

Registry of Efficacy and Effectiveness Studies

Study Title:

Efficacy Study of a Pre-Algebra Supplemental Program in Rural Mississippi Schools

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Outcome measure information was updated.

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Section I: General Study Information

PI name: Tedra Clark

PI affiliation: Mid-continent Research for Education and Learning (McREL)

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Institute of Education Sciences

Award number(s): R305A120045

IRB name:

IRB approval date:

IRB approval number:

Other registration name:

Other registration date:

Other registration number:

Study start date: 2012-03-21

Study end date: 2015-02-28

Intervention start date:

Timing of entry: Retrospective registration

Brief abstract:

In some states, rural students continue to lag significantly behind their non-rural peers in mathematics achievement. A strong correlate of the mathematics achievement gap between rural and non-rural students is the availability for opportunities to learn. Providing supplemental learning activities can help improve the mathematics achievement of rural students by providing students with additional opportunities to learn the content. This study will evaluate the efficacy of a supplemental mathematics curriculum, Every Day Counts Algebra Readiness (EDC Algebra Readiness), in Mississippi, a state with a sizable number of rural schools

and the largest gap in achievement on the eighth-grade algebra scale of the National Assessment of Educational Progress.

Keywords: Math achievement, rural schools, cluster randomized trial

Comments:

Section II: Description of Study

Type of intervention:

Curriculum/Product, Professional Development

Topic area of intervention:

Mathematics and Science Education

Number of intervention arms:

1

Target school level of intervention:

6, 7, 8

Target school type:

Rural

Location of implementation:

United States: South

Further description of location:

Rural Mississippi

Brief description of intervention arm:

The EDC Algebra Readiness program is a widely used supplemental mathematics program that has not yet been rigorously evaluated. The program consists of an interactive bulletin board containing several visual models around which teachers conduct whole-class activities for 10-15 minutes per day. Teachers use the visual models to lead students in consistent, incremental daily practice designed to help them express conceptual thinking about mathematics and to understand critical algebra readiness concepts and skills. EDC Algebra Readiness focuses on the following topics: fractions, decimals, and percents; integers; number patterns; algebraic representation with variables, expressions, equations, and graphing; geometry; measurement; and data and probability with problem solving and discussion.

Brief description of comparison condition:

Schools in the control condition will continue to implement their business-as-usual mathematics curriculum and instructional practices.

Comparison condition: Business-as-usual

Comments:

Section III starts on the next page.

Section III: Research Questions

Confirmatory research questions:

Question 1

1. What is the effect of EDC Algebra Readiness on 7th grade student math achievement compared to business-as-usual?

Question 2

2. What is question 2?

Exploratory research questions:

Question 1

1. Does participation in EDC Algebra Readiness for 7th grade rural Mississippi students predict: a) more pre-algebra instruction, b) more consistent instruction, and c) a different trajectory of instruction across the year?

Question 2

2. Is there a significant relationship between algebra readiness of 7th grade rural Mississippi students and: 1) more pre-algebra instruction, b) more consistent pre-algebra instruction, and c) the trajectory of instructions across the year?

Comments:

Section IV-A: Study Design (Selection)

Study Design:

Randomized Trial (RT)

Comments:

Section IV-B: Study Design (Input)

Unit of random assignment of intervention:

School

Assignment within blocks or selected strata:

No

Probability of assignment to treatment the same across all units:

Yes

Probability of assignment to treatment:

0.50

Unit outcome data measured:

Student

Intermediate clusters between unit of random assignment and unit of measurement:

No

Design Classification:

RT: 2-level Cluster Randomized Trial

Comments

Section V: Sample Characteristics

Approximate number of students per school: 50

Number of schools in the comparison condition: 20

Number of schools in the intervention condition: 20

Certain students that were targeted for the study:

Yes - 7th grade students

Certain students that were excluded from the study:

No

Certain schools that were targeted for the study:

Yes - Public schools that (1) are in Mississippi, (2) are rural as defined by the National Center for Education Statistics (National Center for Education Statistics Common Core of Data [NCES CCD], n.d.-a), (3) offer seventh grade mathematics, and (4) are not currently using EDC Algebra Readiness.

Certain schools that were excluded from the study:

No

Comments

Section VI-A: Outcomes (Selection)

Confirmatory question 1 - number of outcome measures: 1

Confirmatory question 2 - number of outcome measures: 1

Comments:

Section VI-B starts on the next page.

Confirmatory Question 1, Outcome Measure 1

Outcome domain: Student Achievement - Mathematics

Minimum detectable effect size:

Outcome measure: algebra readiness assessment

Scale of outcome measure: Continuous

Normed or state test: Yes

Same outcome measure in treatment and comparison groups: Yes

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Confirmatory Question 2, Outcome Measure 1

Outcome domain: Student Achievement - Mathematics

Minimum detectable effect size:

Outcome measure: IOWA Algebra Aptitude Test (IAAT), 5th Edition

Scale of outcome measure: Continuous

Normed or state test: Yes

Same outcome measure in treatment and comparison groups: Yes

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Comments:

Section VII: Analysis Plan

Baseline data collected prior to start of intervention: Yes

Description of baseline data:

Pre-tests

Covariates to include at the student level in the model:

Student Pretest

Covariates to include at the school level in the model:

Cluster-level Mean Pretest scores

Analytic model:

$$Y_{ij} = \gamma_{00} + \gamma_{01}T_j + u_{0j} + e_{ij}$$

where Y_{ij} is the outcome, T_j is the treatment indicator.

Plan to handle cases with missing outcome data:

Impute missing outcome data

Process description:

Multiple imputation assuming data is missing at random

Comments:

Section VIII: Additional Materials**Links**

No links have been added yet.

Files

No files have been added yet.

Comments