Evaluation of the Content Literacy Continuum: Report on Program Impacts

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Study Background

Large numbers of adolescents enter high school lacking the necessary reading skills to be academically successful. The demand for strong reading and writing skills increases as students get promoted to high school grades. Not only do high school teachers rely more heavily on textbooks to convey critical course content to students, but the content in those textbooks also gets more challenging (Heller & Greenleaf, 2007). Moreover, by the ninth grade, the reading standards students are expected to meet also increase. High school students are expected not only to remember facts but also to induce themes, processes, and concepts from material and relate those “higher order concepts” to new content (Biancarosa & Snow, 2006). Adolescent students are expected to read and to produce complex texts, whose structures and modes of presenting information vary according to genres and content (ACT, 2009). The Common Core State Standards (Common Core State Standards Initiative, 2010), emphasize this variation by differentiating “college and career readiness” standards in Grades 6 through 12 according to the reading and writing skills needed in history/social studies, science, and technology subjects.

One recently published report examined the efficacy of two interventions designed to provide additional instruction on reading strategies to struggling readers (Somers et al., 2010). These interventions, Xtreme Reading (developed by researchers at KU-CRL) and Reading Apprenticeship Academic Literacy (developed by researchers at WestEd), are stand-alone courses for struggling adolescent readers taught by teachers trained on each intervention’s curriculum. Findings within this report show that these interventions produce modest and limited impacts on reading-related skills of adolescent students, but 77 percent of the students who participated in the reading classes were still more than two years below grade level in reading and impacts that students exhibited after one year of involvement in the intervention disappeared during the following year when they were no longer enrolled in the supplemental reading class. Nine additional rigorous studies are being conducted presently to examine the efficacy of other interventions targeted toward struggling readers in middle schools and high schools (U.S. Department of Education Office of Elementary and Secondary Education, 2010). To date, the evaluation findings on these interventions range from −0.05 to +0.29 standard deviations, with 17 of the 19 published impact estimates falling below 0.20 standard deviations. These impact estimates may change as future analyses are conducted on data collected from interventions that may mature over time.

An alternative approach to addressing deficits in adolescents’ literacy skills involves incorporating reading strategy instruction within core content classes (e.g., English language arts, mathematics, science, social studies) throughout the school day (Biancarosa & Snow, 2006; Billmeyer, 1996; Greenleaf & Schoenbach, 2004; Heller & Greenleaf, 2007; Kamil et al., 2008; National Association of Secondary School Principals, 2005). These whole-school approaches generally involve providing core content teachers in middle schools and high schools with professional development on reading strategies and methods for integrating those strategies within their content instruction. Although WWC does have reviews of three whole-school literacy interventions suitable for middle schools and high schools (schools serving Grades 6–12), only one of the reviews includes studies of whole-school approaches that actually tested for impacts on adolescent students’ outcomes. Thus, there exist few rigorous evaluation studies that have examined whether whole-school approaches have an impact on adolescent literacy. That
research base is expected to build dramatically over the next two to three years as additional findings from Striving Readers grant projects become public.

Objectives

School district leaders and high school administrators not only face the challenge of providing students with additional instruction focused on improving reading skills, but they also must simultaneously help students master necessary subject area content for which they are held accountable. These leaders need information on interventions that can be integrated within the high school curriculum to help struggling adolescent readers acquire the strategies necessary to read at proficient levels. This paper presents the findings of a rigorous experimental impact evaluation and implementation study of one such intervention, the Content Literacy Continuum (CLC), developed by researchers at the University of Kansas Center for Research on Learning. This evaluation of CLC addresses the following primary research questions:¹

- What are the impacts of the CLC program on ninth-grade students’ reading comprehension and accumulation of core credits in 2009–10, the second year of the study?

- What are the impacts of the CLC program on these outcomes for tenth-grade students in the second year of the study?

Setting

High schools within states served by REL Midwest (Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin)—where at least one third of students scored below proficient on state standardized reading or English language arts assessment, at least one fourth of students were eligible for free or reduced-price lunch, and there were at least 100 ninth graders—were recruited for this evaluation project. In addition, potential study schools had to be interested in supporting the literacy needs of their students but not already implementing a tiered, whole-school approach similar to CLC. Thirty-three high schools in nine districts across four Midwestern states agreed to participate in this evaluation, and 28 of those 33 schools continued their participation throughout the entire study period. Full implementation of this intervention began in the 2008–09 school year and continued through the 2009–10 school year.

Intervention

The Content Literacy Continuum (CLC) combines whole-school and targeted approaches to supporting student literacy and content learning. The intervention combines instructional routines and learning strategies that have been developed and tested by the University of Kansas

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¹ Secondary questions include: 1. What are the impacts of the CLC program on ninth-grade students’ reading achievement and credit earning in the first year of the study? Are these impacts different from the second year of the study? 2. What are the impacts of the CLC program on other academic outcomes, such as vocabulary test scores and grade point average? 3. Is the impact of the CLC program on ninth- and tenth-grade students’ reading achievement and credit earning in the second year of the study greater for some subgroups of students than for others?
Center for Research on Learning (KU-CRL). First, within the CLC framework, student weaknesses in literacy skills across all core subject areas are addressed by training core content teachers to use instructional routines and to model learning strategies that may help students of varying skill levels better comprehend critical content provided through instruction and text. Second, CLC is designed to offer targeted reading support to struggling adolescent readers by training reading teachers to provide these students with intensive reading instruction. KU-CRL developed a distinct curriculum—Fusion Reading—for classes for these struggling readers who have foundational decoding, fluency, and comprehension skills (that is, reading at least at a Grade 4 level) but who are sufficiently below grade level to warrant more intensive support (Hock, Brasseur, & Deshler, 2008).

Research Design

Within their school districts, participating schools were randomly assigned to implement the CLC intervention (CLC schools) or continue with “business-as-usual” school programming (non-CLC schools). Random assignment resulted in 17 CLC schools assigned to implement CLC and 16 non-CLC schools. Twenty-eight of the 33 participating high schools continued their participation in the evaluation throughout the entire study period (reasons for discontinuing were school closure or fear of conflict with state-mandated changes resulting from state sanctions). For this final sample of 28 schools, 15 were CLC schools, and 13 were non-CLC schools. The CLC high schools began full implementation of CLC during the summer leading into the 2008–09 school year. Study participation continued through the end of the 2009–10 school year. During Year 1 of implementation, professional development focused on teachers of ninth-grade students. Year 2 of implementation focused on teachers of ninth- and tenth-grade students.

Impacts were analyzed using two-level hierarchical linear models. Along with schools’ random assignment blocks, several student background characteristics were included in these models as covariates: (1) whether students were overage for grade at the beginning of ninth grade, (2) prior achievement (eighth-grade state test scores in reading and math), (3) educational indicators (English language learner and special education status), (4) socioeconomic factors (free or reduced-price lunch eligibility), and (5) demographic factors (race/ethnicity and gender). Impact estimates are based on intent-to-treat analyses (schools’ status based on random assignment rather than whether CLC was actually implemented within the schools).

Data Collection and Analysis

To measure reading achievement, reading comprehension and vocabulary test scores were obtained by administering the Group Reading Assessment and Diagnostic Evaluation (GRADE) to ninth-grade students at the end of Year 1 and to ninth- and tenth-grade students at the end of Year 2. In addition, student transcript data were obtained from participating school districts at the end of each year, which provided information about students’ accumulation of credits in core subject areas. The districts also provided historical student records from which the study team obtained baseline data on student characteristics to describe the sample and include as covariates in the impact analyses. To examine CLC implementation, three other types of data were collected. First, the program developer’s implementation staff shared their reports from their monthly visits to the CLC schools with the study team. Second, interviews were conducted with
district administrators and administrators from participating high schools (both CLC and non-CLC) who were most familiar with literacy-related initiatives going on within schools and districts. Third, site visitors observed the instruction of core content and reading teachers within all participating schools and recorded the presence or absence of pedagogical practices emphasized during professional development sessions for CLC.

Findings

Although reading comprehension scores were higher on average in CLC schools than in non-CLC schools (effect size = 0.06 standard deviation for ninth-grade students and 0.10 standard deviation for tenth-grade students), this difference is not statistically significant. Therefore, it cannot be concluded that the CLC framework improved students’ reading comprehension scores in the second year of the study, in either grade level. Nor did CLC have a statistically significant impact on students’ accumulation of course credits needed for graduation in core subject areas in the second year, in either grade level. The impact estimate was negative for ninth-grade students and positive for tenth-grade students (effect sizes = −0.17 and 0.02 standard deviation, respectively).

Additional analyses of the impact of CLC on these two outcomes also were conducted to investigate whether there was variation in impacts by implementation year, student subgroups, or school district. The estimated impacts of CLC on the primary outcomes in the first year do not differ statistically from the second-year impacts. CLC did not have a statistically significant impact on students’ reading comprehension in the first year even though the magnitude of the impact (effect size = 0.14 standard deviation) was numerically greater than the second-year impact. CLC also did not have a statistically significant impact on students’ credit earning in core content classes (effect size = −0.02 standard deviation). The study did not find conclusive evidence that CLC was more or less effective for any particular student subgroup or in any individual school districts on the primary outcomes.

Conclusions

After two years of implementation of CLC, findings indicate no statistically significant differences in reading comprehension or accumulation of course credits among ninth- or tenth-grade students between CLC schools and non-CLC schools. Exploratory analyses do not reveal differences for any particular subgroup of students over others regarding achievement or GPA. Despite published statements that implementation of the full CLC framework requires at least three years, it was expected that impacts would emerge by the second year of implementation, provided that comparison schools refrained from implementing a schoolwide, tiered literacy approach and that CLC schools implemented the structural components with fidelity and core content teachers in CLC schools included content enhancement routines and learning strategies within their instruction. Overall, the study team observed less than adequate implementation of the structural components of the intervention in CLC schools and of the CLC-emphasized pedagogical practices in these schools’ classrooms. These implementation findings, combined with the shorter-than-normal window of time to implement the intervention, raise questions about the “fairness” of attributing differences in achievement between students in CLC schools versus non-CLC schools to the CLC intervention as designed.
References


National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.