

The effect of sign language on symbolic play in deaf bilingual-bimodal toddlers

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Introduction

Symbolic play is a developmental skill which has been linked to cognitive, sensory-motor and language development¹. As for deaf children, findings of symbolic play skills of deaf children did not provide consistent findings about their ability to develop typical symbolic play^{2,3}.

The current study explored symbolic play of Bilingual-Bimodal children acquiring Israeli Sign Language (ISL) and Hebrew.

Goals

- To explore the influence of early exposure to sign language on the development of symbolic play and spoken language skills of deaf toddlers.
- To explore the link between symbolic play and early onset of language in deaf toddlers.

Method

Participants

10 toddlers with severe-profound hearing loss aged 1; 9-3; 0 years: 6 Bilingual-Bimodal (BiBi) toddlers and 4 Monolingual (Mono) toddlers.

Participant	Group	Gender	Chronological age (months)	Hearing age (months)	Amplification type
1	BiBi	M	28	25	HA
2	BiBi	F	31	21	CI
3	BiBi	M	35	23	HA
4	BiBi	F	28	19	HA
5	BiBi	F	34	7	CI
6	BiBi	M	36	12	CI
7	Mono	F	22	10	CI
8	Mono	F	36	12	HA
9	Mono	M	36	34	HA
10	Mono	F	21	12	CI

HA=Hearing Aids, CI=Cochlear Implant

Assessment Tools

Symbolic play skills: The Symbolic Play Test (Lowe & Costello, 1988).

Spoken language skills :

- The Preschool Language Scale test (PLS-4) (Fourth Edition, Zimmerman, Steiner & Pond, 2002),
- The Hebrew CDI (Gendler-Shalev & Dromi, 2017).

Sign language skills: The Israeli Sign Language CDI

(Meir, Ohanin, Halutzi, & Novogrodsky, 2018).

Conclusions

- Bilingual-bimodal deaf toddlers tend to have age-matched symbolic play, while monolinguals, who were exposed to their native language in a delay, only after hearing rehabilitation, might show a delay in this developmental skill.
- Deaf toddlers (monolingual and bilingual-bimodal) tend to present a delay in the spoken modality during the first years after rehabilitation. However, toddlers with better symbolic play scores tend to have larger conceptual vocabulary.
- The findings show that sign language does no harm the development of spoken language of native signers deaf toddlers.

References

1. McCune, L. (1995). A normative study of representational play at the transition to language. *Developmental Psychology*, 31, 198–206.
2. Bornstein, M., Selmi, A., Haynes, O., Painter, K., & Marx, E. (1999). Representational Abilities and the Hearing Status of Child/Mother Dyads. *Child Development*, 70(4), 833-852.
3. Quittner, A., Cejas, I., Wang, N., Niparko, J., & Barker, D. (2016). Symbolic Play and Novel Noun Learning in Deaf and Hearing Children: Longitudinal Effects of Access to Sound on Early Precursors of Language. *PLOS ONE*, 11(5), e0155964.

Results

Symbolic play: BiBi > Mono

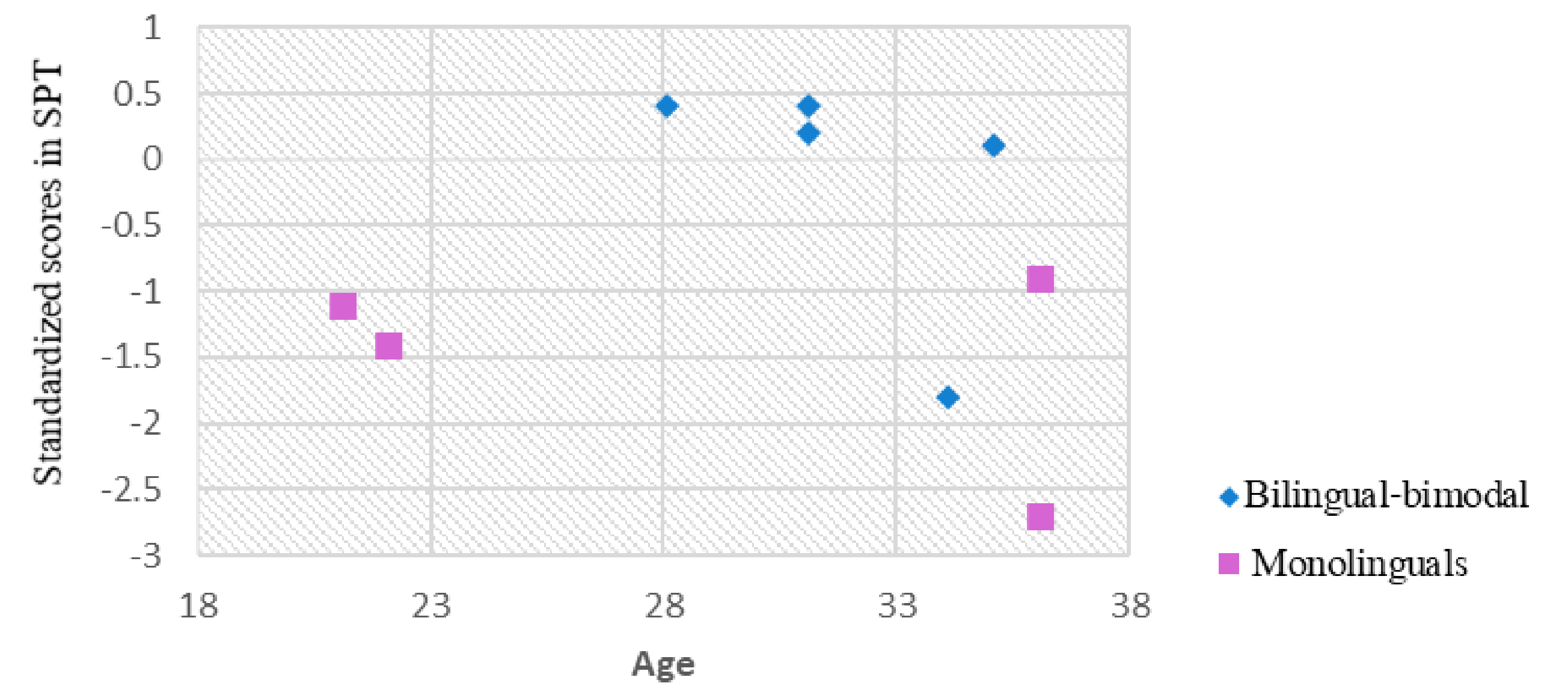


Figure 1. Standardized scores in Symbolic Play Test (SPT)

Conceptual vocabulary size- wide degree of variability

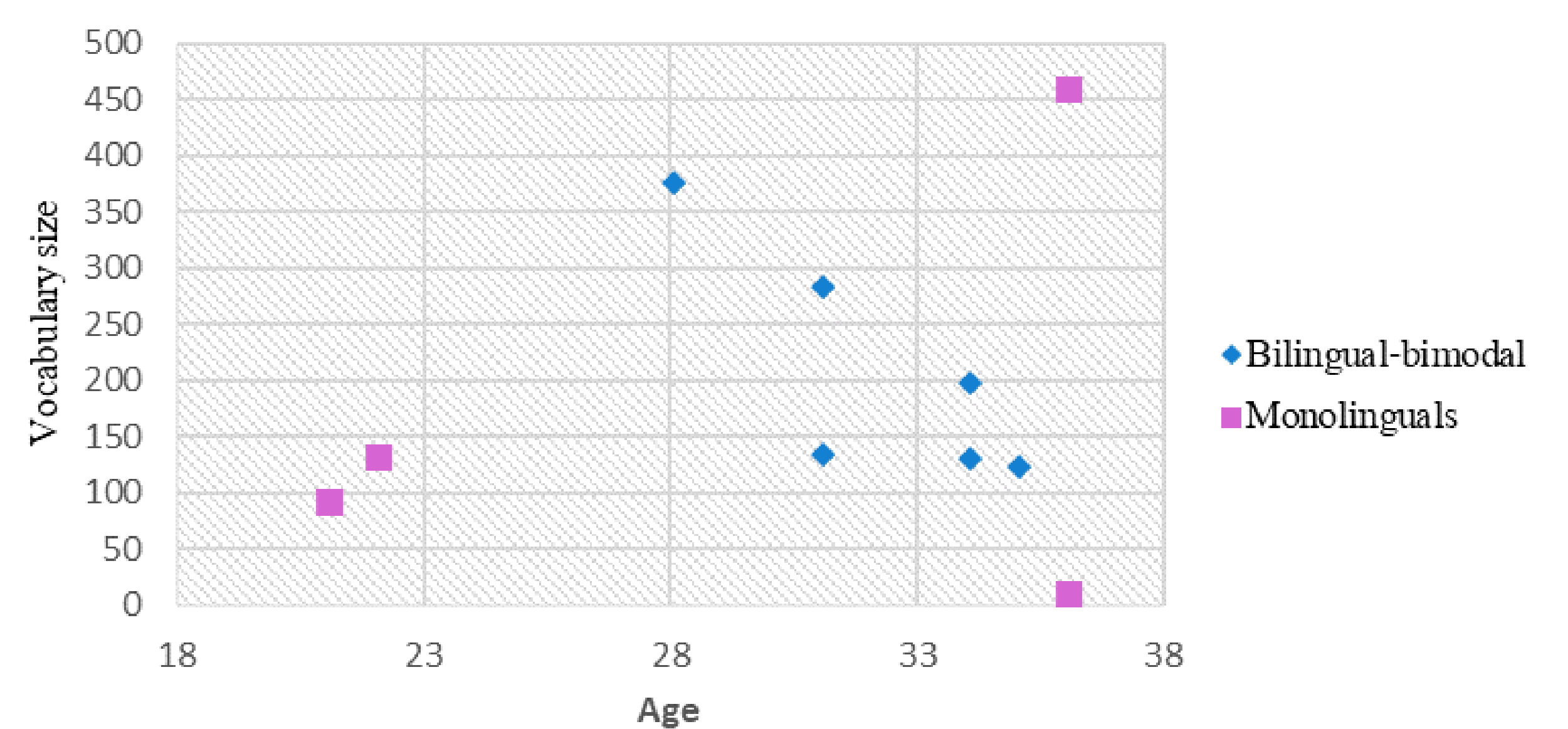


Figure 2. Conceptual vocabulary size in BiBi and Mono participants

Language skills and symbolic play

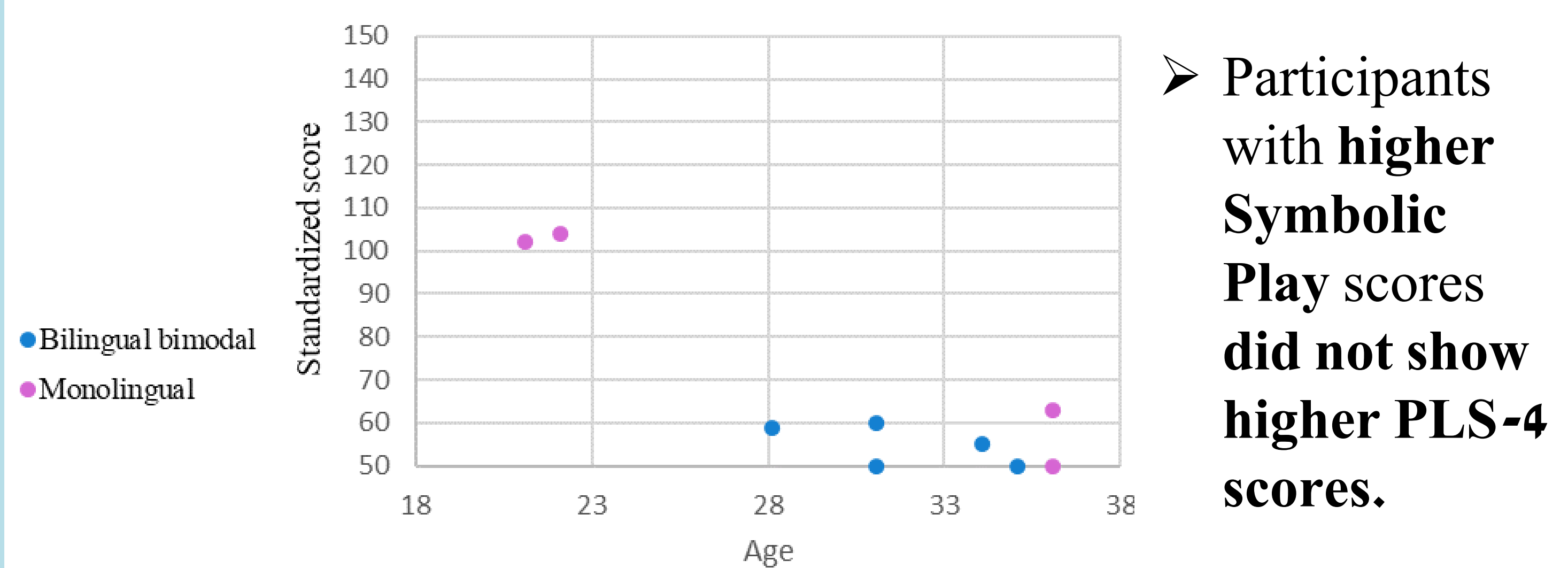


Figure 3. PLS-4 standardized scores in BiBi and Mono participants

- Participants with **higher Symbolic Play** scores exhibited **higher conceptual vocabulary scores**.

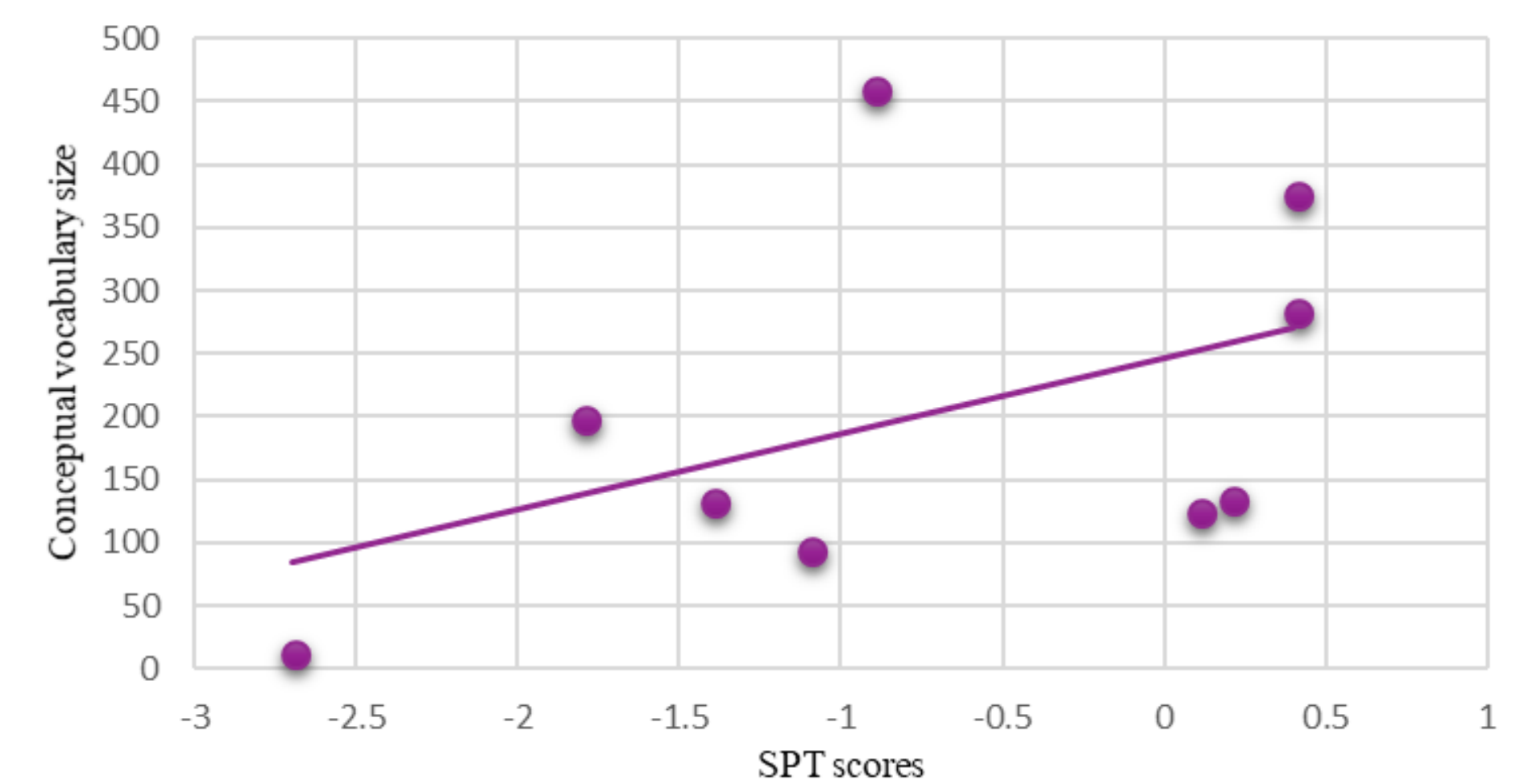


Figure 4. Conceptual vocabulary size and Symbolic Play Test standardizes scores for each participant