



Action and object naming in mono- and bilingual children with language impairment

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Abstract

Specific Language Impairment (SLI) is a severe limitation in language ability in the absence of other factors that typically accompany language problems (e.g., hearing impairment, low non-verbal IQ, neurological damage). SLI is the most common and most studied type of developmental language disorder, yet research comparing *bi- and* monolingual development is surprisingly lacking, leaving potential implications of bilingualism for children with language disabilities an under-explored area. It is known that monolingual children with SLI are less accurate at naming pictures of objects than age-matched peers with typical language development (TLD), strongly suggesting that difficulties with lexical access are related to a breakdown at the level of the phonological word form, which the present study clearly support.

Key words: Cypriot Greek, mono- and bilingual first language acquisition

The Study

Four groups of children participated in this study:

- (i) 30 monolingual children with TLD (15 girls, 15 boys), aged 6;0–6;11 years (mean: 6;3) — all children were recruited randomly from three public primary schools in the Nicosia district after approval from the Ministry of Education and upon written parental consent, and no child was receiving speech and language therapy service.
- (ii) 12 monolingual children (3 girls, 9 boys), aged 5;5–9;9 years (mean: 6;9) — they were all diagnosed with SLI and recruited from speech-language therapists in private practices (MoSLI group).
- (iii) 4 bilingual children (2 girls, 2 boys), aged 6;6–8;10 years (mean: 7;4) — they were all diagnosed with SLI and recruited from speech-language therapists in private practices (BiSLI group).
- (iv) 10 younger children with TLD (2 girls, 8 boys) aged 3;5–5;2 years (mean: 4;4) — all children were recruited from a kindergarten in the Nicosia district after approval from the Ministry of Education and upon written parental consent, and no child was receiving speech and language therapy service.

Subject selection criteria included:

- a Greek Cypriot, monolingual Cypriot Greek-speaking background for the monolingual children
- a bilingual background for the bilingual children where Cypriot Greek was one of the languages spoken (either L1 or L2)
- no history of neurological, emotional, or behavioural problems
- no obvious learning difficulties (teacher report)
- no gross motor difficulties
- hearing and vision adequate for test purposes
- normal articulation
- normal performance on screening measures of non-verbal intelligence (or as reported by school psychologist)
- medium-high socio-economic status

The Cypriot Object and Action Test (COAT) of Kambanaros et al. (in submission), adapted to Cypriot Greek from the GOAT for Standard Modern Greek (Kambanaros 2003), was administered to assess retrieval of object and action names. For the present study, 74 coloured photographs measuring 10x14cm in size were used, 39 depicting actions (verbs) and 35 objects (nouns). Object names are single, concrete inanimate nouns and include manipulated instruments such as garage tools, garden equipment, kitchen utensils, household items, and office and personal implements, used for activities of daily living. All verbs were monotransitive with either simple internal word structures of [root + affix] or more complex ones of [root + affix + affix]. Actions were restricted to past stereotypical roles, that is, a woman is shown performing household activities (e.g. sweeping), for example, and a man is performing more “manly” duties (e.g. hammering). All action names corresponded to either an instrumental verb (where an instrument is part of the action, e.g. cutting) or to a non-instrumental verb (e.g. climbing). All target nouns in object naming were also items in the noun comprehension task. All target verbs in action naming were also targets in the verb comprehension task.

Table 1 summarizes the characteristics of items in each word class.

Table 1: Characteristics of items in each word class.

	Lemma frequency	Syllable length	AoA	Image-ability	Picture complexity
Objects	40.91	2.88 (0.803 SD)	2.98 (0.76 SD)	6.49 (0.49 SD)	6.49 (0.28 SD)
Actions	40.11	2.95 (0.731 SD)	2.82 (0.58 SD)	6.42 (0.16 SD)	6.16 (0.67 SD)

Lemma frequencies for object and action names were calculated based on the printed word frequency count for Standard Modern Greek (Hatzigeorgiou et al. 2000); at this time, there are no word frequency data available for Cypriot Greek. A Mann-Whitney test revealed no significant difference between object and action lemmas ($z = -0.154$, $p = 0.878$). In addition, there was no significant difference in syllable length between object and action names either ($z = -0.610$, $p = 0.542$). Furthermore, object and action names were measured for key psycholinguistic variables, including age of acquisition (AoA), imageability, and picture complexity.

The object and action tasks were presented in one or two sessions. Testing was conducted in a quiet room at the school. Each child was tested individually.

Children were asked to name the object or action represented in the photograph in a single word. Action names were required in the third person singular. Two examples were provided before testing. The stimulus question(s) was repeated once for children who did not respond. If no response was given, the item was scored as incorrect. No time limits were placed and self-correction was allowed. Responses were recorded and transcribed verbatim by the first-named author and checked by the second.

Results

The results of two subtests of the COAT are reported in the present study: object/noun naming and action/verb naming. The percentages of correct responses were calculated for object and action names as provided by all children. A summary of the results is given in Table 2 according to picture type.

Table 2: Correct production percentages for object and action names.

	MoSLI	BiSLI	yTD	oTLD
Object names	72%	65%	63%	85%
Actions names	65%	55%	64%	77%
Picture naming (mean)	68%	60%	63.5%	

Although the MoSLI group have higher percentages correct than the BiSLI group, this difference failed to reach significance using the Mann-Whitney U-test.

A one-way analysis of variance (ANOVA), carried out on the results from verb and noun naming performances between the four groups, revealed a statistically significant difference between the children with TLD and those with SLI — with the latter showing significantly more difficulties retrieving object and action names compared to typically developing peers.

Discussion

The present study investigated object and action picture naming accuracy in four groups of Cypriot Greek-speaking children: four- and six-year-olds with TLD, monolingual and bilingual children with SLI, in a highly inflected language (Cypriot Greek, patterning morphosyntactically for all items tested just as Standard Modern Greek). Modern Greek (whether Cypriot Greek or Standard Modern Greek) is a highly inflected language where nouns and verbs are clearly differentiated on the basis of inflectional suffixes (Holton et al. 1997).

Generally, children with SLI are less accurate in (object and action) naming than both the age-matched and the younger children with TLD, but interestingly, error type cannot differentiate the two groups. This suggests strongly that children with SLI are delayed — but *not atypical*. The fact that both groups of children with SLI also showed no grammatical-class effect fully supports our initial hypothesis that Cypriot Greek children with SLI would show an undifferentiated grammatical class dissociation.

The bilingual children with SLI (albeit 4 only) did not show a significant difference in naming accuracies for action and object names compared to their monolingual counterparts with SLI. This finding is in line with research indicating that bilingualism does not impact negatively on children affected with SLI (see Paradis et al. 2003). In other words, the outcome of SLI children learning two languages for verb and noun retrieval at the single word level revealed no significant differences between the bilingual and monolingual SLI groups. Our results are more consistent with the predictions of a representational than processing account of SLI suggesting that difficulties retrieving verbs and nouns in SLI is internal to the linguistic system.

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