


Intervention Study for Literacy/ Academic Skills

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Project goals

- *Problem addressed: students' lack of preparedness for college-level reading and writing in the disciplines*
- Goal 1: Develop reading-writing intervention for developmental education students systematically linking literacy to subject-matter
- Goal 2: Gather data to test potential efficacy
 - Test-revise-retest
- *IES context: (a) development & preliminary data, (b) rigorous test, (c) scale up*

Intervention

- Content Comprehension Strategy Intervention (CCSI)
 - Curricular supplement
 - Intent: provide practice in skills taught in developmental education classrooms
 - Self-directed, self-paced
 - 10 units over college semester
 - Contextualized instruction

Research questions

- Does CCSI demonstrate potential efficacy?
- Does CCSI demonstrate a higher degree of potential efficacy when it is contextualized in science rather than generic content?
- Do the effects of CCSI have the potential for transfer to subsequent course work?

Study sample

- 3 community colleges over 2 years
- 48 developmental reading and writing (English) classrooms
- Urban, low SES-students
 - 2 of the 3 sites Hispanic-serving

Site 1 (Year 1)

- Fall 2006: class size 214, signed consent 181, pretest 174, posttest 144
- Spring 2007: class size 176, signed consent 156, pretest 154, posttest 101
 - High attrition in project and non-project classrooms

Site 1, Cycle 1, Fall 2006 Student Characteristics

- Hispanic 58.6%; Black 35.2%
- 57.3% Female
- Native language: Engl 46.7%; Span 39.6%
- Age: Mean 24.33 years, median 21 years
- GED 18%
- Full-time students 81.1%
- Prior remedial credits: mean 3.9
- Fall 2006 GPA: mean 2.03

Design: single semester per site

- 8 classrooms
 - 6 classrooms: intervention + assessment
 - Within each classroom, students randomly assigned to science or generic conditions
 - 2 classrooms assessment-only

Measures

- Pre-post
 - Nelson-Denny Reading Test
 - Science Summarization Test
- Intervention responses – growth curves
- Covariates
 - Science Motivation and Interest; Science Knowledge; academic & demographic variables

Scoring of Written Summarization, pre-post and growth curve

- Idea units
- Representation of main ideas
 - Full or partial
- Writing Quality rubric
 - Accuracy of information
 - Paraphrasing (copying)
 - Focus (representation of main ideas)
 - Conventions: grammar, punctuation, spelling

CCSI

- Components from Reciprocal Teaching (Brown & Palincsar, 1984) widely used in middle and high schools
 - Adaptation: self-directed rather than teacher-led; contextualized
- Contextualized practice of developmental skills, applied to:
 - Science (introductory anatomy & physiology)
 - Generic social science topics

CCSI Steps

- Prepare to read
 - Write ideas on seeing title
 - Supports: reminder to underline, circle ideas, mark unfamiliar concepts, etc. – skills taught in developmental reading
- Read science or generic text, 800-1000 words from college-level text. Issue: readability level, simplified vs. intact text

CCSI Steps (cont'd)

- Example of original science paragraph
 - **Proteins** account for over 50 percent of the organic matter in the body, and they have the most varied functions of the organic molecules. Some are construction materials; others play vital roles in cell function. Like carbohydrates and lipids, all proteins contain carbon, oxygen, and hydrogen. In addition, they contain nitrogen and sometimes sulfur atoms as well.

CCSI Steps, cont'd

- List most important ideas in passage
- Select two words, define, & write 1 sentence for each to explain meaning to friend
- Write summary of passage
 - Issue: does science text lend itself to summarization; alternative task considered

CCSI Steps, cont'd

- Question-formulation
 - Write a question a professor could ask a class about the passage. Answer it.
- Reading Test Preparation
 - 3 multiple-choice questions based on the text
- Writing Test Preparation
 - Persuasive essay; self-rating - issue: connection between essay and text topic

Preliminary findings, Fall 2006 cycle, N-D Test

- Intervention, within-subject (n=95), sig. increase
 - Vocabulary (max 80)
 - Pre 27.53 (11.80) Post 30.26 (11.42)
 - Comprehension (max 76)
 - Pre 27.39 (12.68) Post 30.38 (13.60)
 - Total (max 156)
 - Pre 54.92 (21.98) Post 60.64 (22.34)
 - Both intervention conditions showed sig. diffs.
- Comparison group, within-subject (n=38)
 - Pre-Post differences n.s.

Findings, Fall 2006 cycle Science Summarization Test

- Task appears very difficult, low mean scores on 4 measures – idea units, main ideas (full & partial), and overall writing quality
- Few significant differences
 - Science and comparison groups both significantly increased partial representation of Main Ideas
 - Generic group showed significant decline in partial representation of Main Ideas (but not commensurate increase in full representation)

Next Steps in Development and Test

- Fall 2006 units produced change on reading but not written summarization measures
- Units revised for Spring 2007
 - Clarification and expansion of instructions
 - Additional support
 - Spring 2007 data will indicate whether these revisions affect gain
- Additional revisions for Fall 2007