

Research Question

How do children's scores on the DELV-NR compare with Language Sample (LS) analyses of the spontaneous language of the same children?

Description of the DELV

The DELV-NR is a comprehensive norm-referenced assessment of syntax, semantics, pragmatics, and phonology for children aged 4 through 9 years of age. It has several distinctive features:

- The **syntax domain** subtests are based on current research in language acquisition and generative linguistics, assessing deep syntactic knowledge of the structure of sentences.
- The **semantics domain** subtests do not assess specific acquired vocabulary, but focus on the organization of the children's lexicon and their ability to learn new vocabulary from syntactic and referential context (fast mapping).
- The **pragmatics domain** subtests assess functional skills in speech acts and narrative that are essential for early schooling and literacy development.
- The DELV test has been demonstrated to provide an unbiased assessment of the language development of children who are speakers of African American English (AAE) or mainstream English (MAE).

Participants

Age	5;0-5;5	5;6-5;11	6;0-6;5	6;6-6;11	All
N	18	20	20	20	78
Language Impaired	4	6	4	6	20
Female	11	11	7	6	35
Male	7	9	13	14	43
Parental Educ. Level	3.3	3.8	3.2	3.4	3.4*
African American %	100%	100%	100%	100%	100%

*3 = HS diploma, 4 = some post HS, 5 = 4yr degree or more

Language Samples

- Recorded in interaction with the testing SLP around pictures and activities.
- Target = minimum of 100 non-imitative child utterances
 - Narrative (picture-cued and open-ended)
 - Exposition -- how to make a favorite sandwich
 - Problem-solving -- violation of the child's expectations
- Description of pictured character's occupation (What does this person do?)
 - General conversation
- Mean sample size = 175 utterances
 - 12 samples less than 100 utterances, most analyses calculated with and without short samples

Quantitative Language Sample Measures

- Total # of Utterances
- # of different words per 50 utterances (#words50) (SALT (Miller et al., 2002))
- MLU, in words and morphemes (SALT (Miller et al., 2002) & Computerized Profiling (Long & Chaney, 2003))
- IPSyn Sentence Structure (Scarborough, 1990)
- LARSP Syntactic Complexity Profile (Crystal et al., 1989)
- Extended Discourse Pragmatics Composite

Extended Discourse Pragmatics Measures

- Components:
 - How much prompting was necessary for the child to give a connected set of directions on how to make a peanut butter and jelly sandwich (**HOW**) (0 to 3 points)
 - How much prompting was necessary for the child to tell a story for the picture sequence narrative elicitation? (**NARR**) (0 to 3 points)
 - Did child maintain referential clarity, by any means, in the picture sequence narrative (**CLEAR**) (0 or 1)
 - Did child make reference to the mental states (either desires or cognitions) of the characters in any of their stories? (**MNTLST**) (0 or 1)
- *Gives a max score of 8 for LS-PRAGMATICS COMPOSITE

DELV-NR Scores

- Raw scores for each Language Domain (Syntax, Semantics, Pragmatics)
- Standardized Language Domain Scores
- Total raw scores (sum of 3 domains*)
- Standardized Total Scores (from DELV-NR)
- Pass DELV-NR vs Fail DELV-NR (criterion set at 1.5 SD below mean)
- * Concurrent validity of DELV phonology scores was evaluated in another study

Results: Correlations

1. DELV Raw Score Total by Quantitative LS Measures:

- # children = 78
- DELV Raw Score Total correlated with: $r =$
 - # Words per 50 utterances .514***
 - IPSyn Sentence Structure Score .306**
 - SALT MLU in Words .426***
 - LARSP % complex sentences .285**
 - LARSP Clausal Complexity .339**
- *p < .05; ** p < .01, ***p < .001

2. DELV Raw Score Total by Pragmatics Measures:

- # children = 78
- DELV Raw Score Total correlated with: $r =$
 - HOW -- Giving Directions .525***
 - NARR -- Picture Sequence Narrative .519***
 - CLEAR -- Referential Clarity .365***
 - MNTLST -- Mental State References .451***
 - LS PRAGMATICS COMPOSITE .636***
- *p < .05; ** p < .01, ***p < .001

DELV Total Scores were significantly related to all of the Language Sample measures, especially Extended Discourse.

3. Language Measures by Age:

Age in months correlated with:	$r =$
# Words per 50 Utterances	.129, p = .262
IPSyn Sentence Structure	.116, p = .311
SALT MLU in words	.107, p = .349
LARSP % Complex Sentences	.114, p = .320
LARSP Clausal Complexity	.009, p = .937
Pragmatics Composite	.344, p = .002**
DELV Raw Score Total	.267, p = .018*

THUS Quantitative LS measures showed no age progression BUT the DELV Total Score did show developmental growth between 5 and 6;11. Discourse Pragmatics also showed growth in this age range.

Language Impaired vs Typically Developing

- When the DELV-NR and the SLP prior categorization of the children as LI or TD disagree, do the LS measures corroborate the DELV score or the pre-existing clinician diagnosis?
- This was tested by ANOVAs and comparisons of LS profiles for which deviations from the subject sample means (z-scores) were calculated for each child for the various LS measures.

DELV LI vs TD: ANOVAs on LS Measures

	Passers (n=57) Mean (sd)	Failers (n=21) Mean (sd)	F	p	η^2
# Words /50 Utts	106.9 (24.8)	81.6 (18.2)	17.36	.000***	.19
IPSyn SS	29.4 (5.4)	25.9 (6.3)	4.95	.029*	.06
SALT MLU-w	4.48 (1.13)	3.52 (0.85)	13.09	.001***	.13
LARSP Clauses	2.77 (0.67)	2.29 (0.49)	8.61	.004**	.10
HOW	2.54 (0.66)	1.71 (0.96)	16.28	.000***	.18
NARR	2.53 (0.63)	1.76 (1.04)	13.66	.000***	.16
CLEAR	.47 (.50)	.10 (.30)	9.02	.004**	.11
MNTLST	.54 (.50)	.19 (.40)	6.75	.010**	.08

DELV LI are significantly lower than DELV TD on all LS measures (DELV LI = Standard Scores <77.5 on DELV-NR, i.e. >1.5 SD below mean)

SLP LI vs TD: ANOVAs on LS Measures

	SLP-TD (n=58) Mean (sd)	SLP-LI (n=20) Mean (sd)	F	p	η^2
# Words /50 Utts	104.1 (27.1)	88.7 (17.2)	5.44	.022*	.07
IPSyn SS	28.6 (6.1)	27.8 (5.0)	0.23	.636	.00
SALT MLU-w	4.39 (1.20)	3.75 (0.76)	4.70	.033*	.06
LARSP Clauses	2.73 (0.70)	2.40 (0.43)	3.75	.056	.05
HOW	2.47 (0.76)	1.85 (0.88)	8.97	.004**	.11
NARR	2.43 (0.73)	2.00 (1.03)	4.55	.036*	.06
CLEAR	.45 (.50)	.15 (.37)	5.86	.018*	.07
MNTLST	.50 (.50)	.30 (.47)	2.37	.128	.03

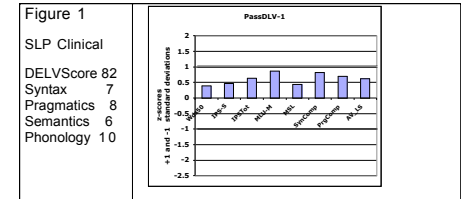
SLP-LI was not as clearly discriminated from SLP-TD on the different LS measures.

LI Categorization Disagreements

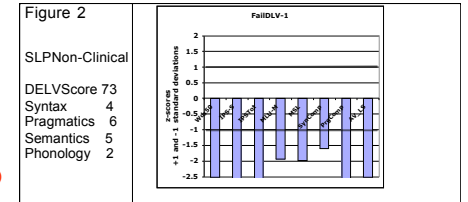
- 15 cases of disagreement between DELV and SLPs
 - 7 LI children (receiving speech services) pass DELV
 - for 6/7 LS measures support DELV
 - for 1/7 LS measures low (average z-score = -2.5)
 - 8 children not receiving services fail DELV
 - for 4/8 LS measure z-scores > -1.5
 - for 1/8 borderline (DELV SS 74, mixed LS measures)
 - for 2/8 average LS measures EXCEPT very low #Wds50
 - for 1/8 (DELV SS 73), but strong LS measures
- In only 2/15 cases are the LS measures discrepant with the DELV categorization of the children.

Individual LS z-score Profiles

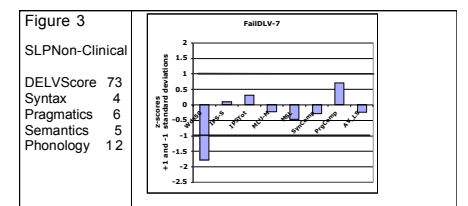
Case 1. DELV Pass (TD) and LS z-scores all above average



Case 2. DELV Fail (LI) and LS z-scores all way below average.



Case 3. Not so clear cut -- DELV Fail, LS z-scores mixed.



Conclusion

- DELV scores and many LS measures are strongly correlated.
- The DELV test is more sensitive to developmental growth between age 5 and 6;11 than various widely used quantitative LS measures.
- DELV Passers score significantly higher than DELV Failers (>1.5 SD below the mean) on a wide range of LS measures.
- LS measures support the DELV over prior SLP LI and TD categorization for most cases of disagreement in categorization.
- Thus the DELV provides a rich profile of syntactic, semantic, and pragmatic skills that is in keeping with children's language in spontaneous speech.
- The DELV provides similar diagnostic information to a detailed language sample analysis, but it is much quicker and more easily gathered and analyzed.