



Authentic Literacy Applications in CTE: Helping All Students Learn

Improving comprehension skills is vital to building cognitive skills. Reading and literacy skills enable youth to gather information and create knowledge from various sources and then cognitively and creatively consider solutions to problems in and about their lives. By implementing disciplinary reading strategies in CTE curriculum, teachers enable all youth with the requisite skills to succeed in school, careers, and daily life. Reading is the gateway skill for learning in other disciplines. Students who read well are able to use oral and written language skills more effectively, solve problems, analyze solutions, and develop a lifelong interest in learning and achieving.

Today's secondary students must use literacy skills in order to learn important concepts related to their academic and career success. Adept use of literacy skills is requisite for the realization of college and career opportunities. Students must therefore possess the requisite literacy skills for career and academic success. CTE teachers can facilitate the learning processes by scaffolding instruction with literacy strategies. Little research has been conducted on literacy strategies in CTE, however.

Purpose and Objectives

This project seeks to develop and measure interventions related to document and prose literacy. In CTE contexts, students frequently read

documents that are specialized to a career field. For example, students may complete job applications within their supervised work experience or read a table of engine specifications to repair a small engine. When reading these documents, students are engaged to learn and use key pieces of information. Less frequently, students are asked to read entire continuous documents, thus developing prose literacy. CTE students learn about key issues in CTE related to various career fields; students in family and consumer sciences may read and write about early childhood obesity, or students in business courses may read and write about business ethics—both applications of prose literacy. In this study, specific models of reading programs and strategies will be implemented that augment student learning with prose and document literacy in CTE.

This project employs an experimental design with qualitative evaluations of interventions in order to understand the impact of pedagogic frameworks with embedded disciplinary literacy strategies on CTE students' comprehension and motivation to read, when taught from two models—MAX Teaching and the ALS Framework—versus a “business as usual” control condition. For the pilot test of this study, the CTE Reading framework, a loose collection of literacy strategies, was used.

MAX Teaching. The MAX Teaching (MAX) approach—an acronym for Motivation, Acquisition, and eXtension—developed by Forget (2004), is a framework of classroom learning activities that uses systematic reading and writing in all classes. Supported by the High Schools That Work network of schools, it is also being incorporated into the newer Tech Centers That Work program from the Southern Regional Education Board. The framework involves the application of strategies before, during, and after reading. Further, MAX extends the framework to incorporate two additional components, cooperative learning and a skills acquisition model. Motivation is the focus of the pre-reading stage. Students who may otherwise feel unfamiliar or intimidated by reading are given time to activate background knowledge, set a purpose for reading, and build an interest. In the acquisition phase, students are guided through the reading by the strategy and the teacher, helping the student organize and understand the reading. In extension, students reflect on what they have read, discuss with others, and elaborate on their ideas.

ALS Framework. The research-based Adolescent Literacy Support (ALS) Framework (The Education Alliance, 2003) for improving adolescent literacy was designed to facilitate reading and literacy in math, science, social studies, and English, but is

also applicable to CTE. The framework consists of four components: (a) motivation, (b) strategies, (c) across the curriculum, and (d) organizational support. During the motivation phase, teachers help make students make connections between text and their lives. Strategies address the role of the teacher, include reading and writing, engage students with speaking and listening, emphasize thinking, and foster student-centered classrooms. The framework supports reading and writing across the curriculum with a broad spectrum of literacy development in diverse content areas. Organizational support includes structures and leadership capacity that support literacy throughout the educational system, best practices, professional development, and ongoing evaluation. Center researchers will focus on the first three components of the ALS Framework: motivation, strategies, and reading and writing in the CTE discipline.

This study also examines to what extent mediating variables, like teacher ability, might influence outcomes—for example, gains in Gates-MacGinitie Reading Test (GMRT) and Motivations for Reading Questionnaire (MRQ) scores. The results of this study may help the field better prepare and motivate CTE teachers to adapt their teaching practice to include embedded reading and literacy strategies.

The CTE Reading framework. Used in the pilot test but not in the full study, the CTE Reading framework is a pedagogical approach that includes pre-reading and during-reading strategies in a loose collection. The goals of the framework are to help students activate background knowledge, set purposes for reading, ask questions prior to and during reading, monitor comprehension, and summarize what they read.

Study Participants and Sites

Center researchers are working with 101 CTE teachers in New York and South Carolina and are examining intact classes of students, with randomization of class treatments (1: MAX Teaching; 2: ALS Framework; 3: business-as-usual). Students participating in the study are all secondary CTE students, many of whom could be considered at risk for reading failure and/or those students for whom reading in other disciplines is relatively easy, but who find reading in highly technical CTE disciplines challenging.

Early Observations

Center researchers conducted a pilot test of the model that included 1,313 students and 48 teachers. Treatment students received either MAX Reading or the CTE Reading framework (the more intensive ALS model will be used in the full study); control students received business-as-usual instruction. Analyses showed that:

- Analyses of mean gain in total GMRT scores, controlling for pretest GMRT total score, showed at least one score was significantly different among the three groups. Post hoc tests showed that CTE-Reading students and MAX students scored significantly higher than control students.
- Analyses of gain GMRT vocabulary scores, controlling for pretest GMRT vocabulary scores, showed that group was an insignificant factor in the model. Post hoc analyses of mean GMRT vocabulary gain scores showed MAX students had significantly higher scores than control.
- Analyses of GMRT comprehension scores, controlling for pretest GMRT comprehension scores, showed group was a significant factor. Post hoc analyses of GMRT comprehension gain scores showed CTE-Reading students and MAX students had significantly higher scores than control students.
- Analyses of MRQ scores, controlling for pretest MRQ scores, showed group was an insignificant factor. Post hoc analyses showed MAX students and control students both had a significantly higher score than CTE-Reading students.
- Analyses of teacher interviews yielded seven themes related to creating success for CTE teachers in literacy: fostering teacher confidence; developing communities of practice; utilizing authentic texts; committing to initial professional development; adjusting strategies for use in CTE; adopting the framework where texts are used; and encouraging student receptiveness.
- Four themes emerged from focus groups defining the use of strategies from a student's perspective: students desired a utility value in their strategy use; students understood the career importance of reading; students engaged in reading if they could apply the information; and students desired a

social aspect from reading to foster motivation.

With the conclusion of the pilot phase of the study and the completion of teacher professional development training in the two models and student pretesting, researchers are now embarking on Study Year 3 activities, including quantitative data collection, administration of assessments, the incorporation of the reading interventions by participating teachers, and teacher journaling. Focus groups, interviews, and posttest data collection will be conducted in April and May 2010, with data analysis to follow.

Summary

By helping students develop reading skills and improving their intrinsic motivation to read within the context of CTE, teachers may equip students with necessary skills for lifelong learning. All CTE disciplines require reading at high levels. Students who develop interest in the CTE area and begin reading in that area create cognitive skills to improve their vocabulary and schema. This ultimately leads to the ability to continue reading and learning within the discipline beyond high school. Effectively, this research focuses on engaging students with reading and writing in their CTE discipline so that they may learn and achieve not only within the CTE discipline, but also across academic content areas. Further, reading and writing are requisite skills that enable students to transition effectively and successfully into careers, further education, and productive citizenship.

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