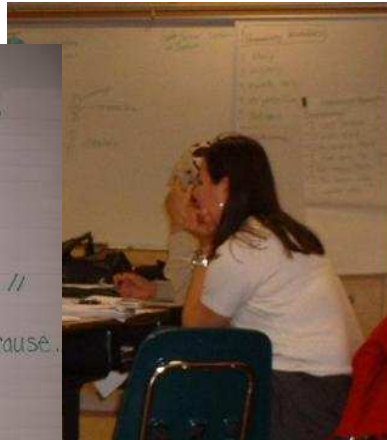
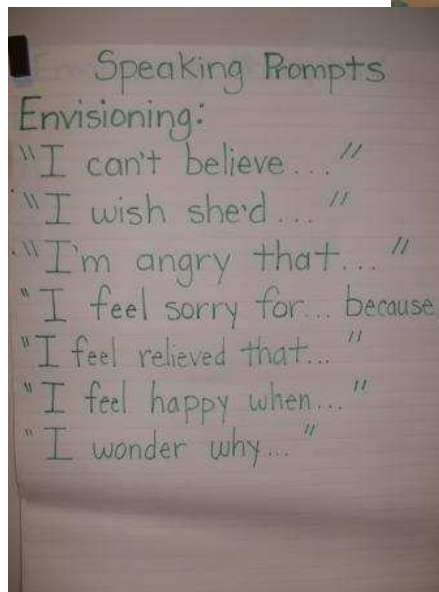


Academic English: Interactions between student and language



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Overview

- Background and terminology
- Defining features of social and academic English
- Implications for assessment
- Description of the test development process adopted at CRESST
- Illustrative prototype tasks of academic English
- Next steps: Continuing to define academic English (linguistic pedagogies in science & math)

Key Terminology

- **Academic Language Demands** Linguistic features (phonological, lexical, syntactic, discourse) and language functions frequently encountered and commonly learned in the K–12 context
- **Modality** Four response modes used in language proficiency assessments under Title III: *listening, speaking, reading, and writing (comprehension)*
- **Prototype** Example task, tried out/analyzed to establish measurement of construct with the target population

Background Context

- Educational need in USA for language tests that monitor ELD progress and test attainment of English language proficiency (ELP) (No Child Left Behind Act, 2001)
- Existing language tests not good predictors of performance on standardized content tests (e.g., Butler et al. 2000; 2007)
- Mismatch between language tested and language used on content tests and in the classroom (e.g., Bailey, 2000)
- Need for development of tests that measure academic English
- CRESST prototype reading task development focuses on ages 9-12 years.

Construct of Academic English

- **Cummins (1980)**—basic interpersonal communicative skills (BICS) and cognitive academic language proficiency (CALP)
- **Short (1993)**—language functions of social studies classes
- **Chamot & O'Malley (1994)**—language functions and corresponding structures
- **Johns (1997)**—a register of English used in professional books and characterized by the specific linguistic features associated with academic disciplines
- **Gibbons (1998)**—*intertextual* nature of classroom language
- **Biber, Conrad & Reppen (1998)**—spoken and written register variation: "*edited informational discourse*" (corpus linguistics)
- **Cummins (2000)**—revised the BICS/CALP distinction into a framework that distinguishes cognitive and textual demands
- **Stevens, et al. (2000) Scarcella, (2003)**—Integrative perspectives – lexical, syntactic, discourse, sociolinguistic
- **Schleppegrell (2004)**—language functions (and associated grammatical structures) in school texts

Features of Academic English

- Purpose
- Formality
- Context of use (setting)
- Context of acquisition
- Modality
- Teacher expectations
- Grade level expectations

Bailey, A. & Heritage, M. (in press). *Formative Assessment for Literacy Learning: Developing Reading and Academic Language Proficiency Together, K-6*. Thousand Oaks, CA: Corwin Press. .

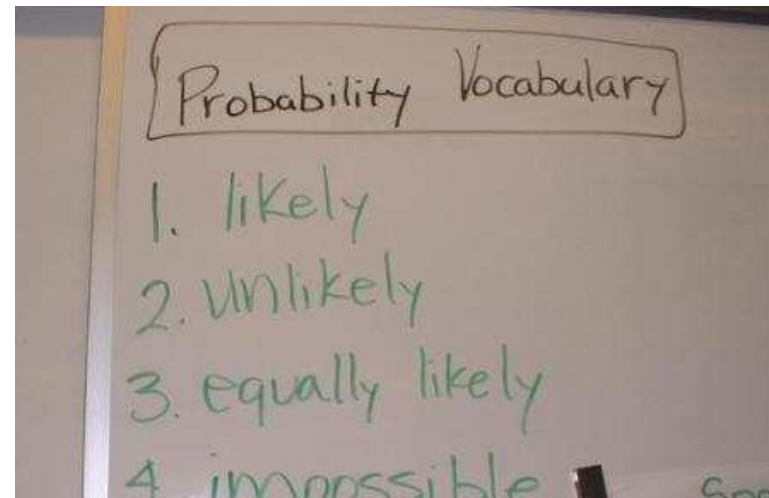
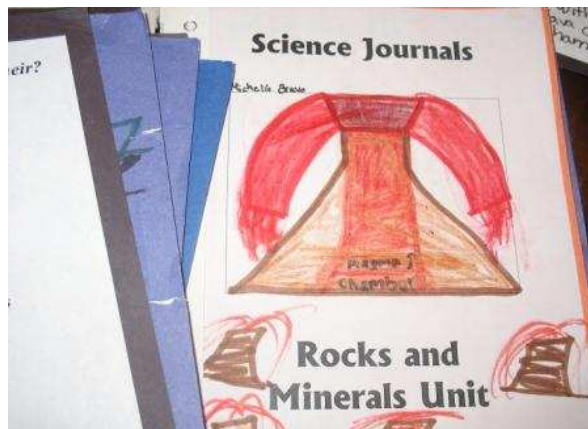
	Social Language (SL)	Academic Language (AL)	
		School “navigational” language (SNL)	Curriculum content language (CCL)
Purpose	To communicate with family, friends and others in everyday, social situations.	To communicate to teachers and peers in a broad school setting (incl. classroom management).	To communicate to teachers and peers about the content of instruction (incl. lesson materials, textbooks, tests etc.)
Formality	Informal. Hallmarks: incomplete sentences, use of contractions restricted vocabulary, contextualized language, restricted variety of genre (mainly narrative).	Informal and formal. Hallmarks: combination of both contextualized and decontextualized language.	Formal. Hallmarks: precise use of language/terminology, complete and complex sentences, lexical diversity, decontextualized referents, variety of genres (narrative and expository).
Context of use (setting)	Home. Peer group. Out-of-school activities.	School non-instructional time (incl. homeroom, lunch room and playground). School instructional time (focused on classroom management; personal relationships).	School instructional time (focused on concept learning). Note: some out-of-school activities including those at home or with peers may focus on concept learning and thus may include hallmarks of CCL (incl. the pre-school level).
Examples	<i>I took it [= the trash] out before [= before dinner]; Where’s the shop at?</i>	<i>I need you all to be facing this way before we begin; Where is your 3rd period English class located?</i>	<i>First, the stamen forms at the center of the flower; Describe the traits of the main characters.</i>
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	Social Language (SL)	Academic Language (AL)	
		School “navigational” language (SNL)	Curriculum content language (CCL)
Context of acquisition	Acquired without explicit instruction.	Largely acquired without explicit instruction, unless student is an ELL student.	Acquired with and without explicit instruction. ELL students especially, may need explicit instruction.
Modality	Predominantly oral language	Predominantly oral language	Both oral and written language
Teacher expectations	Students will come to school already proficient unless the student is an ELL student.	Students will readily learn these language skills unless the student is an ELL student.	<i>All</i> students will need to acquire linguistic and pragmatic skills for both general use (cutting across disciplines) and specialized within a discipline. Some teachers will hold students accountable for use of “precise” CCL, others and even the same teachers at other times will allow informal/ imprecise uses.
Grade level expectations	More sophisticated uses of language to solve disputes and participate as “good citizens.” For ELL students ELD levels should be taken into account (e.g., new to the US and at the beginning level will differ from a student who may be younger but at a higher ELD level).	More sophisticated uses of language. Teachers assume prior grades have prepared student to acquire the language (incl. reading and writing) necessary to take notes, read directions etc. Redesignated ELL students are expected to be able to cope with language demands of the classroom interaction.	More sophisticated uses of language. Higher grades rely on students having learned CCL of prior grades and rely on their reading ability to access and engage with the curriculum and on their writing ability to display or assess their learning. Redesignated ELL student are expected to be able to cope with language demands of instruction.
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Implications for Assessment

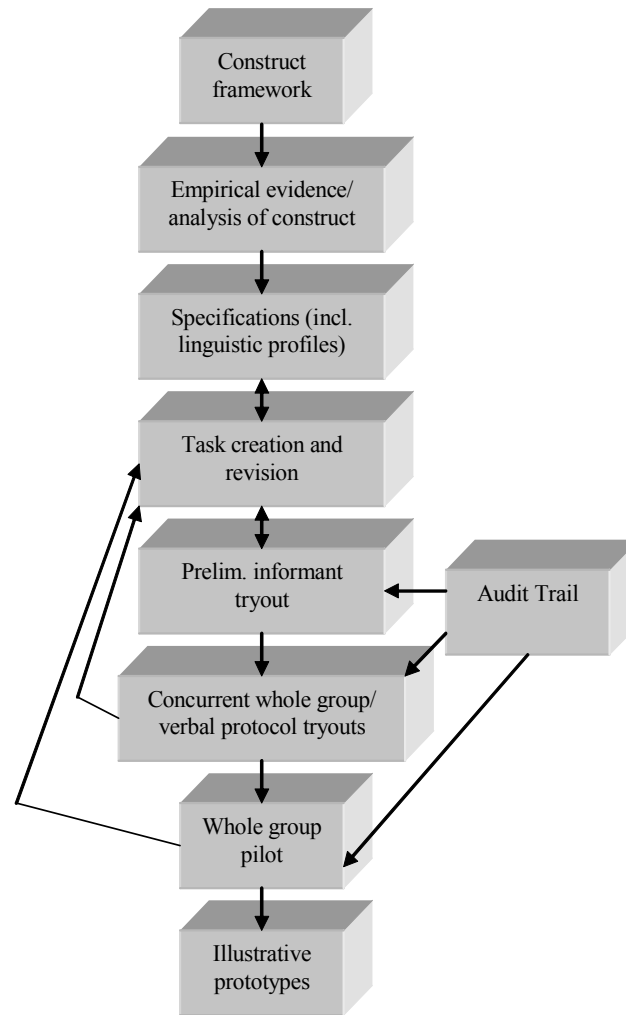
- Interactive, context-dependent
 - Dynamic and process-oriented
 - “Differentiated” assessment (e.g., individualized target words, grammatical structures, discourse genres etc.) - suited to computer-adapted (assisted) testing
 - Test validity: Variation in opportunity to learn (OTL) and establish native-English speaker norms
 - Continuity between formative, benchmark and summative assessment
 - *creating a common academic English construct*
 - *establishing learning progressions for ELD*
- ➡ *Closer tie to instructional practices*

AELP Test Prototype Development at CRESST



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Test development (TD) process used with AELP prototypes



11

Bailey et al. (2007) CSE Tech. Report 720

AELP Draft Readings Tasks

Reading task development with focus on English learners ages 9-12 years

Goals:

- Designed to isolate specific language features (e.g., vocabulary, grammar, language functions) occurring in different content areas (e.g., mathematics, science and social studies texts)
- Designed to help determine whether a student has sufficient antecedent knowledge of English language features to make meaning of the academic texts they encounter

Stage I: Evidentiary Bases for Operationalizing AEL

Documented language demands from:

- text analysis,
- classroom observation,
- content review of standards

All at the *lexical, syntactic and discourse levels*
(*academic language functions*)

Outcome: Linguistic profiles for math, science, and social studies

Stage II: Integration of Empirical Evidence

Text selection and task creation using the linguistic profiles

Outcomes:

1. 11 math word problems, 6 science, & 5 social studies expository passages selected
2. 25 math-based, 43 science-based, and 33 social studies-based draft tasks created (total:101)
3. Teacher review of texts and tasks for difficulty and typicality (9 content area teachers & 1 ELD specialist)

Stage III: Phase 1: Pre-Pilots/Tryouts with Draft Tasks

- Whole-class administration (n=77) and verbal protocol (n=18) (predominantly English proficient)

Additional Phase I Procedures:

- Questionnaire of demographic information
- Teacher-reported reading level
- Audit trail approach (Davidson, et al. 2007)

Outcome: 61 draft tasks rejected; 35 modified and retained, and 5 intact for Phase 2 pilot to establish prototypes

Verbal Protocol Example

(Mid-reading level, age 10): ***"It didn't ask you a big math question. It just asked you what she bought...it's just telling you right there."***

Phase 2: Pilot with Refined Tasks

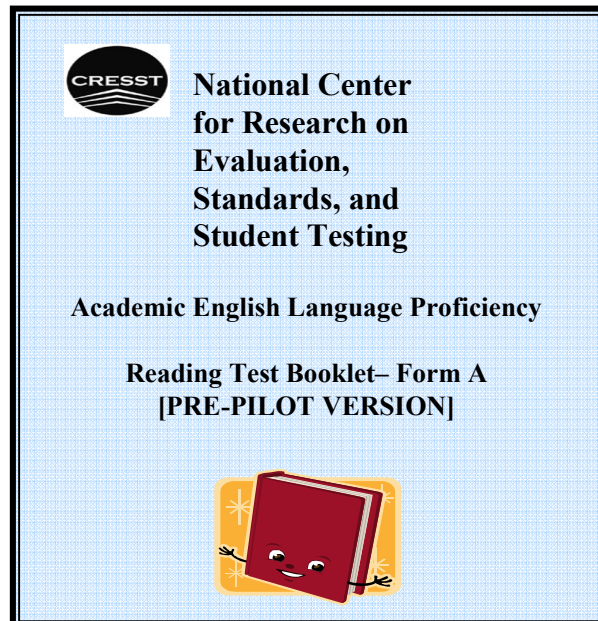
- Whole-class administration (n=128) (73 ELL)

Additional Phase 2 Procedures:

- Questionnaire of demographic information
- CELDT scores for ELL students
- CST ELA for all students
- Audit trail approach

Outcomes: Correlations between % AELP tasks correct and CELDT and CST ELA; Majority of tasks with difficulty estimates in the .50-.60 range; CST ELA master/non-master groups: 17 discriminated adequately ($D \geq .35$); 11 poorly ($D < .25$)

Illustrative Prototype Tasks of AELP in Reading



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Task Specifications

Framework category: Demonstration of Comprehension (through paraphrase)

- **General description and text type:** *Students will identify the problem statement in a mathematics word problem and select the correct paraphrase from multiple-choice sentence options*
- **Task format:** *'Wh' question with multiple-choice sentence options*
- **Stimulus attributes:** *A mathematics word problem generally of 2-3 sentences in length with a problem question or imperative statement at the end. (empirical evidence) The target academic language function construct is "paraphrase", which requires the processing of the same idea expressed in different words.*
- **Response attributes:** *Circle the correct multiple-choice option from the four options provided.*
- **Standard addressed:** *ELD Standard addressed: Early Advanced Comprehension and Analysis; California Content Standard addressed: Math Number Sense 2.0 (2.1)*
- **Target Academic Language Constructs:** *Academic language functions "paraphrase" and "summarize"; and specialized academic vocabulary.*

Example Draft Task

Original Draft Task

Passage

Carlotta bought 9 packages of lemonade for \$1.10 each and 2 packages of cups for \$1.09 each. She sold 23 cups of lemonade every hour for 4 hours at \$0.40 per cup. How much more money did Carlotta earn than she spent on supplies?

What is the word problem asking about?

- a) How much Carlotta spent on supplies.
- b) How many packages of lemonade she sold.
- c) How much profit Carlotta made.*
- d) How much lemonade costs.

*correct response

20

Linguistic Analysis Profile

	<i>Stem/Prompt</i>	<i>Response</i>
Descriptive Analysis		
(Mean) no. of words per sentence(range)	7	5.5 (4-7)
Sum of Words	7	22
Total # of words (token)	7	22
Total # of words (type)	7	15
Lexical Features		
Academic vocabulary - specialized(token)	2	2
Academic vocabulary - specialized(type)	2	2
3-or-more-syllable words(token)		3
3-or-more-syllable words(type)		2
Derived words (token)		2
Derived words (type)		2
Sentence Type		
Simple sentences	1	NA
Other sentence types		4 clauses
Grammatical Features		
Prepositional phrases		1
Organizational Features		
Paraphrase	1	1
Question	1	
Summary	1	1

21

Verbal Protocol Analysis from Tryout

The strategies students reported included going back to the passage: “I really didn’t exactly understand so I went back up to the passage and read the question that they asked, so then I noticed that profit is basically the same thing earned of...how much she’s earned...so it means how much profit...so profit means the same thing.” (Comment from a 6th grader). A 4th grader chose the wrong answer (a) and rationalized his answer as follows: “Because it tells you all the prices for sure. It’s not how many packages of lemonade she sold...How much profit Carlotta made...It doesn’t even tell you that.”

Excerpts from Audit Trail

Although this item had a relatively low difficulty index ($p=.68$), it reasonably discriminated among good and poor readers ($D=.332$). In addition, it also distinguished across grade and home language background. Review of the student responses revealed that the distractors were also plausible and effective.



Passage & Item Intact for Phase 2 Pilot

22

Statistical Results from Phase 2 Pilot

Item Difficulties (% correct) $p = .42$ (95% CI = .34-.51)

Item discrimination (D) = .37

	n (Total = 125)	Percent Correct (Raw Number)	Trend	Statistical Significance
<i>Grade</i>	4 th = 18 5 th = 76 6 th = 31	4 th = 33.37% 5 th = 47.4% 6 th = 35.5%	Unclear	NS
<i>Gender</i>	Girls = 67 Boys = 58	Girls = 47.8% Boys = 36.2%	Girls higher	NS
<i>Home Language</i>	English = 52 Spanish = 56 Other = 17	English = 55.8% (29) Spanish = 32.1% (18) Other = 35.3% (6)	English group higher than both Spanish and Other	S (English higher than Spanish)

Breakdown of Pilot Group Responses

- 1) 42.4% (n=53) chose the correct answer C: How much profit Carlotta made.
- 2) 38.4% (n=48) chose distractor answer A: How much Carlotta spent on supplies.
- 3) 12% (n=15) chose distractor answer B: How many packages of lemonade she sold.
- 4) 5.6% (n=7) chose distractor answer D: How much lemonade costs
- 5) 1.6 % (n=2) given opportunity to work on the item but provided no response

Excerpts from Audit Trail

The item difficulty level changed from .68 to .42 in the Phase 2 pilot findings, suggesting it was harder for the pilot students. The item discrimination index remained adequate (masters/non-masters). The task also significantly distinguished between students with English and Spanish home language backgrounds.



VERDICT: *Passage & Task Retained as an AELP Prototype*

Limitations & Implications of the TD Process

- Labor-intensive: framework requires extensive empirical analysis of standards and academic English language in K-12 classrooms
- At the classroom level, we recommend exploring tools (rubrics, specifications) for **all** teachers, including content-area teachers, to identify academic language demands in the standards and other curricular materials they regularly work with, so they can create their own assessments in **advance of, and separate from,** content-area assessments.

Next Steps

- Expansion of the standards-***informed*** approach to creation of prototype tasks:
 - at additional grades (e.g., Arts in the Middle Project)
 - for additional language modalities (i.e., speaking/ listening) using relevant empirical evidence
- Additional CRESST studies of academic language exposure (linguistic pedagogies):
 - 4th/8th grade ELL content test validity: Academic language exposure in science as an opportunity to learn (OTL) construct
 - Macro and micro levels (Walqui, 2006)
 - 6th grade math teachers: Linguistic features of explanations of mathematical ideas



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27