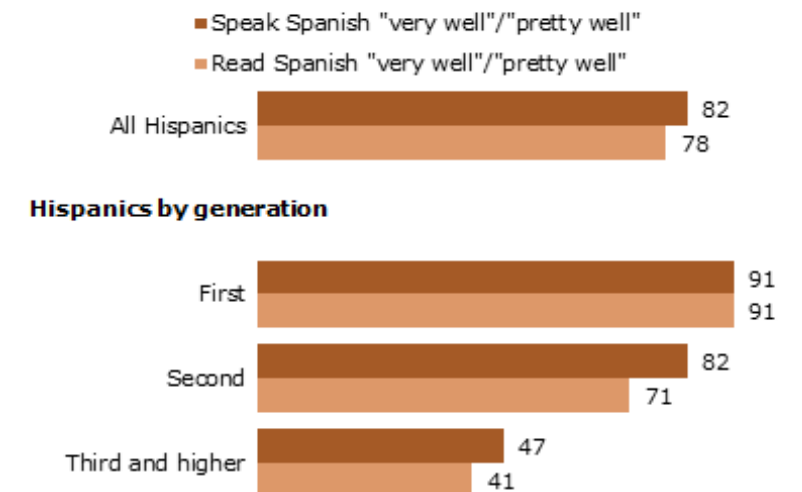
Note: N=1,220.

Source: Pew Hispanic Center, 2011 National Survey of Latinos

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Figure 3.3

Spanish Speaking and Reading Ability, by Generation (%)

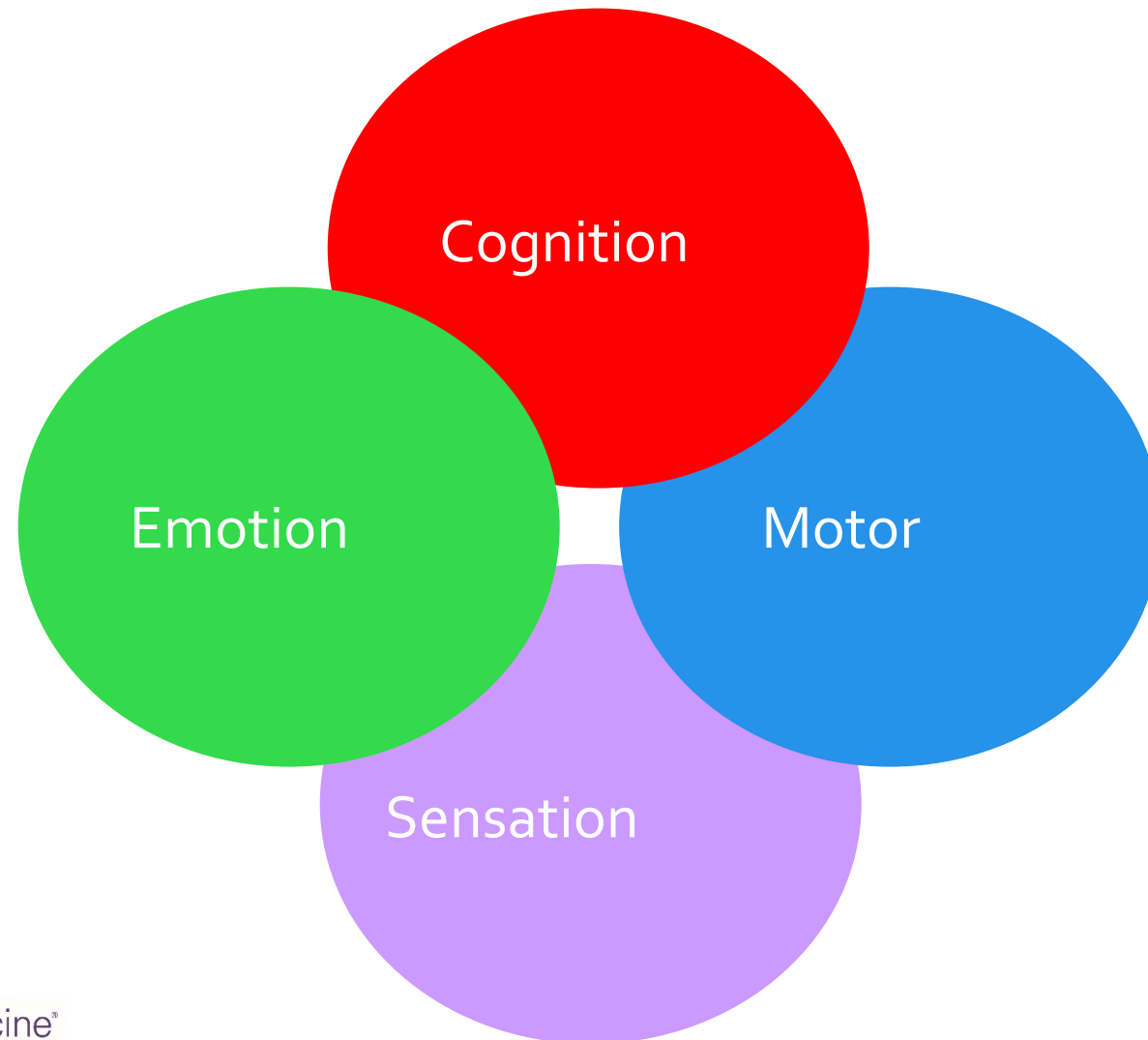


Note: N=1,220.

Source: Pew Hispanic Center, 2011 National Survey of Latinos

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NIH Toolbox



Cultural Considerations

Cultural Working Group (CWG)

- Purpose: Ensure all included measures were culturally and conceptually appropriate for diverse groups
- Reviewed all English-language measures according to 5 criteria:
 1. Incorporating input from diverse end-users
 2. Ensuring equivalence across groups
 3. Psychometric equivalence
 4. Differential Item Functioning
 5. Comparable utility of measurement properties (e.g., Likert-type scales)

Cultural Considerations

Spanish Language Working Group

Purpose: Assess translatability

1. Universality
2. Cultural relevance
3. Figure of speech/jargon
4. Ambiguity
5. Register
6. Number of words
7. Translation reversal
8. Double-negative
9. Double-barrel
10. Sex and number agreement
11. Parts of speech
12. Oral vs. written
13. Mode of administration/technology

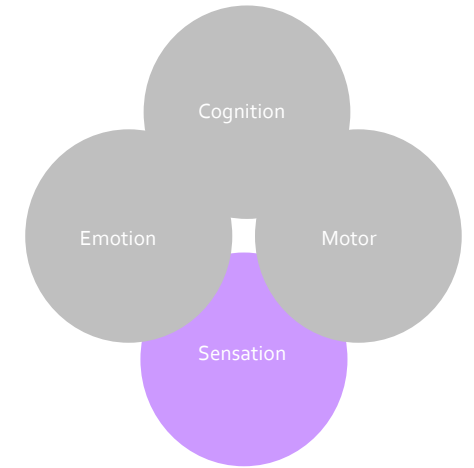
Translation methodology

- Sensation/Motor/Cognition Batteries: Modified FACIT translation methodology
 - 1 forward translation
 - 1 back translation
 - Comparison of source and back-translated versions
- Emotion Battery and select other tests: Full FACIT translation methodology
 - 2 forward translations followed by reconciliation
 - 1 back translation
 - Comparison of source and back-translated versions
 - Reviews from 3 bilingual experts
 - Finalization by language coordinator
 - Harmonization and quality assurance
 - Formatting, typesetting, proofreading
 - Cognitive pre-testing via interviews

Sensation Battery

Olfaction, Audition, Vision, Taste, Pain

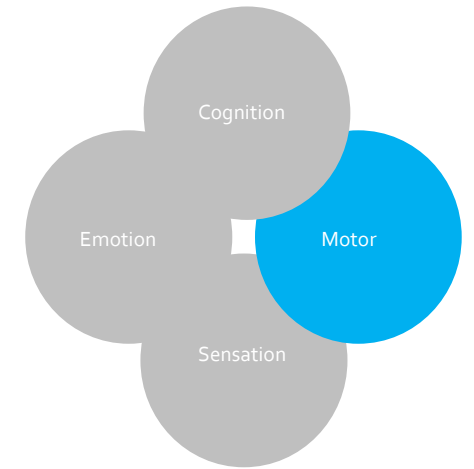
- Overall recommendations:
 - Deliver last
 - Video demonstrations
- Test-specific recommendations
 - Taste: use non-scientific descriptors
 - Hearing: all sounds in Spanish (e.g., background noise)
 - Smell: only universally familiar smells, pre-screening measure for children



Motor Battery

Endurance, Locomotion, Strength, Dexterity, Balance

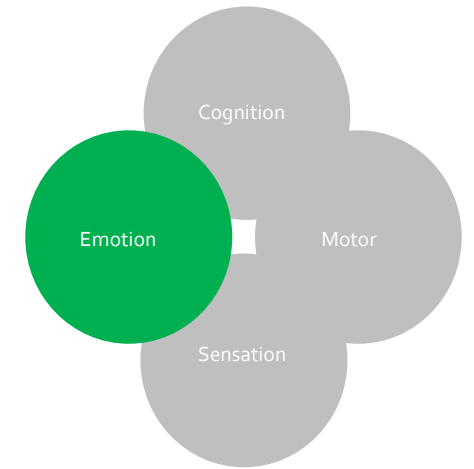
- Overall recommendations:
 - Instructions should include information about speed and accuracy
- Translatability of select measures
- No other review or recommendations



Emotion Battery

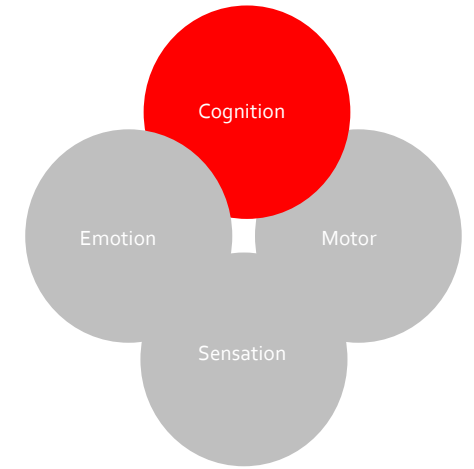
Negative Affect, Social Relationships, Psychological Well-Being, Stress and Self-Efficacy

- More rigorous approach
- Broad discussion:
 - Impact of migration experience effects
 - Importance of culturally-relevant examples
- Items from PROMIS measures retained as-is
- Additional items reviewed by 3 CWG members
 - “no cultural problem,” “possible cultural problem requiring discussion”, “definite cultural problem requiring revision”



Cognition Battery

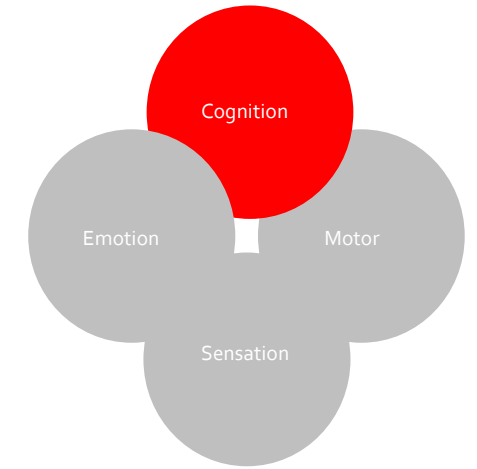
Attention, Executive Function, Episodic Memory, Processing Speed, Working Memory, Language



- Fluid abilities
 - Minimal language
 - Instructions use informal for children and formal for adult
- Crystallized abilities
 - Tests developed independently of English versions

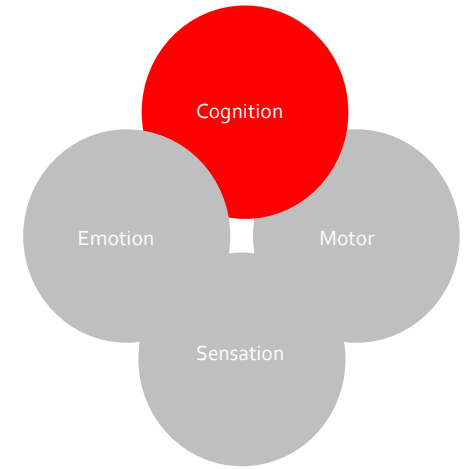
Picture Vocabulary Test

- Receptive vocabulary measure
 - Respondent is presented with 4 pictures and hears audio recording say a word
 - Synonym (correct image)
 - Antonym (distractor)
 - Look-/sound-alike word (distractor)
 - Close mislead (distractor)
 - Instructed to select the picture that most closely shows the meaning of the word



Picture Vocabulary Test

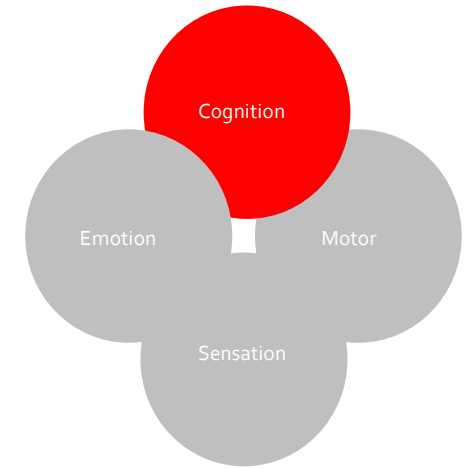
- Why not just translate it?



Picture Vocabulary Test

- Started with translation
- Reviewed by 6 bilingual experts
 - Suggested alternatives when needed
- Final items audio-recorded and tested via online panel

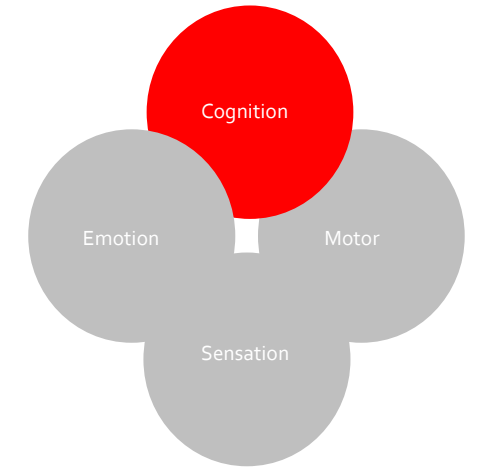
- Final item bank: 258 items



Oral Reading Recognition Test

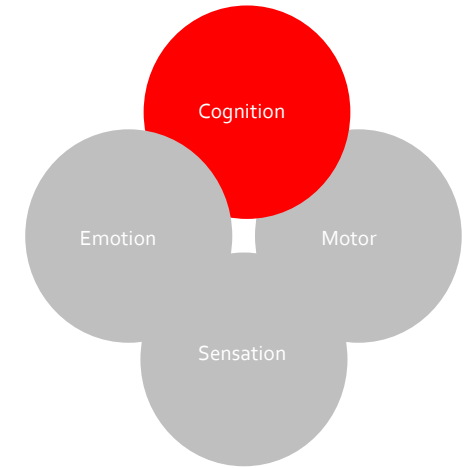
- Tests ability to read and pronounce letters and words
- Developed de novo
 - 390 candidate words from Corpus del Español (<http://www.corpusdelespanol.org/>)
- Words have 2-14 letters (30 words per word length)

BRILLO



Oral Reading Recognition Test

- All caps without accents
- Includes irregularly stressed words and unambiguously pronounced words
 - Irregular:
 - Accent on 3rd syllable or later (e.g., película)
 - Ends in “n” or “s” and accent is on the last syllable (e.g., francés);
 - Ends in “d,” “l,” “n,” or “r” and accent is not on the last syllable (e.g., difícil)
 - Ends in “ia” and accent is not on the penultimate letter “i” (e.g., divisoria)
- Efforts to include words with unusual letter combinations
- Pilot tested with 50 respondents
- Final item bank: 162 items



Norming

- English
 - 2,917 children age 3-17 (15.0% Hispanic/Latino)
 - 1,038 adults age 18-85 (9.6% Hispanic/Latino)
- Spanish
 - 496 children age 3-7 only
 - 408 adults age 18-85
- Recruitment targeted Spanish-speaking population – market research firm La Verdad
 - in-person recruitment at community events
 - recruitment through community organizations/partners
 - social media advertising
 - snowball sampling techniques

How widely is NIH Toolbox En Español being used?

- As of October 2018...
- NIH Toolbox En Español at 63 institutions (of > 900)
 - 58 users (92%) in the United States
 - 2 users in Spain
 - 3 users in Latin America
- **Widely!**

What should I know if I want to use NIH Toolbox En Español?

- Scores on English and Spanish language measures cannot be compared or combined
- Additional instruction and reinforcement may be needed
 - E.g., “home base” for cognition tests
- Spanish version takes longer to administer
- Instructions for administrators and support materials only available in English

Summary

- English-language version designed to be culturally sensitive
- Spanish-language version developed through an extensive translation process
 - More rigorous approach used as needed
- NIH Toolbox En Español provides a much-needed set of tools
- Information regarding reliability and validity forthcoming

Acknowledgments

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- **Working Group Leaders:** Jennifer Beaumont, Helena Correia, David Victorson
- **Participants of the NIH Toolbox norming study**

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Thank you!
Questions?



Contact:

Rina Fox: rina.fox@northwestern.edu

Richard Gershon: gershon@northwestern.edu

Julie Hook: julie.hook@northwestern.edu

