Computer Adaptive Naming Assessment for Aphasia: A New Tool for SLPs

Robert Cavanaugh,[1,2] Alexander M. Swiderski[1,2], Stacey Steel[3],
William D. Hula[2,1], Gerasimos Fergadiotis[3]

1. University of Pittsburgh, Pittsburgh PA, USA
2. VA Pittsburgh Healthcare System, Pittsburgh, PA, USA
3. Portland State University, Portland, OR, USA

Summary

Anomia is the cardinal deficit of aphasia (Goodglass & Wingfield, 1997), a neurogenic language disorder that affects roughly 2.4 million people in North America with 180,000 new cases annually (Simmons-Mackie & Cherney, 2018). Anomia severity is strongly associated with aphasia severity (Walker & Schwartz, 2012) and discourse informativeness (Fergadiotis et al., 2019), making it a common intervention target in the clinical management of aphasia. As a result, speech-language pathologists often use anomia assessments in clinical practice (Tierney-Hendricks et al., 2021). However, existing assessments of anomia are limited by their psychometric foundation and administration length, consuming valuable face-to-face clinical time. In response, this seminar strives to update clinical speech-language pathologists on recent advancements in the assessment of anomia, which take a fraction of the time to deliver compared to prevailing assessments without sacrificing the precision of the testing instruments.

Links

Free web-based PNT-CAT URL: https://william-hula.shinyapps.io/pnt-cat

More information on using the PNT-CAT app: https://rbcavanaugh.github.io/pnt/

An interactive web-app for Item-response Theory: https://aswiderski.shinyapps.io/IRTapp

Installation instructions for using locally: https://github.com/rbcavanaugh/pnt/wiki

Feedback and bug reports: https://github.com/rbcavanaugh/pnt/issues

Presentation Slides, Abstract, Seminars Green-OA:
https://drive.google.com/drive/u/0/folders/1V1XtwcUc6ZT3n6YKtYDSw_8tKQ7fwxwl

References

Baylor, C., Hula, W., Donovan, N. J., Doyle, P. J., Kendall, D., & Yorkston, K. (2011). An introduction to item response theory and rasch models for speech-language pathologists. American Journal of Speech- Language Pathology, 20(3), 243–259. https://doi.org/10.1044/1058-0360(2011/10-0079)

Fergadiotis G., Hula W.D.., Swiderski AM., Lei C., & Kellough S. (2019). Enhancing the Efficiency of Confrontation Naming Assessment for Aphasia Using Computer Adaptive Testing. Journal of Speech, Language, and Hearing Research, 62(6), 1724–1738. https://doi.org/10.1044/2018_JSLHR-L-18-0344

Fergadiotis G, Kellough S, & Hula WD. (2015). Item Response Theory Modeling of the Philadelphia Naming Test. Journal of Speech, Language, and Hearing Research, 58(3), 865–877. https://doi.org/10.1044/2015_JSLHR-L-14-0249

Goodglass, H., & Wingfield, A. (1997). Anomia: Neuroanatomical and cognitive correlates. Academic Press.

Hula, W. D., Fergadiotis, G., Swiderski, A. M., Silkes, J. P., & Kellough, S. (2020). Empirical Evaluation of Computer-Adaptive Alternate Short Forms for the Assessment of Anomia Severity. Journal of Speech, Language, and Hearing Research, 63(1), 163–172. https://doi.org/10.1044/2019_JSLHR-L-19-0213

Hula, W. D., Kellough, S., & Fergadiotis, G. (2015). Development and simulation testing of a computerized adaptive version of the Philadelphia Naming Test. Journal of Speech, Language, and Hearing Research, 58(3), 878-890.

Kagan, A., Simmons-Mackie, N., Rowland, A., Huijbregts, M., Shumway, E., McEwen, S., Threats, T., & Sharp, S. (2008). Counting what counts: A framework for capturing real-life outcomes of aphasia intervention. *Aphasiology*, *22*(3), 258–280. https://doi.org/10.1080/02687030701282595

Roach, A., Schwartz, M. F., Martin, N., Grewal, R. S., & Brecher, A. (1996). The Philadelphia naming test: Scoring and rationale. Clinical Aphasiology, 24, 121–133.

Simmons-Mackie, N., & Cherney, L. R. (2018). Aphasia in North America: Highlights of a white paper. Archives of Physical Medicine and Rehabilitation, 99(10), e117.

Tierney-Hendricks, C., Schliep, M. E., & Vallila-Rohter, S. (2021). Using an implementation framework to survey outcome measurement and treatment practices in aphasia. American Journal of Speech-Language Pathology, 1–30.

Walker, G. M., & Schwartz, M. F. (2012). Short-form Philadelphia naming test: Rationale and empirical evaluation.