

Research Base for Strategies Provided by Kentucky Survey Respondents

The Appalachia Regional Comprehensive Center (ARCC) is working with the Kentucky Department of Education (KDE) to assist in building capacity to utilize more effective practices in order to benefit students and create sustainability within TDE's Rural Low Income Program (RLIP). Working in collaboration with Vicki Fosbender, Title I Part A Program Consultant, Office of Next Generation Schools and Districts, the ARCC conducted a survey to follow up initial calls made to four district coordinators in early spring 2015. The ARCC developed the online survey posing the same two questions—concerning strategies used and impact data collected—asked during the first round of calls. KDE shared the Survey Monkey link with all district coordinators via email, and 115 coordinators provided data in June/July 2015. This document provides the research base for the strategies that the 115 coordinators provided. Please note that a research base is not documented for all the strategies provided. Several reported strategies were too general to have a documented research base.

Strategy: AdvanceKentucky

Description: AdvanceKentucky is a statewide math and science initiative designed to increase the academic achievement of Kentucky students through increased access to Advanced Placement (AP) courses and tests, particularly for students from traditionally underrepresented populations.

Summary of Evidence: Results from a five-year study showed that students enrolled in high schools partnering with AdvanceKentucky earned significantly higher AP scores, compared to the national average, and maintained higher GPAs and greater course loads in college.

Resource(s): <http://www.advancekentucky.com/our-program/proven-results>
http://www.advancekentucky.com/images/ADVKY/PDF/AdvanceKY_2008-2013_Five-Year_Review_FINAL_Small.pdf

Strategy: ALEKS

Description: ALEKS (Assessment and Learning in Knowledge Spaces) is an assessment and learning system that uses adaptive questioning to determine gaps in student learning. This “artificial intelligence engine” assesses students on an individual basis, provides instruction, and periodically reassesses to ensure topics learned are retained. The system maps the details of each student's knowledge.

Summary of Evidence: Research indicates that use of ALEKS led to a significant effect on student achievement in College Mathematics 1, as well as a significant positive impact on standardized math scores. The use of ALEKS appears to be an effective strategy overall.

Resource(s):

[http://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1098&context=msit_diss&sei-redir=1&referer=http%3A%2F%2Fwww.bing.com%2Fsearch%3Fq%3Daleks%2Band%2Bstudent%2Bachievement%26src%3die9tr#search=%22aleks%20student%20achievement%22](http://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1098&context=msit_diss&sei-redir=1&referer=http%3A%2F%2Fwww.bing.com%2Fsearch%3Fq%3Daleks%2Band%2Bstudent%2Bachievement%26src%3Die9tr#search=%22aleks%20student%20achievement%22)
http://www.aleks.com/k12/Shawnee_Mission_Board_of_Education.pdf

http://www.academia.edu/5050876/The_impact_of_a_technology-based_mathematics_after-school_program_using_ALEKS_on_students_knowledge_and_behaviors

Strategy: Calculators

Description: Calculators have been available to students and teachers for nearly thirty years to assist with mathematical calculations.

Summary of Evidence: Strong evidence exists to support the conclusions that (1) the use of hand-held calculators led to improved student learning, and (2) the use of scientific graphing calculators shows positive effects on student achievement. Studies indicate that mathematics students will benefit from the use of graphing calculators, and that achievement increases are most prevalent when the calculators are allowed during both instruction and testing.

Resource(s):

<http://www.ibe.unesco.org/publications/EducationalPracticesSeriesPdf/prac04e.pdf>

<http://archives.math.utk.edu/ICTCM/VOL13/C025/paper.pdf>

https://education.ti.com/sites/US/downloads/pdf/research_burrill_breaux.pdf

Strategy: Credit recovery

Description: Credit recovery programs provide a structured means for students to “recover” missed credits in order to attain graduation. Multiple strategies for credit recovery are available, including a variety of online options.

Summary of Evidence: The results of two research studies offered some evidence that students who attended a district’s credit recovery program as an alternative to grade level retention benefited academically in math and reading/language arts. However, the What Works Clearinghouse reported that it could not draw conclusions regarding the effectiveness of credit recovery programs, based on current research.

Resource(s):

<http://ies.ed.gov/ncee/wwc/interventionreport.aspx?sid=634>

<http://www.centerforpubliceducation.org/Main-Menu/Staffingstudents/Credit-recovery-programs/Credit-recovery-programs-full-report.html>

<http://eric.ed.gov/?q=credit+recovery+and+achievement&id=ED536845>

Strategy: DIBELS screener

Description: Dynamic Indicators of Basic Early Literacy Skills (DIBELS) are one-minute fluency measures designed to assess the reading and pre-reading skills of students in kindergarten through sixth grade. Results from these measures can be used to identify students at risk for reading difficulties, monitor students while they receive supplemental instruction, and examine the effectiveness of a school’s instructional supports. DIBELS results are often used to form Response to Intervention (RTI) reading groups.

Summary of Evidence: There are mixed opinions on the use of DIBELS in schools. Although studies have shown that DIBELS is an effective measure for predicting student reading success, some researchers have argued that DIBELS can lead to a narrowing of the curriculum available to students.

Resource(s): <https://dibels.org/dibels.html>

<https://dibels.org/pubs.html>

[http://www.heinemann.com/shared/onlineResource\(s\)/e01050/wilde.pdf](http://www.heinemann.com/shared/onlineResource(s)/e01050/wilde.pdf)

Strategy: Edmentum Software (PLATO and Study Island)

Description: Study Island is a web-based assessment program that uses multiple choice questions to determine what students know. The program provides immediate feedback to students and educators. PLATO is a standards-based online learning program that engages students through the use of interactive, media-rich content. PLATO targets obstacles that have prevented students from moving forward and focuses on curriculum to fill knowledge gaps.

Summary of Evidence: Research offers strong evidence that the use of Study Island will increase mathematics scores at both the elementary and middle school levels. Data also indicates that increased use of PLATO software may positively impact student achievement.

Resource(s):

<http://gradworks.umi.com/34/53/3453962.html>

<http://files.eric.ed.gov/fulltext/ED469375.pdf>

Strategy: GradeCam

Description: GradeCam is an online program that quickly grades multiple-choice tests at no cost by scanning completed tests and providing a classroom-level item analysis for each question. GradeCam allows teachers to provide immediate feedback to students on their progress.

Summary of Evidence: Research has shown that timely feedback, as provided through formative assessments, positively influences student achievement. Formative assessments can lead to increases in student achievement, particularly when they are delivered within and between instructional units or within and between lessons (compared to across grading periods, semesters, or years). Additionally, teachers who use formative assessments have reported higher levels of job satisfaction and student engagement.

Resource(s):

http://www.cblohm.com/wp-content/uploads/2012/01/GradeCam_FETC12_24Jan12.pdf

http://www.nctm.org/uploadedFiles/Research_and_Advocacy/research_brief_and_clips/Formative_Assessment_Clip.pdf

Strategy: iLit supplemental HS Reading program, Pearson

Description: The iLit reading program is designed to help students gain two or more years of reading growth in one school year. It provides personalized learning support based on individual instructional needs, interactivities, and reward systems intended to motivate students and track progress.

Summary of Evidence: Research suggests that iLit effectively increases student literacy achievement: seventh grade students using the program experienced gains in vocabulary, sentence comprehension, listening comprehension, and passage comprehension. Students using iLit made greater gains on vocabulary, sentence comprehension, and total comprehension compared to their non-iLit peers.

Resource(s): <http://redefiningliteracy.com/research>

<http://redefiningliteracy.com/results>

Strategy: iPads

Description: Educators often utilize advances in technology to create learning opportunities and intervention strategies that may impact student achievement. Among those advances are game-based learning applications, wireless Internet, and iPads.

Summary of Evidence: Study results on the use of iPads to increase study achievement are mixed. Some researchers suggest that the use of mobile learning devices has an impact on student success, especially in mathematics.

Resource(s):

<http://cdn2.hubspot.net/hub/321138/file-1160324025-pdf/pdf/EducationalAppsWhitePaper-1.pdf>

<http://eric.ed.gov/?id=EJ960556>

<http://www.jite.org/documents/Vol11/JITEv11p269-286Carr1181.pdf>

Strategy: Kagan Professional Development

Description: Kagan offers professional development workshops to teachers, trainers, and administrators focusing on Kagan Structures, instructional strategies to promote academic achievement and social outcomes. Workshop topics include active engagement, cooperative learning, multiple intelligences, brain-friendly instruction, character development, and English language learners.

Summary of Evidence: Teachers using Kagan Structures report positive outcomes for students in the areas of academic achievement, social skills, and classroom climate. Research studies have demonstrated gains on standardized tests, decreased discipline referrals, and increased positive behavior referrals after implementation of Kagan structures.

Resource(s): http://www.kaganonline.com/free_articles/research_and_rationale/

Strategy: Louisville Writing Project (part of the Kentucky Writing Project and the National Writing Project)

Description: The Louisville Writing Project (LWP) is one of almost 200 National Writing Project affiliates across the country. The National Writing Project is a network of sites that provide teacher professional development, develop resources, and generate research with the goal of improving writing and learning for all students. The LWP works with schools to provide literacy professional development for teachers of all grade levels and content areas with the goal of improving student writing skills. LWP sponsors summer programs, advanced institutes, study groups, demonstration sites, mini-conferences, teacher publications, and social events for network members.

Summary of Evidence: A review of writing instruction in Kentucky schools found that effective writing teachers were more likely to participate in programs sponsored by the National Writing Project. Participation in these programs was linked to improved quality of writing instruction, increased confidence in ability to implement a standards-based curriculum, and an increase in the use of instructional practices demonstrated to improve achievement (e.g., pre-writing activities, peer conferencing, and revision practices).

Resource(s): <http://louisville.edu/education/centers/nystrand/lwp>

<http://www.nwp.org/cs/public/print/doc/about.csp>

<http://www.nwp.org/cs/public/print/doc/results.csp>

<http://louisville.edu/education/centers/nystrand/lwp/KWP-10.pdf>

Strategy: MAP testing

Description: MAP (Measures of Academic Progress) testing measures student progress and growth on an individual basis by personalizing the assessment experience. This computer-adaptive interim assessment is an untimed test for grades 2-12 in the areas of reading, language use, and mathematics. The benchmark assessment system includes computer-adaptive assessments that are administered to students three or four times a year.

Summary of Evidence: A two-year randomized controlled trial to assess the effectiveness of the MAP program found no significant impact on the reading achievement of students. Similarly, a 2007 dissertation examined the relationship between MAP testing and impact on student achievement in Indiana, and found no significant correlation between MAP testing and achievement scores.

Resource(s):

<http://gradworks.umi.com/32/86/3286443.html>

http://www.ies.ed.gov/ncee/edlabs/regions/midwest/pdf/REL_20134000.pdf

Strategy: Practice PLAN & EXPLORE Assessments

Description: The EXPLORE test, an ACT program, prepares eighth- and ninth-graders for high school coursework and choices after high school. The PLAN test, also from ACT, measures academic progress in high school and is intended to “improve students’ preparation for education, training, and work after high school while they still have time to adjust their high school courses.” The ACT EXPLORE and PLAN programs have evolved into ACT Aspire, a planning/assessment system that assesses college- and career-readiness.

Summary of Evidence: Findings from a study of students who were monitored early with ACT Explore and ACT Plan, compared to those who were not, suggest that the use of ACT Explore and ACT Plan is associated with increased college enrollment, decreased remediation, increased college achievement, increased college persistence, and increased degree completion.

Resource(s): <http://www.act.org/research/policymakers/pdf/Success-in-Oklahoma.pdf>

Strategy: *Read 180*, Scholastic

Description: *Read 180* is a multi-level reading support program designed to raise reading achievement for struggling students in Grades 4-12+. The program includes curriculum, instruction, and professional development.

Summary of Evidence: Studies conducted on *Read 180* suggest that it is effective in increasing student reading achievement across multiple grade levels and student populations. Additionally, a review by the What Works Clearinghouse found *Read 180* to have potentially positive effects on comprehension and general literacy achievement for adolescent learners.

Resource(s): <http://ies.ed.gov/ncee/wwc/interventionreport.aspx?sid=571>
<http://www.scholastic.com/read180/research-and-results/research-validation.htm>

Strategy: *Reading Plus*®

Description: *Reading Plus*® is a web-based program for students in grades 3+ that strives to improve reading skills such as fluency, comprehension, and vocabulary through assessments, personalized instruction, and progress monitoring.

Summary of Evidence: A review by the What Works Clearinghouse showed that *Reading Plus*® had potentially positive effects on comprehension for adolescents. Other studies have found that the use of *Reading Plus*® was associated with improvements in standardized test scores for students, particularly students with learning disabilities, English language learners, and students eligible for free and reduced lunch.

Resource(s): http://ies.ed.gov/ncee/wwc/reports/adolescent_literacy/reading_plus/index.asp
<https://www.readingplus.com/results/>

Strategy: *Reading Recovery*®

Description: *Reading Recovery*® is a short-term intervention for first graders experiencing difficulty with reading and writing. Specially trained teachers work one-on-one with students in daily 30-minute lessons for 12 to 20 weeks.

Summary of Evidence: Research has indicated that, after a full series of lessons, about 75 percent of participating students reach grade-level standards in reading and writing. Follow-up studies have shown that most students participating in *Reading Recovery*® score well on standardized tests and maintain reading and writing gains in later years. Additionally, a review by the What Works Clearinghouse found *Reading Recovery*® to have positive effects on general reading achievement and potentially positive effects on alphabets, reading fluency, and comprehension for beginning readers.

Resource(s): <http://readingrecovery.org/reading-recovery/research>
<http://ies.ed.gov/ncee/wwc/interventionReport.aspx?sid=420>

Strategy: SNAP math screener

Description: Student Numeracy Assessment Progressions (SNAP) is a diagnostic tool for students in pre-kindergarten through first grade. The interview-style assessment aims to provide teachers with immediate information related to students' skills in forward and backward number sequences, numeral identification, addition and subtraction, and finger and spatial patterns. SNAP data may be used to form RTI math groups.

Summary of Evidence: No research base specific to SNAP was found; however, there is evidence supporting the use of formative assessments and immediate feedback to increase student achievement.

Resource(s): <https://www.mathrecovery.org/snap>

<http://weaeducation.typepad.co.uk/files/blackbox-1.pdf>

<http://www.hanoverresearch.com/media/The-Impact-of-Formative-Assessment-and-Learning-Intentions-on-Student-Achievement.pdf>

http://oemanagement.com/data_files/ImmediateFeedback.pdf

Strategy: Software to assist with standards and monitor ongoing student progress

Description: Using software to assist with monitoring the ongoing progress of students is an assessment technique that can help teachers know how and when to make adjustments to curriculum, and allows them to identify students in need of additional instruction.

Summary of Evidence: Evidence from randomized field trials indicates that the use of systematic progress monitoring helps teachers to identify students needing additional or different types of instruction. Monitoring also helps with the design of stronger instructional programs and can lead to increased student achievement.

Resource(s): <http://www.readingrockets.org/article/what-scientificallly-based-research-progress-monitoring>

<http://www.totalreader.com/archives/TRWhatWorksReadingGuidev1.pdf>

<http://studentprogress.org/weblibrary.asp#research>

Strategy: SpringBoard, College Board

Description: SpringBoard is a print and online program for students in grades 6-12 offering a customizable pathway including instruction in English language arts and mathematics, performance-based assessment, and professional learning.

Summary of Evidence: Research shows that high schools using SpringBoard for three to five years had substantially more students taking AP courses. Additionally, SpringBoard use has been linked to an improvement in AP scores, particularly among Latino and African American students.

Resource(s): <http://springboardprogram.collegeboard.org/proven-results/>

<http://media.collegeboard.com/digitalServices/pdf/springboard/springboard-research-compedium.pdf>

Strategy: STEMscopes™ NGSS

Description: STEMscopes™ NGSS is an online K-12 science curriculum developed by teachers providing hands-on inquiry activities, assessments, intervention tools, acceleration materials, and teacher support resources. The curriculum is aligned to meet Next Generation Science Standards.

Summary of Evidence: Studies have shown that eighth graders whose classrooms use STEMscopes are more likely to earn a score of proficient or advanced on science exams than students in classrooms without STEMscopes. Fifth graders in schools with higher levels of STEMscope use were more likely to outperform fifth graders in schools with lower levels of STEMscope use. Students with limited English proficiency and special education students in schools using STEMscopes were more likely to pass standardized tests compared to their peers in non-STEMscope schools.

Resource(s):

[http://www.acceleratelearning.com/Resource\(s\)/cs_stemscopes_research_summary_2015.pdf](http://www.acceleratelearning.com/Resource(s)/cs_stemscopes_research_summary_2015.pdf);

http://www.acceleratelearning.com/case_studies.php;

Strategy: TCA Prep

Description: TCA Prep is a school-based SAT test prep software program intended to help students raise SAT and ACT scores in order to attain college-readiness.

Summary of Evidence: No research base found.

Resource(s): <https://www.tcaprep.com/>

Strategy: Tier II/III Reading Interventions

Description: Tier II/III reading interventions are based on an RTI model, which is a multi-tiered approach to helping struggling students. RTI models consist of three tiers of instructional processes: Tier 1, where all students receive instruction; Tier II, where students identified as having some risk of academic failure receive instruction; and Tier III, where students identified as having high risk of academic failure receive instruction.

Summary of Evidence: The What Works Clearinghouse (WWC) has found strong evidence supporting weekly Tier II intervention on up to three reading skills, provided in small groups several times a week for 20 to 40 minutes. Alternatively, the WWC has found a low level of evidence supporting daily Tier III instruction promoting the various components of reading proficiency for students showing minimal progress in Tier II. That is, none of the reviewed studies meeting WWC standards showed a statistically significant impact for Tier III instruction on reading outcomes. Specific recommendations for Tier II and Tier III reading instruction are provided by the WWC practice guide referenced below.

Resource(s): http://ies.ed.gov/ncee/wwc/pdf/practice_guides/rti_reading_pg_021809.pdf

Strategy: USATestPrep for High School

Description: USATestPrep is a teacher-developed online review tool that helps students prepare for high-stakes tests by helping teachers help students. A reporting feature helps teachers identify student weaknesses in particular content areas. USATestPrep is tailored to individual state and/or Common Core standards.

Summary of Evidence: An independent study found that USATestPrep is an effective tool for preparing for high-stakes tests and that students demonstrate gains in academic performance, with substantially greater growth in reading and mathematics.

Resource(s):

<http://www.usatestprep.com/front/Effectiveness-Summary.pdf>

<https://www.usatestprep.com/Proven-Results>

<http://www.usatestprep.com/Statistics>