Does Technology-Based Advising Promote Equity in Career and Technical Education?

Rachel Rosen and Hannah Dalporto

AUGUST 2020

Since the mid-2000s, career and technical education (CTE), formerly known as vocational education, has been undergoing a renaissance. Characterized at one time by programs that directed academically underprepared students into a relatively limited set of occupations with few opportunities for advancement, CTE today is more often linked to high-growth, high-wage career sectors designed to help students move toward sustainable, middle-class futures.

Modern high school CTE programs are often referred to as "high-quality CTE," and they are designed to help students build career skills and earn credentials through sequenced coursework, postsecondary credit acquisition, and exposure to relevant work-based learning experiences. These kinds of programs, which are on the rise, are poised to expand even more in the coming years. The updated Perkins V legislation (passed in 2018), which provides funding and oversight for state secondary and postsecondary CTE programs, encourages the development of more work-based learning opportunities and continues to push states to increase the academic rigor of CTE through a variety of means, including an emphasis on attaining industry-recognized credentials (for example, Autodesk AutoCAD, Adobe Expert) and earning postsecondary credit while still in high school.

However, while the evidence base suggests that the current investments in CTE are well placed,[1] a remaining question for practitioners is how to ensure that the benefits of CTE can be realized equitably.[2] While Perkins does support states to engage specific underrepresented groups in nontraditional career options, emerging evidence suggests that operationalizing equity in many high-quality CTE opportunities may still be a challenge. For example, STEM-related CTE programs disproportionately enroll students who are both White and male.[3] Female students are overrepresented in traditionally female fields, such as health services or child care,[4] and higher-performing students may be more likely to enroll in highly competitive programs.[5] These patterns of differential enrollment

1 Rosen, Visher, and Beal (2018).

2 Rosen and Molina (2019).

3 Hamilton, Malin, and Hackmann (2015); Reed, Dougherty, Kurlaender, and Mathias (2018). STEM programs focus on science, technology, engineering, and math.

4 Lufkin et al. (2007); Reed, Dougherty, Kurlaender, and Mathias (2018).

5 Hemelt, Lenard, and Paeplow (2019).

in CTE suggest that entrenched gender-, race-, and class-based inequities may undermine efforts to both strengthen and expand the opportunities that CTE can make possible for students.

Together, the proliferation of CTE combined with persistent inequities in CTE enrollment indicates a need for policies to ensure that all students have access to high-quality CTE programming. A first step toward reaching that goal is to make sure that all students can get both information about and support for making decisions about CTE and career-based opportunities. Despite this need, however, most high school guidance-counseling departments may lack the capacity to offer a level of career advising that complements the rise of CTE choices facing students. The national average student-to-counselor ratio has hovered around 450 to 1 for at least a decade, compared with the recommended student-to-counselor ratio of 250 to 1. Yet, in a climate of scarce resources, most schools are not able to increase access to counselors by reducing student-to-counselor ratios. Given these constraints and the lack of time counselors are able to devote specifically to career counseling, many districts have turned to technology-based advising to supplement the career counseling capacity of their guidance departments.

HELPING STUDENTS IDENTIFY MEANINGFUL CAREER OPTIONS

While career assessments that include an inventory of students' stated interests have been used for many years to help students identify possible career paths, an assessment of interest alone may be inadequate for a variety of reasons.[6] In particular, research indicates that stated interests can be heavily influenced by the internalization of societal or community expectations and biases.[7] Additionally, career counselors, like all members of society, are also susceptible to the internalization of biases, which can in turn influence their recommendations to students.

Technology-based career-advising tools may help. Most such tools walk students through a series of holistic assessments designed to measure qualities like aptitude and personality, and they generate career recommendations to students that match these measured attributes. Because the tools yield recommendations based on the results of these assessments, rather than on social expectations, they may serve to increase equity by democratizing recommendations and access to information about careers across a diverse student population.

While many schools across the country use these tools, however, there is currently little evidence about their efficacy for supporting students in making decisions about CTE and careers. For this reason, MDRC — a nonprofit, nonpartisan social science and education policy research institute — has partnered with two technology companies that make popular career-advising software for students, Naviance and YouScience, to test whether and how these tools affect student thinking and decision making, and whether they are viable tools for supporting students as they identify and pursue CTE and future careers. With funding from the U.S. Institute of Education Sciences, MDRC is beginning a study of the use of these tools that will use a rigorous school-level random assignment research design, paired with a study of the implementation of technology-based advising tools and a cost-effectiveness analysis. The study will evaluate the effects of these tools on high school students' self-awareness and understanding of potential career pathways, their CTE course-taking patterns, and their engagement with school and progress toward graduation. MDRC is working in partnership with Communities in Schools, a nonprofit intermediary that works with over 2,300 schools across the country, and with additional guidance from the Ewing Marion Kauffman Foundation to identify potential schools and districts for participation. In particular, the schools identified will serve lower-income populations of students in schools less likely to already have access to technology-based advising.

Building evidence about the efficacy of technology-based advising tools for student decision making in CTE is important because, as CTE continues to expand across secondary schools, ensuring equitable CTE opportunity depends

6 Harrington and Long (2013).

7 Aschbacher, Ing, and Tsai (2014); Correll (2001); Lopez and Ann-Yi (2006).

on all students being able to access information about available options that is free of preconceived assumptions about student abilities and expectations.

Overall, the objective of this study is to tell a comprehensive story about career advising tools from multiple perspectives. The evaluation will be of interest to policymakers who want to understand the impacts and costs of these tools, and to teachers, parents, and students wishing to learn more about how these technology-based advising tools affect student outcomes.

REFERENCES

Aschbacher, Pamela R., Marsha Ing, and Sherry M. Tsai. 2014. "Is Science Me? Exploring Middle School Students' STE-M Career Aspirations." *Journal of Science Education & Technology* 23, 6: 735-743.

Correll, Shelley J. 2001. "Gender and the Career Choice Process: The Role of Biased Self-Assessments." *American Journal of Sociology* 106, 6: 1691-1730.

Hamilton, Asia Fuller, Joel Malin, and Donald Hackmann. 2015. "Racial/Ethnic and Gender Equity Patterns in Illinois High School Career and Technical Education Coursework." *Journal of Career and Technical Education* 30, 1: 29-52.

Harrington, Thomas, and Jennifer Long. 2013. "The History of Interest Inventories and Career Assessments in Career Counseling." *American Counseling Association* 61, 1: 83-92.

Hemelt, Steven W., Matthew A. Lenard, and Colleen G. Paeplow. 2019. "Building Better Bridges to Life after High School: Contemporary Career Academies Student Outcomes." *Economics of Education Review* 68: 161-178.

Lopez, Frederick, and Sujin Ann-Yi. 2006. "Predictors of Career Indecision in Three Racial/Ethnic Groups of College Women." *Journal of Career Development* 33, 1: 29-46.

Lufkin, Mary E., Mary Wiberg, Courtney Reed Jenkins, Stephanie Lee Berardi, Terri Boyer, Ellen Eardley, and Jan Huss. 2007. "Gender Equity in Career and Technical Education." In Susan S. Klein, Barbara Richardson, Dolores A. Grayson, , Lynn H. Fox, Cheris Kramarae, Diane S. Pollard, and Carol Anne Dwyer (eds.), *Handbook for Achieving Gender Equity Through Education*. New York: Routledge.

Reed, Sherrie, Shaun Dougherty, Michal Kurlaender, and Joanna Mathias. 2018. *A Portrait of California Career Technical Education Pathway Completers. Technical Report. Getting Down to Facts II*. Stanford, CA: Policy Analysis for California Education.

Rosen, Rachel, and Frieda Molina. 2019. *Practitioner Perspectives on Equity in Career and Technical Education*. New York: MDRC.

Rosen, Rachel, Mary Visher, and Katie Beal. 2018. *Career and Technical Education: Current Policy, Prominent Programs, and Evidence*. New York: MDRC.