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Evidence in Action

A K20 Center Research Brief

Enhancing Academic Performance Through Strategic After-School Tutoring

Michael F. Hock, Kim A. Pulvers, Donald D. Deshler, & Jean B. Schumaker

2001

Introduction

Educators and policymakers have long turned to after-school tutoring programs to support students who are failing courses or at risk for academic failure. However, prior research has produced mixed findings regarding whether tutoring improves student outcomes, particularly in before- and after-school programs. Much of the existing literature has been descriptive, lacked comparison conditions, or failed to clearly define what tutors actually do during sessions.

Hock and colleagues argue that inconsistent results stem from important differences among tutoring models. They distinguish between assignment-assistance tutoring (help completing homework), instructional tutoring (direct skill instruction), and strategic tutoring, which integrates explicit instruction into learning strategies while supporting students' current assignments. Prior studies rarely clarified which model was being used or whether or not tutors were trained to teach strategies that promote independence.

The purpose of this research was to examine if an after-school strategic tutoring model, delivered by trained adult tutors, could improve classroom quiz, test, and course grades for at-risk secondary students and students with learning disabilities (LD). A secondary goal was to determine if students could learn and apply academic strategies independently after tutoring ended.

Methodology

Research Design:

Two single-subject, multiple-baseline designs were used across two studies.

- Study 1 employed a multiple-baseline design with a follow-up phase.
- Study 2 used a multiple-baseline-across-students design with follow-up.

These designs allowed researchers to compare each student's academic performance before, during, and after the tutoring intervention.

Sample:

Students

- Study 1:
  - 3 students, Grades 7–8
  - Identified as at risk for academic failure; 1 student diagnosed with LD
- Study 2:
  - 6 students, Grades 7–9
  - All earning Ds or Fs in at least two classes; 1 student diagnosed with LD

Across both studies, most students requested help in math courses (Algebra I or transitional math). One student in Study 2 received tutoring in biology.

Tutors

- Adult tutors (university students and adult tutors employed by a university athletic department)
- Tutors ranged from undergraduate students to adults with prior experience.
- All tutors received training in strategic tutoring procedures.

Setting

- One junior high school (Grades 7–9) located in a midwestern city
- The tutoring took place in the school library during an after-school study club
- The study club was supervised by school staff and open multiple days per week

Intervention Descriptions:

The intervention was strategic tutoring, delivered one-to-one during an after-school program.

What students and tutors did:

- Students brought current class assignments (primarily math) to tutoring sessions.
- Tutors assessed how students approached their assignments.
- Tutors explicitly taught learning and problem-solving strategies while students worked on real classroom tasks.
- Tutors modeled strategy use, guided practice, checked understanding, and helped students plan to apply strategies independently in class.

Academic focus:

- Primarily mathematics (Algebra I and transitional math)
- One student received tutoring in biology
- Emphasis on problem-solving, strategy use, and independent learning

Delivery format:

- Individual tutoring sessions embedded within an after-school study club
- Strategies taught during authentic academic tasks rather than isolated lessons

Who implemented the intervention:

- Adult tutors

Dosage:

Reported dosage:

- Frequency: 2–3 sessions per week
- Length of each session: approximately 30 minutes

Duration:

- Ranged from 4 weeks to approximately 12 weeks, depending on the student

Calculated estimates:

- Sessions: Approximately 8–36 sessions per student
- Total instructional time: Approximately 4–18 hours
- The exact number of sessions and total instructional minutes varied by student.

Data Analysis:

Researchers collected:

- Classroom quiz scores
- Classroom test scores
- Semester course grades
- Pre- and post-measures of student strategy knowledge (Study 2 only)

Scores were graphically analyzed across baseline, intervention, and follow-up phases for each student. Effect sizes were calculated using a variation of Cohen's d to indicate the magnitude of change from baseline to intervention.

Results

Academic Performance

- Most students showed substantial improvements in quiz and test scores after strategic tutoring began.
- Mean quiz and test scores increased:
  - Study 1: From failing averages to approximately 70–90%
  - Study 2: From a group mean of 50% at baseline to over 80% during tutoring
- Semester grades improved from Fs and Ds to Cs and Bs for most students.

Strategy Knowledge

- In Study 2, students' knowledge of academic strategies increased from 15% to 85% of possible strategy elements after tutoring.

Maintenance of Gains

- Several students maintained improved performance for 4–5 weeks after tutoring ended, indicating increased independence.

- Students who attended tutoring consistently and participated longer were more likely to sustain gains.
- Strategic tutoring was ineffective for students with chronic absenteeism or minimal commitment to school.

Practical Takeaways

- Strategic tutoring can improve both academic outcomes and learning behaviors.
- Results were strongest when students attended regularly and tutoring lasted beyond short-term exposure.

Application into Practice

Strategic tutoring can be implemented as part of an after-school academic support program to improve course performance and learner independence among at-risk secondary students.

Action steps for schools

1. Establish a clearly defined tutoring purpose focused on strategy instruction, not just homework help.
2. Schedule one-to-one tutoring sessions 2–3 times per week within an after-school program.
3. Allocate approximately 30 minutes per session for strategic tutoring.
4. Ensure tutors focus on:
    a. Assessing student approaches
    b. Teaching strategies during real assignments
    c. Planning for independent strategy use in class
5. Monitor student attendance and engagement, as regular participation is critical.

Work Cited

Hock, M. F., Pulvers, K. A., Deshler, D. D., & Schumaker, J. B. (2001). The effects of an after-school tutoring program on the academic performance of at-risk students and students with learning disabilities. *Remedial and Special Education, 22*(3), 172–186.