

Data-Driven Decision-Making in Career and Technical Education

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Career and technical education (CTE) can be a gateway to achieving equity, but there are still gaps in opportunity that hinder pursuing this goal nationally and statewide. To support colleges' efforts to address these inequities the Office of Community College Research and Leadership (OCCRL) is conducting an exploratory case study of CTE programs that are making noticeable gains in supporting underrepresented and underserved students and what structures and practices are implemented in order to achieve equity. One of the research questions asks: How was data used to identify inequities in CTE program recruitment, retention, and completion, as well as student matriculation into employment? As such, this article explores existing research literature on data-driven decision making in career and technical education.

What is Data-Driven Decision-Making?

Data-driven decision-making (DDDM) is the process of using evidence or data to problem-solve and inform any number of institutional decisions (Hora, Bouwma-Gearhart, & Park, 2017). While data-driven decision-making is the term most widely referenced in research literature, experts are now promoting the term data-informed since data alone does not drive decisions. Rather, individuals use data for inquiry to inform how they will address a specific problem of practice (Datnow & Park, 2014). Similarly, Jimerson (2016) defines data-informed practice as "an ongoing inquiry-based process that incorporates multiple pieces of evidence" to ultimately "identify obstacles to student and/or organizational success" and then use this information to develop strategies to improve (p. 62). Data is also evidence, and so other concepts used synonymously with DDDM are evidence-use or evidence-based practice (Datnow & Park, 2014; Jimerson, 2016).

The general premise of DDDM is that if "armed with data, people will make better choices and organizations will function more effectively" (Datnow & Park, 2014, p.1). However, carrying out this proposition is not that simple, as there is a human element to DDDM. The process of collecting data and evidence becomes moot if data is warehoused and stored to then never be used (Reese, 2009; Hendrie, 2005). People who actively make use of data thus need to be motivated, trained, and supported to do so. Therefore, leadership is needed to cultivate a culture of evidence and effective use of data, as well as build the capacity and encouragement of others to use data to support institutional change, especially changes that promote equity (Datnow & Park, 2014). Educational leaders are essential to influencing "how and why data are, what counts as data," and the overall goals and objectives for using data (Datnow & Park, 2014, p. 2).

To be most effective, data should be used systemically and systematically. There is a continuous improvement process, or cycle, that is foundational to DDDM in which data is used to continuously assess organizational processes, determine where problems lie, and, in response, determine what actions should be taken to address and improve them (Hora et al., 2017). Most importantly, DDDM can be a tool for equity-focused institutional change by using data to unmask who community colleges or even specific CTE program areas are underserving the most and how. Educational leaders should effectively use data as evidence of the inequities that exist so they can then work to redress them. However, one caveat is that when using data to shed light on any inequities, those involved in DDDM should look to how the institution is responsible, not place burden on the students who endure these inequities (Abrica, 2018; Welton & La Londe, 2013).

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Trends in Postsecondary Education

In K-12 education there is more research devoted to determining what conditions best support educators' use of data, especially how evidence is used to improve student learning and achievement. The federal K-12 legislation No Child Left Behind (NCLB) in 2002 marked the nationwide focus on using student achievement data to develop statewide accountability monitoring systems. There is continued controversy over the policy's promotion of using high-stakes tests to narrowly evaluate student performance. Yet through NCLB, educators now have more sophisticated systems of data at their disposal than ever before to use for inquiry and improvement purposes, which explains the available abundance of research in K-12 to better understand this process (Hora et al., 2017).

Postsecondary education has given less consideration to the utility of DDDM, but colleges and universities are beginning to take a que from how accountability measures have dominated K-12, anticipating that this same pressure to embrace a

“culture of evidence” will soon come to postsecondary education (Hora et al., 2017, p. 396). The few studies found on DDDM in postsecondary education explore how STEM faculty members use data to inform their instruction (Hora et al., 2017), the extent to which community college faculty, administration, and student-services staff use data to inform decisions, plan, and the frequency of which they discuss achievement gaps affecting students of color, low-income students, and academically



underprepared students (Kerrigan & Jenkins, 2013); the role of social capital in the frequency of data use at community colleges (Kerrigan, 2015); how Chicana institutional researchers engage in data-driven advocacy for Latinx community college students (Abrica & Rivas, 2017); and how the frameworks community colleges commonly used to determine rates of success for students of color often depict these students as sources of failure (Abrica, 2018).

Administrators are the primary users of data more so than faculty and student services (Kerrigan & Jenkins, 2013) and they rely heavily on offices of institutional research (IR) to assist with carrying out DDDM. Institutional researchers are not only the “custodian or keeper of data,” but they also translate data into information so that administrators can then use the information to make the best, most informed decisions (Johnston & Kristovich, 2000, p. 3).

Equity Frameworks

Postsecondary education research is noted for significant advancements in frameworks that assist practitioners with DDDM that is more equity-conscious. For example, the [Equity Scorecard](#)TM developed by the University of Southern California Center for Urban Education (CUE) is a data tool and process in which campus stakeholders engage in a cycle of action inquiry of campus data, practices, and policies to determine what racial inequities exist and what they could do to “improve the success of students from underrepresented racial groups” (par. 2). Likewise, the [Pathways to Results](#) (PTR) process at OCCRL allows us to support community colleges through the use of methods, templates, and tools designed to continuously improve pathways and programs of study that address inequities in student outcomes. An overall summation of PTR is that institutional “adoption of equity-minded practices is key to raising performance” (par. 4). Ultimately, equity frameworks for data use should be, as Abrica (2018) suggests, anti-deficit, viewing students of color as sources of resilience who persist toward their educational goals “in light of racial marginalization” that they experience in postsecondary settings (p. 572).

CTE at Community Colleges: More Research on DDDM is Needed

The Carl D. Perkins Act requires that secondary and postsecondary institutions report CTE student data (see Imperatore, 2014). However, most research on data-driven decision-making in CTE focuses on high schools, with very limited research specific to community colleges. Still, some research on DDDM for high school CTE programs is applicable to postsecondary implementation such as what CTE assessment data is available that aligns with both academic and industry standards (Daggett, 2007; Foster & Bloomfield, 2015) and how teachers use these assessments to inform their instruction (Pritz & Kelley, 2009); what professional development best supports teachers with DDDM (NRCCTE, n.d.); recommendations for sharing and publicizing CTE performance data (Graham & Klein, 2018); and urging policymakers to not relegate student achievement to a single standardized test but rather a multitude of measures (e.g., project-based performance, certifications and licenses awarded, transition to employment, and attendance) for student success (Lynch, 2000; Reese, 2009).

The available research on community college CTE and DDDM features exemplars of institutions working closely with industry and community stakeholders to respond to local and regional needs by using both institutional data and industry input to improve CTE curriculum and programmatic alignment (Imperatore, 2014). Still, research exemplars are needed to demonstrate how community colleges use data to understand whether their CTE programs ensure every student has the skills necessary to be successful in their careers.



References

- Abrica, E.J. (2018). How to measure student success? Toward consideration of student resilience as a metric of success in institutional accountability frameworks. *Community College Journal of Research and Practice, 42*(7/8), 569 – 573.
- Abrica, E.J. & Rivas, M. (2017). Chicas in IR: Data-driven advocacy for Latinx students from institutional research contexts in the community college. *Association of Mexican American Educators Journal, 11*(2), 43-62.
- Daggett, B. (2007). Exploring the need for data-driven decision making in CTE. *Techniques: Connecting Education and Careers, 82*(6), 10-11.
- Datnow, A. & Park, V. (2014). *Data-driven leadership*. Hoboken, NJ: John Wiley & Sons.
- Foster, J. & Bloomfield, A. (2015). Three things to consider about data. *Techniques: Connecting Education and Careers, 90*(2), 60-61.
- Graham, K. & Klein, S. (2018). Messaging matters: Designing communications tools to support career and technical education data use. *Techniques: Connecting Education and Careers, 93*(2), 24-29.
- Hendrie, C. (2005). Improved access to rising tide of data is urged. *Education Week, 25*(15), 14.
- Hora, M.T., Bouwna-Gearhart, J. & Park, H.J. (2017). Data driven decision-making in the era of accountability: Fostering faculty data cultures for learning. *The Review of Higher Education, 40*(3), 391-426.
- Imperatore, C. (2014). Data and industry drive decision-making: A tale of two schools. *Techniques: Connecting Education and Careers, 89*(1), 26-31.
- Jimerson, J. (2016). How are we approaching data-informed practice? Development of the Survey of Data Use and Professional Learning. *Educational Assessment, Evaluation and Accountability, 28*, 61-87.
- Johnston, G. H. & Kristovich, S.A.R. (2000). Community college alchemists: turning data into information. *New Directions for Community Colleges, 109*, 63-73.
- Kerrigan, M. R. (2015). Social capital in data-driven community college reform. *Community Journal of Research and Practice, 39*(7), 603-618.
- Kerrigan, M. R. & Jenkins, D. (2013). *A growing culture of evidence? Findings from a survey on data use at achieving the dream colleges in Washington state*. New York, NY: Community College Research Center, Teachers College, Columbia University.
- Lynch, R. (2000). New directions in high school career and technical education in the 21st century, 384. Columbus, OH: Eric Clearinghouse on Adult, Career, and Vocational Education, The Ohio State University.
- NRCCTE, (n.d.). CTEDDI-Career and technical educators using data-driven improvement. Retrieved from <http://www.nrccte.org/professional-development/cteddi>
- Pritz, S. & Kelley, P. (2009). Survey delves into educators' use of assessment data. *Techniques: Connecting Education and Careers, 84*(8), 34-37.
- Reese, S. (2009). Harnessing the power of data. *Techniques: Connecting Education and Careers, 84*(2), 16-20.
- Welton, A. D., & La Londe, P. G. (2013). *Facing equity: Understanding P-20 equity conscious leadership for college and career pathways*. Champaign, IL: Office of Community College Research and Leadership, University of Illinois at Urbana-Champaign.

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