

Title: Understanding the Research-Practice Gap for Speech-Language Intervention via SLPs' Endorsement of Myths

Authors: Hannah Malamud¹, Jena McDaniel², Hannah Krimm³, & C. Melanie Schuele⁴

Introduction: Myths abound and persist throughout popular culture that pertain to the profession of speech-language pathology and the individuals treated by speech-language pathologists (SLPs). These myths span numerous topics including, but not limited to, autism spectrum disorder (e.g., vaccines cause autism spectrum disorder), dyslexia (e.g., reading words backwards is a sign of dyslexia), children who are deaf and hard of hearing (e.g., learning two spoken languages is too hard), and speech-language impairment (e.g., ear infections cause language impairment). SLPs' endorsement of such myths is one consequence of the large research-practice gap that is a major concern for numerous fields including speech-language pathology, specifically, and education, more broadly (e.g., Brownson et al., 2012; Douglas et al., 2015; Grol & Wensing, 2013). The often cited "17-year odyssey" of research from discovery to practice underscores the need to move information more quickly from research findings to clinical implementation (Green et al., 2009). Many factors likely contribute to the width of the research-practice gap in the field of speech-language pathology. These factors include gaps in clinicians' knowledge of the evidence base resulting from limited or outdated training as well as practical barriers for change (e.g., large caseloads, limited financial resources, high demands on time). This study was designed to explore the extent to which SLPs are operating under misinformation, that is, assumptions that are not supported by evidence and are contradicted by evidence. The long term-goal of this inquiry is to narrow the research-practice gap for speech language pathology and increase SLPs' provision of evidence-based services to children with disabilities. We address quantitative and descriptive aims in this early-stage study. We are unable to generate hypotheses to confirm due to limited evidence in the literature on SLPs' perspectives.

1. Determine whether SLPs endorse myths to a greater degree for one topic versus other topics
2. Descriptively characterize the degree to which SLPs endorse specific myths (item-level analysis) within and across topics
3. Describe the professional resources that the sample of SLPs access during a typical year

Method: Participants ($n = 102$ SLPs, 99 female) were recruited electronically from (a) persons attending an on-line two-day state-wide professional development conference focused on the educational needs of school SLPs and (b) a large database of SLPs who have attended professional development sponsored by Vanderbilt. Participants were a mean age of 38 years ($SD = 11$ years) with a mean of 12 years ($SD = 10$ years) experience as an SLP and 9 years ($SD = 8$ years) of experience as a school SLP. Participants answered questions about their perspectives on topics related to persistent myths in popular culture and/or professions related to speech-language pathology and professional development resources they access in a typical year. Participants marked the degree to which they agree with statements on a visual analog scale (0 to 100; strongly disagree to strongly agree).

Results: For [Aim 1](#), results of a one-way repeated-measures ANOVA revealed no significant differences in the level of endorsements for true statement between any of the topics ($F(3,400) = 0.37, p = .77$). A second one-way repeated-measures ANOVA revealed no significant differences in the level of endorsement for myths between any of the topics ($F(3,400) = 1.87, p = .13$). See Figure 1. Very large standard deviations and ranges were observed at the item and topic levels.

For [Aim 2](#), we visualized the data in multiple forms. Examples at the individual item level are shown in Figures 2 and 3. A number of patterns are apparent within the results that are expected to generate fruitful discussion and to develop falsifiable hypotheses for future studies. SLPs most strongly refuted the myths that vaccines cause autism spectrum disorder ($M = 7.7, SD = 16.9$), that it is unnatural for children to speak more than one language ($M = 8.3, SD = 14.4$), and that augmentative and alternative communication inhibits spoken language skills ($M = 11.4, SD = 20.3$). Across questions related to children with disabilities learning two spoken languages, participants endorsed true statements to a relatively high degree ($M = 77.6, SD = 33.5$) and myths to a relatively low degree ($M = 23.0, SD = 19.7$), indicating an area of relative strength. In contrast, participants on average did not refute the following myths (i.e., mean endorsement scores ≥ 50): dyslexia is not recognized as a learning disability eligible for special education services ($M = 62.5, SD = 29.6$), visual-perceptual deficiencies are a component of the dyslexia diagnosis ($M = 56.1, SD = 24.5$), most kindergarten children make a lot of grammatical errors ($M = 54.7, SD = 25.5$), sensorimotor activities (e.g., weighted vests or swinging) result in children talking more during speech-language intervention ($M = 54.5, SD = 24.5$), and seeing letters and words backwards is a characteristic of dyslexia ($M = 51.7, SD = 25.9$). Interestingly, the range for all unrefuted myths was the full range (i.e., 0 – 100). Six of the 28 other myths received mean endorsement scores of at least 40. None of the true statements received a mean endorsement score less than 50.

For [Aim 3](#), participants reported most commonly accessing the ASHA Leader ($n = 79$), peer-reviewed journals ($n = 74$), and webinars ($n = 65$), followed by textbooks ($n = 36$) and The Informed SLP ($n = 40$). Of those who reported reading peer-reviewed journals, 41% read 2 to 5 articles annually and only 16% read more than 21 articles annually.

Discussion: The findings provide needed information for (a) more specifically detailing the current state of the research-practice gap in speech-language pathology and (b) developing hypotheses for interventions that will narrow the research-practice gap broadly and related to the particular topics examined (e.g., refutation texts and targeted professional development). The participants failed to strongly refute numerous myths despite current evidence in favor of doing so. Nonetheless, much variation was observed across items and participants, which provides guidance for each area of need to address and to hypothesize why SLPs successfully refuted some myths, but not others. Our next steps will focus on continuing to delineate why SLPs continue to endorse myths and examining the effects of training efforts to increase SLPs’ knowledge and use of evidence-based practices. Future studies may include comparing SLPs’ perspectives to those of related professionals (e.g., teachers and administrators), richer qualitative analyses of SLPs’ rationales for endorsement, and how SLPs’ endorsements influence the services they provide.

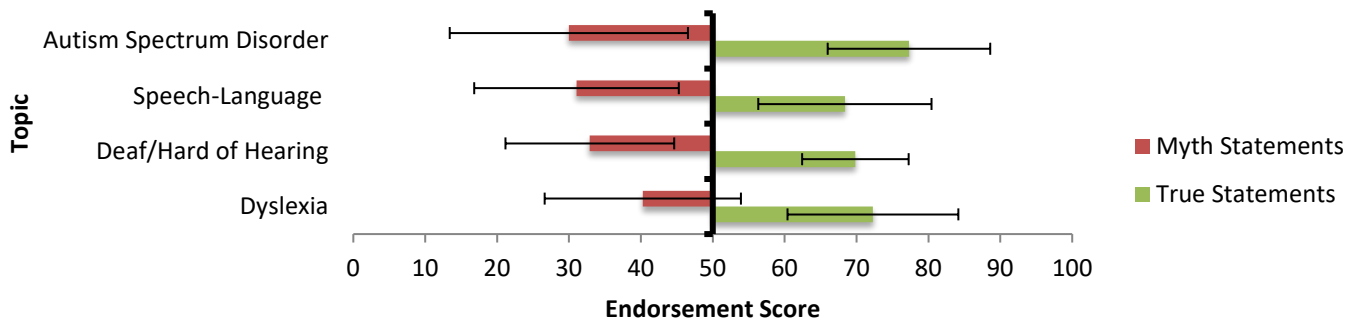


Figure 1. Mean endorsement scores by topic. An endorsement score of 0 indicates “strongly disagree” and 100 indicates “strongly agree.” Error bars represent standard deviation.

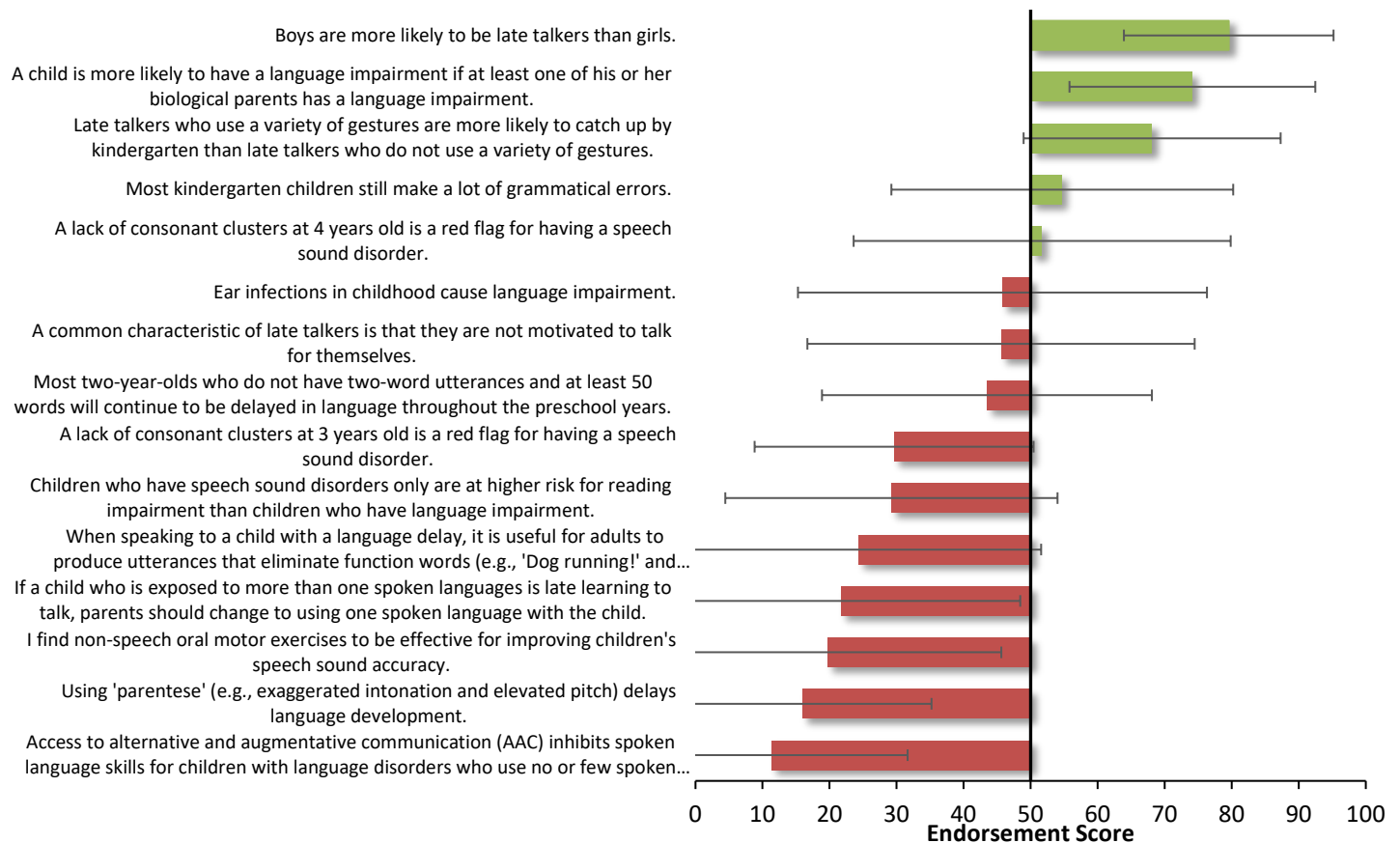


Figure 2. Mean endorsement scores for speech-language topic items. A score of 0 indicates “strongly disagree” and 100 indicates “strongly agree.” Error bars represent standard deviation. Green bars represent true statements. Red bars represent myths.

Including sensorimotor activities in speech-language therapy for children with autism spectrum disorder is likely to result in those children talking more during the session.

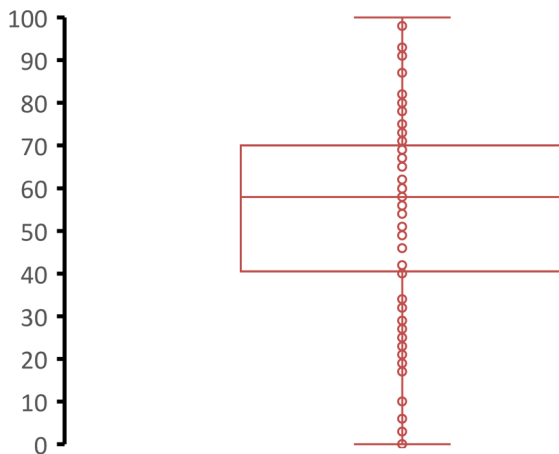


Figure 3. Distribution of endorsement scores for “Including sensorimotor activities (such as wearing weighted vests or swinging) in speech-language therapy for children with autism spectrum disorder is likely to result in those children talking more during the session.” Whiskers represent quartiles.

References:

- Brownson, R., Colditz, G., & Proctor, E. (2012). *Dissemination and implementation research in health: Translating science to practice*. Oxford University Press.
- Douglas, N. F., Campbell, W. N., & Hinckley, J. J. (2015). Implementation science: Buzzword or game changer? *Journal of Speech, Language, and Hearing Research, 58*, S1827-S1836. doi:10.1044/2015_JSLHR-L-15-0302
- Fogarty International Center. (n.d.). Implementation science information and resources. National Institutes of Health. Retrieved May 17, 2017, from <http://www.fic.nih.gov/researchtopics/pages/implementation-science.aspx>
- Green, L. W., Ottoson, J., Garcia, C., & Robert, H. (2009). Diffusion theory and knowledge dissemination, utilization, and integration in public health. *Annual Review of Public Health, 30*, 151-174.
- Grol, R., & Wensing, M. (2013). Implementation of change in healthcare: A complex problem. In R. Grol, M. Wensing, M. Eccles, & D. Davis (Eds.), *Improving patient care: The implementation of change in health care* (2nd ed., pp. 3-17). Wiley. doi:10.1002/9781118525975.ch1
- Guiberson, M. (2013). Bilingual myth-busters series language confusion in bilingual children. *Perspectives on Communication Disorders and Sciences in Culturally and Linguistically Diverse Populations, 20*, 5-14.
- Thorwarth, C. (2014). Debunking the Myths of Dyslexia. *Leadership and Research in Education, 1*, 51-66.
- Yu, B. (2013). Issues in bilingualism and heritage language maintenance: Perspectives of minority-language mothers of children with autism spectrum disorders. *American Journal of Speech-Language Pathology, 22*, 10-24.

¹ Vanderbilt University

² University of Kansas

³ University of Georgia

⁴ Vanderbilt University Medical Center