FEATURE

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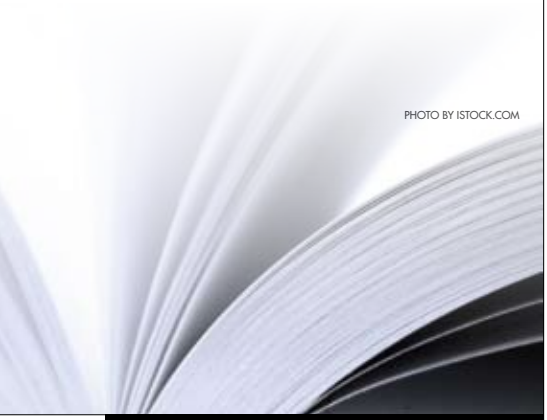
Reading Frameworks in CTE: Pilot Study Findings

BY IMPLEMENTING DISCIPLINARY READING STRATEGIES IN THE CAREER AND TECHNICAL EDUCATION (CTE) CURRICULUM, **TEACHERS ENABLE ALL YOUTH WITH THE REQUISITE SKILLS TO SUCCEED IN SCHOOL, CAREERS AND DAILY LIFE.**



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Travis Park, Ph.D., and his research team at Cornell University are currently in their third year of research into the Authentic Literacy in CTE research project in partnership with the NRCCTE. Comments on this article and questions about the research may be directed to Park at tdp9@cornell.edu.

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 to consider solutions to problems in and about their lives from both a cognitive and a creative standpoint. By implementing disciplinary reading strategies in the career and technical education (CTE) curriculum, teachers enable all youth with the requisite skills to succeed in school, careers and daily life. The goal of reading strategy instruction is to enable students to independently select appropriate strategies, adapt them to particular texts, and employ them to solve reading problems (Pressley, Symons, McGoldrick, and Snyder, 1995).

Effective reading does not rely upon a single strategy but incorporates the coordination of several strategies (e.g., Meltzer, 2001), which improves comprehension and leads to reading more, bolsters critical reading, increases the variety of texts read, improves standardized test scores, and enhances general comprehension (National Reading Panel, 2000). Researchers (e.g., Taraban, Rynearson, and Kerr, 2000) have proposed that reading strategy instruction should be investigated in specific contexts, such as CTE. Within this research, supported by the National Research Center for Career and Technical Education and conducted by a research team at Cornell University, models of reading frameworks and strategies were implemented to improve reading comprehension of CTE students, even those who struggle with reading.

Objective

The objective was to compare the effects of literacy strategy instruction under three conditions: (a) a control condition, (b) a generic CTE Reading framework, and (c) the MAX Teaching framework. The research determined if students in the intervention groups scored differently (higher) than students in the control condition on reading comprehension, vocabulary and motivation to read (for additional information, please see *Authentic Literacy in CTE: Technical Report of the Spring 2009 Pilot Study in New York State*).

Reading Frameworks

The MAX Teaching (**M**otivation, **A**cquisition, and e**X**tension: MAX) approach was developed by Forget (2004) and is a framework of classroom learning activities that uses systematic reading and writing in all classes and involves anticipation, realization and contemplation (Vaughn and Estes, 1986). The framework applies strategies before, during and after reading, and extends learning by incorporating cooperative learning and a skills acquisition model (Forget and Morgan, 1997). Students become engaged in learning through the use of setting purposes for reading and activating background knowledge. They acquire knowledge through guided practice, silent reading and teacher probing for understanding. Students extend knowledge through debates, discussions and other organized activities.

The CTE Reading framework was developed from a literature review of content area reading strategies and focused only in the before- and during-reading microperiods (Snow, 2002). Before

students read, the embedded strategies assisted students in setting purposes for reading, activating relevant background knowledge, generating questions, and identifying problems to be solved. During reading, strategies assisted students in continuing to ask questions, rereading, checking context, monitoring comprehension, organizing information, and checking and modifying predictions. Teachers in the control group used a business-as-usual approach where they did not implement reading strategies but continued to teach with their normal teaching approaches.

When assigning texts to read, they used a routine of assigning the reading, asking students to answer questions related to the reading, and discussing the reading in class. This limited their use of reading and literacy practices while still exposing students to a minimal level of instruction. Both the treatment and control groups monitored how they taught and participated in the same data-gathering activities.

Experimental Design

This experimental design pilot study used intact groups of students and teachers, randomization of class treatments, and pre- and post-testing (Gall, Gall, and Borg, 2003). The pretests consisted of a demographic questionnaire, the Motivations for Reading Questionnaire (MRQ, Wigfield and Guthrie, 2004) and the Gates-MacGinitie Reading Test (GMRT; MacGinitie, MacGinitie, Maria, Dreyer, and Hughes, 2006) and were conducted prior to March 1, 2009. The posttests consisted of the MRQ and the GMRT and were concluded by May 15, 2009. The research included 51 teachers in New York, representing 1,313 students by the conclusion of the study.

Findings

Nearly all students were high school juniors (46.1 percent) or seniors (43.8 percent) at the time of the study. Nearly 60 percent were female. The vast majority was white (84.2 percent), followed by Hispanic/Latino (5.7 percent) and Black/African-American (3.5 percent). More than 96 percent of the students spoke English as their native language. As a proxy for socioeconomic status, researchers measured students' enrollment in free or reduced lunch programs; more than 40 percent of students were enrolled in some form of school lunch program. The mother's education level for half (51.0 percent) of the students included more than high school education. The father's education level for 38.5 percent of the students was more than high school education.

Students in the CTE Reading framework and students in the MAX Teaching framework had statistically higher gains in total GMRT scores than students in the control condition. Students in the MAX Teaching group, but not those in the generic CTE Reading group, had statistically higher gain scores than students in the control group on the GMRT vocabulary scores. Both students in the CTE Reading group and students in the MAX Teaching group had statistically higher gains in GMRT comprehension scores than students in the control condition. Students in the MAX Teaching framework group, as well as students in the control condition, had statistically higher gain scores on the MRQ than the CTE Reading group. There was no statistical difference between the MAX and control group on the MRQ.

In sum, students in the MAX treatment group had statistically higher scores than the control group on the GMRT vocabulary test, the GMRT comprehension test, and the overall GMRT comprehension score. Students in the CTE group had statistically higher scores than the control group on the GMRT comprehension test and the overall GMRT comprehension score. There was a statistical difference between the CTE Reading group and control group on the MRQ, favoring the control group.

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Conclusions, Implications and Recommendations

The findings of this research during the pilot study suggest that the use of disciplinary literacy strategies within the context of CTE has a more positive effect on students' reading comprehension and vocabulary development than a control condition where teachers did not implement reading strategies. This helps establish the notion that CTE teachers can, through implementation of the MAX Teaching framework or any framework, for that matter, which scaffolds reading with the use of cooperative learning and strategy implementation, improve students' reading comprehension and vocabulary development, even over the course of a relatively short-term treatment. Therefore, it is important for CTE teachers and administrators to integrate authentic literacy skills into their curriculums so that students can benefit and find success in their future careers. Consider-

ing how quickly the program helped high school upperclassmen improve, even if students are exposed to the strategies later in their school careers, that integration has a positive impact, though it would likely be much better if students were given continuous exposure throughout their schooling. The more important factor than time used, it would seem, would be implementing anything at all.

The research helps establish the efficacy of literacy frameworks and the implementation of content area reading strategies in CTE courses to improve students' comprehension, vocabulary development and motivation to read. When a framework targeted to CTE, such as the modified ones used for this study, is implemented in a CTE classroom, students also seem to be more able to handle the technical texts that are found there.

A full-year study is currently under way to see if students show more significant improvement with more time to become comfortable with literacy skills. T

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ACTE Interested in exploring this topic further? Discuss it with your colleagues on the ACTE forums at www.acteonline.org/forum.aspx.

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