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Assessments to Enhance the Psycholinguistic Approach for Speech Sound Problems

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Background

One problem speech-language pathologists encounter is understanding which part of a client's speech sound system they should target to most efficiently remedy speech sound delays. One way to resolve this problem is to employ the psycholinguistic approach during the treatment process.

The Psycholinguistic Approach: reflects a three-way speech processing model in which researchers gathered information about incoming speech, how the information was stored and processed, and the resulting production of speech by one child with speech delays (Stackhouse, Pascoe, & Gardner, 2006). With this approach in mind, speech-language pathologists may select from a wide range of measures to evaluate their clients.

Dynamic Assessment: Uses a graduated prompt approach as a strategy to assess children's speech adaptability, or their ability to respond to cues and models. (Glaspey, 2012). This measure is administered by increasing the amount of support a child needs with each trial and recording how many attempts are needed before a child correctly produces the target sound.

Static Assessment: Documents a child's current ability without help on one standardized test which compares skills to a predetermined expectation based on age and/or normal development.

This study's goal was to explore the relationships among measures that could support the verbal aspect of the psycholinguistic model. Elements of both static and dynamic assessment methods were studied to foster better understanding of speech skills.

Research Questions

- 1) Is there a relationship between the data collected from dynamic assessment and static assessment of speech sound production?
- 2) Do resulting relationships between the two types of assessments support the output component of the psycholinguistic model?

Methods

Design: This cross sectional study compared the relationship of scores of 15 clients across measures at one time period.

Participants: 15 children aged 3-7 years with moderate to severe speech sound delays/disorders.

Measures and Calculations: This study compared sub-sectional scores from the GDAP and HAPP-3 in order to show any potential relationship between the two assessments and evaluate the overlap of what was being measured in each:

Dynamic Scores from the Glaspey Dynamic Assessment of Phonology (GDAP) (2012) were used. The GDAP is a graduated prompt assessment which utilizes a 15-point hierarchical scale of cues and environments. During assessment a combination of increased verbal and visual cues are used to score the client's abilities at varying levels of prompting. A lower score reveals less attempts and less prompting needed from the clinician to produce the targeted sound.

The measures used from this assessment were:

- Average score of all sounds
- Average score of sounds in error
- Number of sounds in error

Static Scores from the Hodson Assessment of Phonological Patterns (HAPP-3) (2004) were used to determine the extent of a child's errors from typical speech abilities.

In the HAPP-3 the child names objects and pictures. The speech errors are recorded and assessed against norms and criterion for a client's baseline score.

The measures used from this assessment were:

- Total Occurrences of Major Phonological Deviations (TOPMD)
- Consonant Category Deficiency Sum (CCD)

Discussion

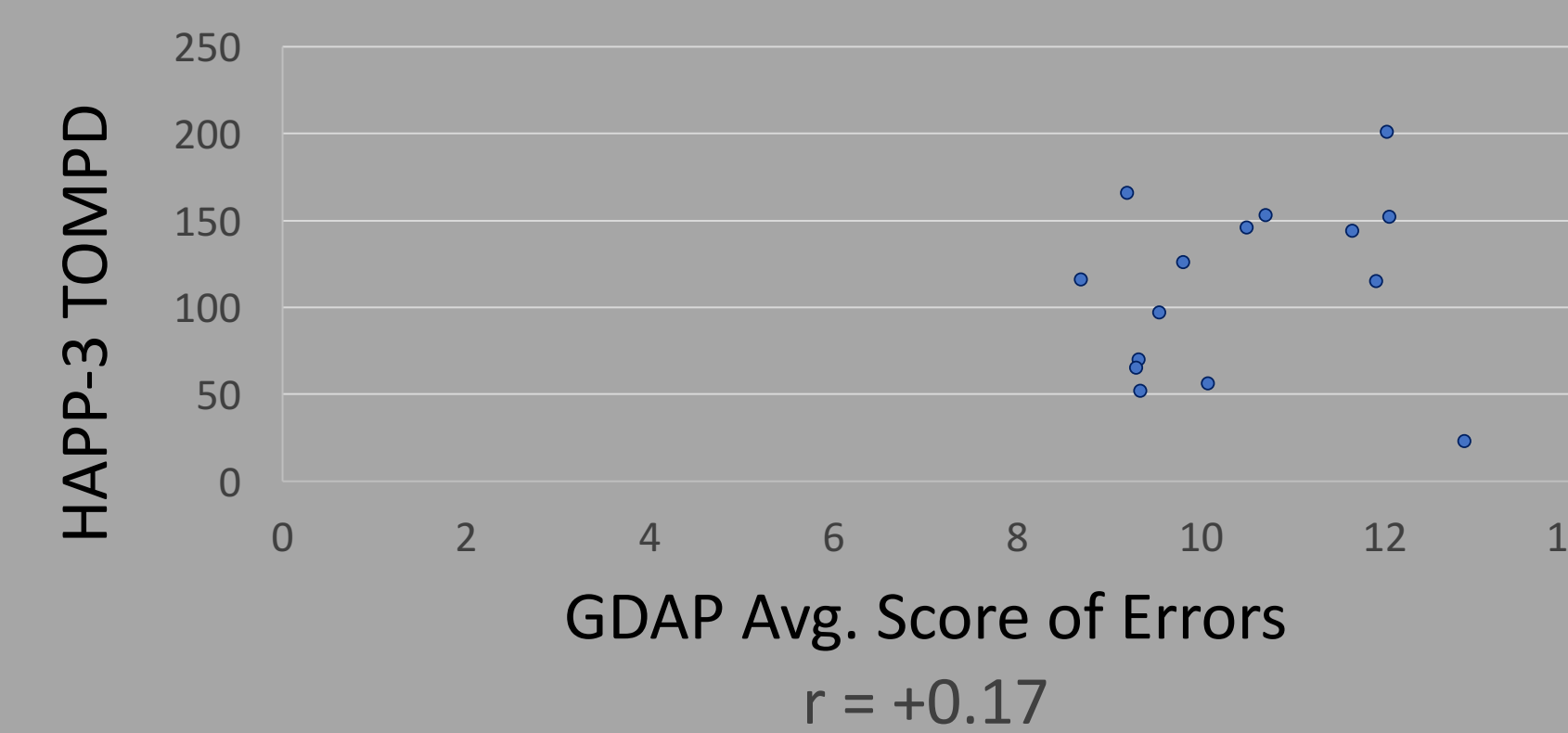
Considering the research questions, the results suggest strong relationships between some sub-tests of the measures, and weak relationships between others. The HAPP-3 TOMPD score and the GDAP average score of all sounds showed the strongest correlation, which suggests that these tests as a whole might address similar aspects of a client's disorder and be evidence of overlap. The HAPP-3 subtest CCD, which focuses mostly on consonant errors and the GDAP number of sounds in error showed nearly as strong of a correlation with both tests sampling skills across the sound system. However, when the subsections of the measures are examined, weaker relationships are observed that suggest that the two measures evaluate differing characteristics of speech output. The HAPP-3 TOMPD and GDAP average score of errors showed the lowest correlation. The GDAP scores may offer a more complex system of representation as the productions may be elicited in words and sentences versus the HAPP-3, which only provides a linguistic environment of words. Overall correlations between the scores better highlight different and complementary skills that need to be addressed for the study's participants. The clinical implications of the relationships observed show how dynamic and static testing can give a broader understanding of a client's speech sound disorders and both tests support the output domain of the psycholinguistic approach. When these differing assessment methods are combined, the results may allow speech-language pathologists to create more efficient individualized treatment plans that reduce remediation time.

Future Directions

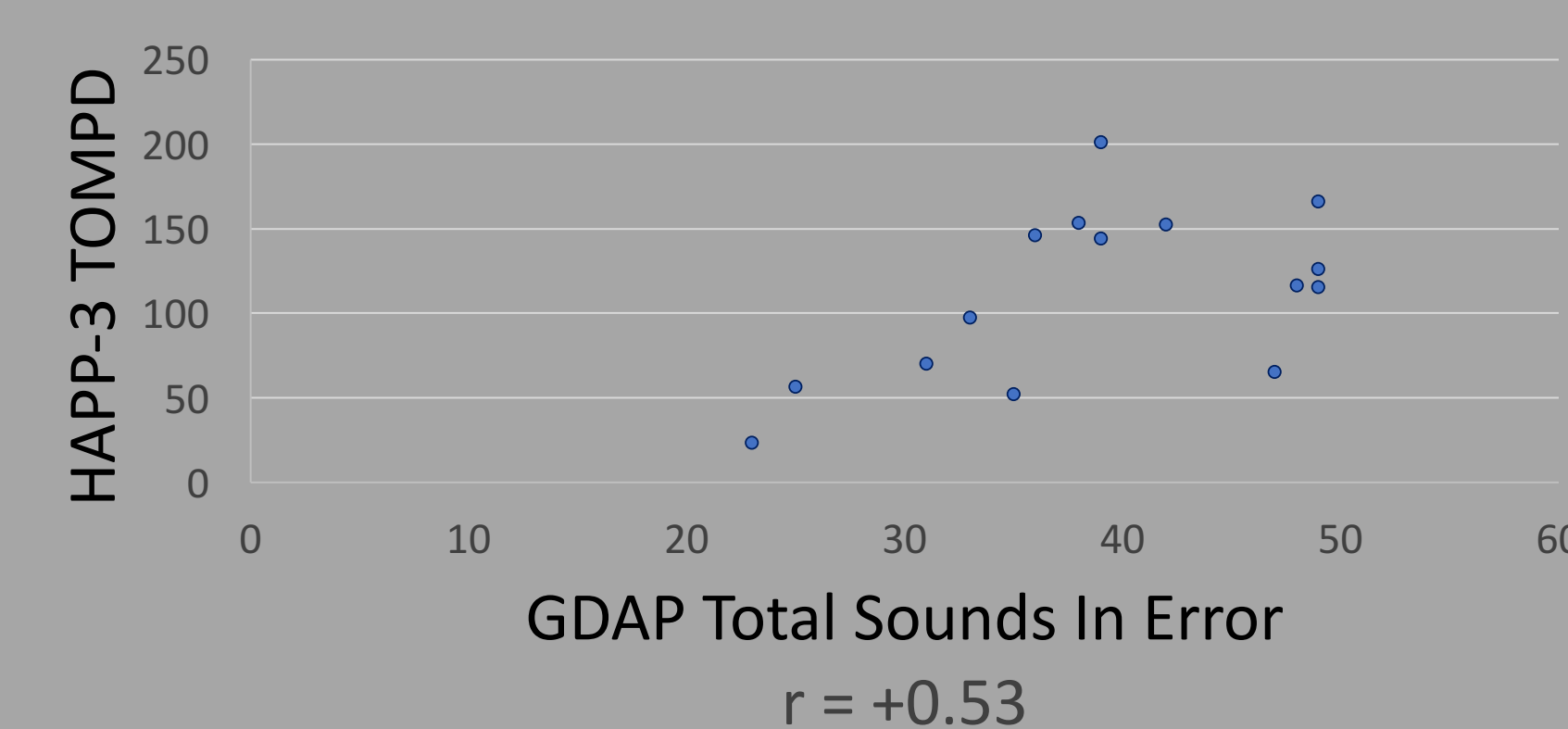
The data presented in this work are the beginning of research in to how the psycholinguistic methodology, as presented by Stackhouse, Pascoe, and Gardner (2006), can be brought to its maximum potential using these static and dynamic assessment methods. With more research and development, the "speech profile" and the "analysis of the speech data and written language skills" (Stackhouse, et al, 2006,) outlined in this psycholinguistic approach could be maximized and more closely tailored to individual clients. Additional research guiding the psycholinguistic method with these assessment techniques are now being applied not only for English speakers, but children of other languages, such as French clients in an ongoing project at the University of Montreal. Ultimately, this research will create assessment and treatment methods that will be applicable across languages and even examine how speech sound disorders can be addressed in clients such as bilingual speakers.

Results

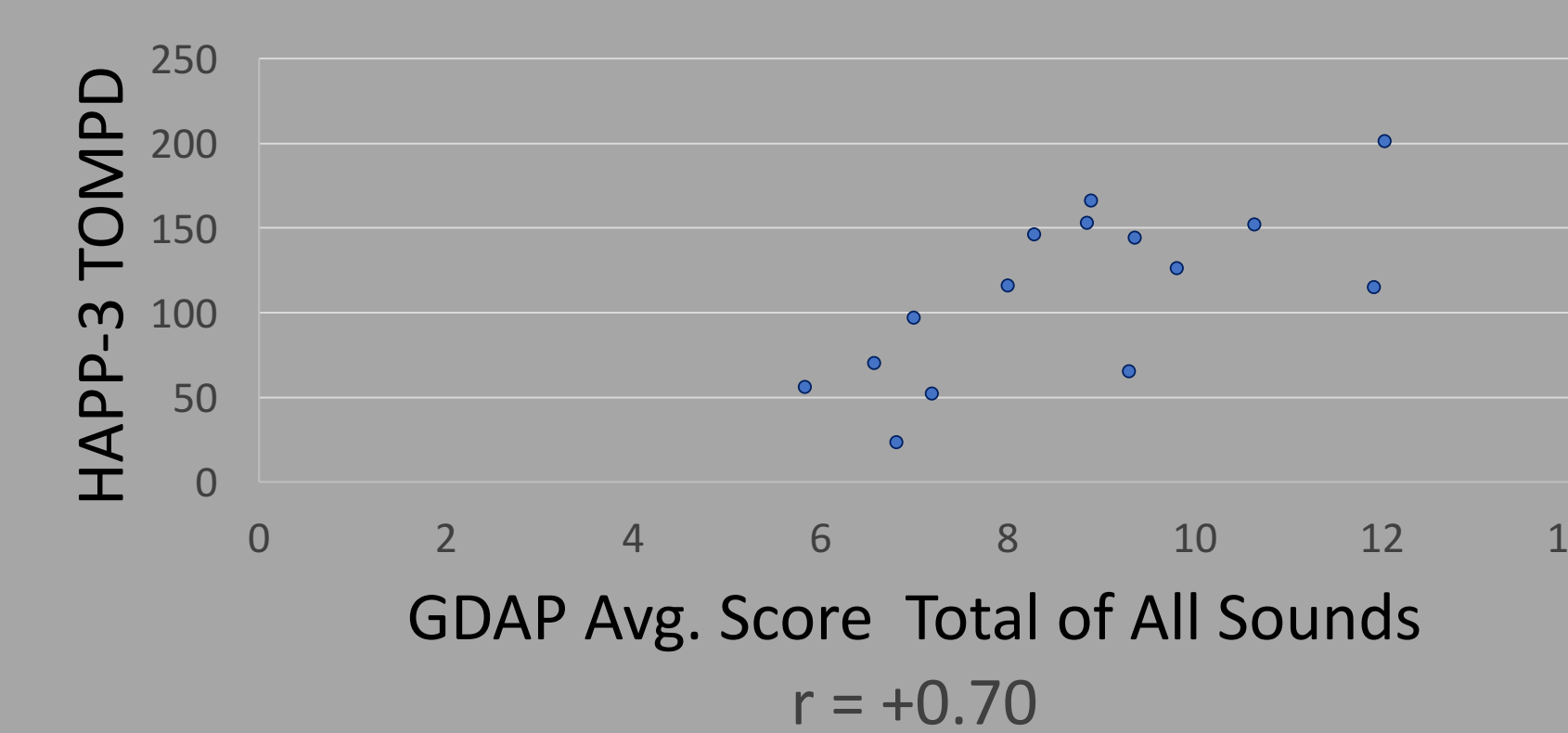
HAPP-3 TOMPD vs GDAP Avg. Score of Errors



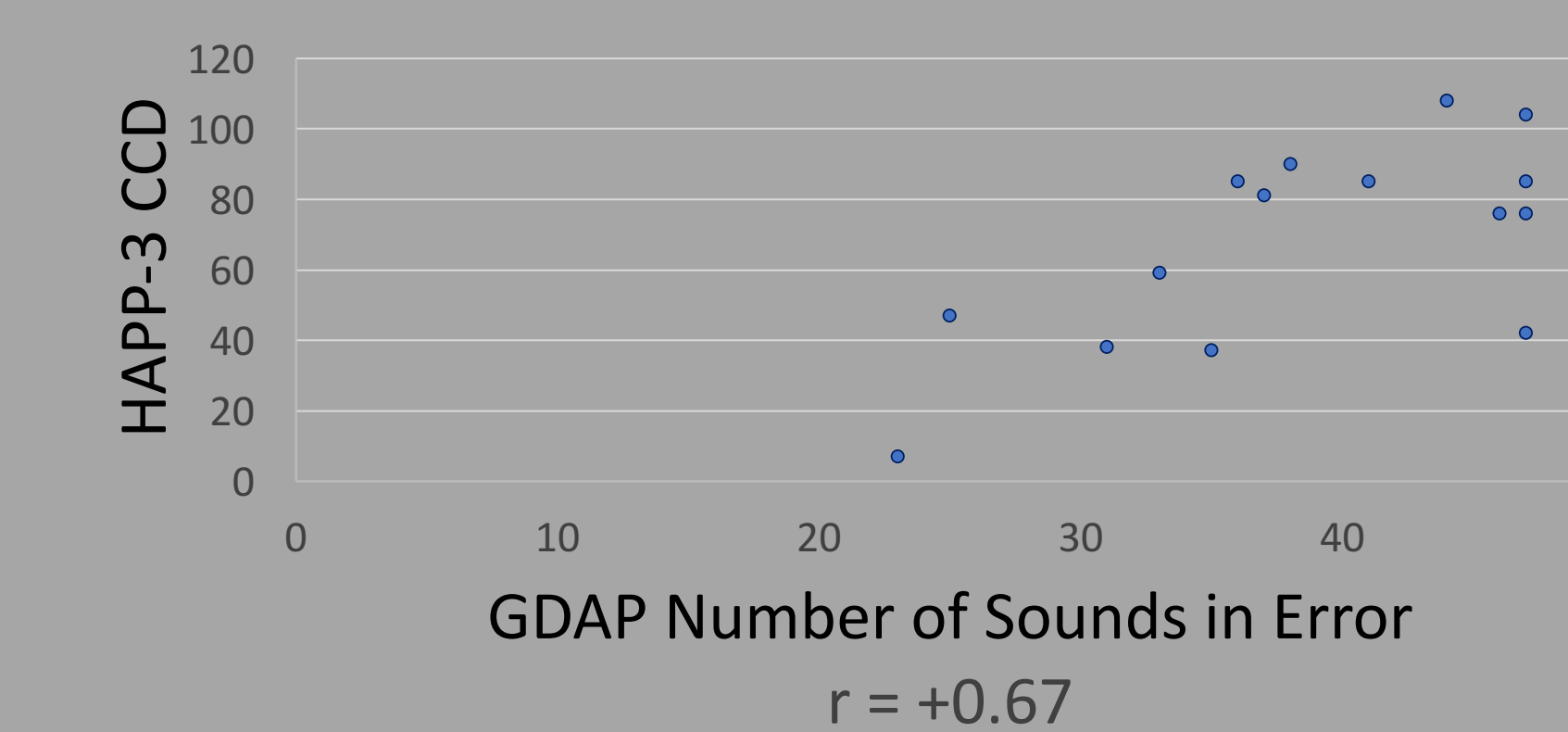
HAPP-3 TOMPD vs. GDAP Total Sounds in Error



GDAP Avg. Score Total of All Sounds vs HAPP-3 TOMPD



HAPP-3 CCD vs GDAP Number of Sounds in Error



References

- Stackhouse, J., Pascoe, M., & Gardner, H. (2006). Intervention for a child with persisting speech and literacy difficulties: A psycholinguistic approach. *Advances in Speech Language Pathology*, 8(3), 231-244.
- Glaspey, A. M. (2012). Stimulability measures and dynamic assessment of speech adaptability. *Perspectives on Language Learning and Education*, 19(1), 12. doi:10.1044/11e19.1.12
- Hodson, B. (2004). *The Hodson assessment of phonological patterns*. Austin, TX: ProEd/Interstate.