

Career and Technical Education – Overview

Board on Science Education
The National Academies of Sciences, Engineering
and Medicine

June 8, 2026

Katherine Hughes

Principal, *Ed*Wordian, LLC

and

Senior Research Consultant, Education & Employment Research Center, Rutgers University

Career and Technical Education

- In 2021–22, more than 8 million secondary students and 3.4 million postsecondary students were enrolled in CTE.
- The vast majority of high school students take at least one CTE course (National Center for Education Statistics, 2021).
- Various settings, models, fields of study (often organized around career clusters)
- Has sometimes been stigmatized; quality has varied; but is increasingly popular
- Does CTE benefit students? Which students, in which settings?

CTE Research Networks

- Goal: To expand the evidence base on CTE by promoting and disseminating causal research
- Funded by IES, US ED (2018-2024; 2024-2029)
- Six participating research teams in 1.0 and six in 2.0
- A wealth of positive evidence from the first set; second set still underway



What We Know About the Impact of Career and Technical Education: A Systematic Review of the Research (March 2024)

Jim Lindsay, Katherine Hughes, Shaun M. Dougherty,
Kelly Reese, and Megha Joshi

Comprehensive evidence review:

Identified 10,000+ studies; 280 met review criteria; 28 studies included in the final report

Research questions:

- (1) What are the types of CTE programs?
- (2) What are the impacts of CTE on student outcomes?
- (3) Where are the gaps in the research on causal effects of CTE?

Findings



- CTE has significantly positive impacts on:
 - High school academic achievement, high school completion, employability skills, college readiness
- HS students who take CTE are more likely to enroll in 2-year colleges vs. 4-year colleges; but equally likely to enroll in college overall
- Those who take CTE courses in high school are more likely than those who did not take CTE courses to be employed after high school. CTE course-takers had similar earnings to those who did not take CTE.
- We found no statistically significant negative impacts of CTE participation.

Trends

- Industry-recognized credentials
- Labor market-driven programming decisions
- Dual enrollment
- Postsecondary – shorter, cheaper programs
- Focus on CTE as a successful intervention particularly for boys

Limitations – Opportunities

- Need to differentiate the CTE research by
 - Program models/types
 - Programs of study/fields
 - Dosage
 - Participation in work-based learning
 - Participation on career technical student organizations