

Introduction

Nancy Johnson is a community college president. She considers herself an effective educational leader. Faculty and staff generally like what the college is doing, and the governing board has just renewed her contract. Nevertheless, Nancy believes that the college could be better serving its students and the community. She has a good understanding of its performance based on local, state, and national reports, but when she talks about the data, her words seem to fall on deaf ears. Each month, a new report on some aspect of student success is presented to the governing board, but although the board has made student success a priority, members tend to make only perfunctory comments, often not related to the data presented. Nancy feels there is more that needs to be done to get the message across, but is unsure of what to do to make that happen.



Kalib McKenney is a well-respected community college institutional researcher (IR). He has a strong statistics and methodology background, has published an article in an educational research journal, and is considered a seasoned pro by his IR colleagues. Kalib often presents at statewide meetings of IR directors, and attends national conferences in evaluation and institutional research at least once a year. At his own campus, he has created a data warehouse. He uses the latest tools for extracting and reporting information, regularly posting his tables

and charts on the IR department website. But the administration and faculty never seem to act on the findings in his reports, and Kalib is frustrated.



Denise Sprengs is the English department college chair. She coordinates program review activities and works well with the IR office to gather and share the results of student outcomes, class fill rates, and student satisfaction data. Every five years, a program review is conducted and the data is updated annually. Denise wonders why the faculty in her department are not more engaged in reviewing the data. She feels like it is used more for compliance than provoking the conversations she and her colleagues need to accomplish her department's goals for improving course completion rates, which the English faculty identified as something they want to improve.



José Fernandez has just been named Dean of Science and Technology at his college. He recently completed his doctorate in educational administration, and in the program learned a great deal about finance and student outcome data, as well as how to use inquiry as a method for reviewing information. Now he tries to engage both his faculty and fellow deans in discussions about data, but feels that he can only go so far. In the end, his colleagues are less engaged than he would like them to be. He confides to his friends that he believes many faculty and administrators can feel threatened by any discussion about data.

AWASH IN DATA BUT NOT INFORMED

In our over three decades of work with community colleges around the country, we have found that the situations we've just described are typical. Administrators and faculty leaders are struggling with, or at least thinking about, how to better engage their colleagues in discussions using data to improve student success metrics such as course retention, pass rates, persistence, credit accumulation, and completion rates.

Anyone working as an educator in the community colleges knows that they are awash in data. There are national, state, and local accountability metrics; accreditation reports; program review; surveys of students, faculty, staff, and community; and evaluation reports. Yet community college educators struggle to understand and act on available student performance data.

In fall 2014, America's community colleges enrolled 6.7 million of our nation's 17.3 million undergraduate students, many of whom come from low-income households and also are the first generation in their family to go to college.¹ All students are hoping to improve their lives, to earn a living wage, provide for their families, and be productive members of their communities. Unfortunately, many do not achieve their educational goals.²

As educators, we want to support student aspirations and do everything we can to help make our students successful. One of the key ways to improve student lives and outcomes is to improve data use. Community college educators need to better understand data, determine what is needed to make improvements in student success, implement those changes, and monitor the impact of those changes. Educators must have data that gets to the point, tells the story, and ultimately informs decisions to act. It must be the right data, in the right hands, at the right time.

Regrettably, the information available to stakeholders falls short in many ways of what is needed to inform decision making and support the changes in policy and practice that will reduce inequities and advance economic opportunities for community college students. Educators are hamstrung because their data use practices are neither effective nor efficient. We have written this book to help.

The purpose of this book is to present a research-based model and an actionable approach to help local community colleges—administrators, researchers, faculty, and staff—to use existing data in ways that lead to improvements in student success. Unlike typical data literacy approaches that put the data at the center of the model, our approach puts the community college educator—the user of the data—at the center. And our model for data use creates a data-informed culture in community colleges. It addresses current efforts to use data in the service of student success by changing data use behaviors.

CURRENT EFFORTS TO USE DATA

Community colleges are at a unique inflection point in their history. Never has there been more attention, more funding opportunities, more initiatives on the national scale, and more opportunity to make improvements in one of our nation's great resources. As educators, we cannot squander this attention.

Funding in many states has increased.³ But with this new funding comes increased demand for demonstrating success beyond counting the number of students served—and the way to achieve and demonstrate success is to put data to better use. This is not to say that there haven't been, or there are not current, attempts to use data to make improvements in community colleges. A number of initiatives, many on a national scale, are well funded and supported, grounded in the literature, and if executed faithfully, promising.

Achieving the Dream and Completion by Design are good examples of initiatives seeking to improve student outcomes with data supporting the work. Achieving the Dream (AtD) provides a leadership coach and a data coach who, in addition to other supports, help colleges collect and act on data in many areas of student success, beginning with: (1) overall course completion; (2) basic skills course completion; (3) gateway or gatekeeper course completion; (4) persistence fall to spring, fall to fall, and beyond; and (5) completion. That said, as a data coach for AtD, one of Brad's key observations is that the focus on data to date has mostly been about ensuring that institutional research offices have the capacity to gather and report on these and other indicators. It has been focused more on support of changes in policy and practice than on *helping educators use data to inform decision making*. That is now changed with a great step forward with the development of a *Data Discovery Guide*.⁴ This new online tool provides many resources to help AtD colleges increase their use of data.

Funded by the Bill and Melinda Gates Foundation, Completion by Design (CBD) provides a framework for colleges to examine and improve their efforts to support students from onboarding through completion, including attainment of degrees, certificates, and transfer to a four-year university. CBD recommends eleven different metrics (key performance

indicators, or KPIs). The number of indicators can be overwhelming, and they are not grouped by what metrics are leading and lagging (we'll be discussing this topic in detail in chapter 4). This can overwhelm educators, making it difficult to discern what's actionable or to find the actionable stories in the data.

Two other national initiatives that collect and report data specific to community colleges are the Voluntary Framework of Accountability (VFA) and the National Benchmarking Project (NBP). These initiatives, designed to improve consistency in data collection and reporting and support comparisons between colleges, employ metrics developed by national community college leaders and are collected and reported by participating colleges. While each makes mention of data use, it is assumed that colleges have the capacity to use the agreed-upon metrics on their own to make needed improvements.

In addition to these national initiatives, there are numerous state accountability systems across the United States. One of the most recently inaugurated is in California. This system, known as the Institutional Effectiveness Partnership Initiative (IEPI), is based on indicators in four areas: (1) student performance and outcomes, (2) accreditation status, (3) fiscal health, and (4) programmatic compliance with state and federal guidelines. California's colleges are collecting and reporting data on these sets of accountability indicators.

In most state systems, a majority of the support for developing these is typically on the front end; that is, developing the metrics. Then they expect colleges to supply the information about their student population (or the state system office takes on the task of reporting the information). California colleges that request assistance can receive some help in making use of the indicators. Participating colleges can request volunteers from the field to support their colleagues in this data work.

Beyond the abundance of data reported to national and state systems, almost all colleges also report data on local outcomes. Colleges have developed their own indicators, often generated by the local Institutional Research (IR) office or in some cases, the Information Systems (IS) office. Most often, it is a collaboration between both that produces the numerous reports that get posted to the IR website in the form of fact books or special reports.

FROM DATA TO ACTION

While all of these systems and initiatives provide a great deal of data, they do not in our view focus adequately on the use of data at the local level to inform decision making. We have written this book to close this gap.

We know that engaging in more effective data use practices has the potential to help community college educators improve outcomes because we have seen it happen in our work. The common mantra is that educators want the data they need, when they need it, to make a decision that needs to be made. That said, just having the data is not enough. Having more and better data is not enough. Even having the right data at the right time is not enough.

In this book, we tell the story of how to develop and implement effective data use practices in community colleges. The technical aspects of data use are not central to the process, nor is it more of the same data literacy professional development that others have been promoting. It is not as if there is not enough data in our colleges—there is. It is not as if colleges do not have the right data—they do. And it is not as if community college educators do not have access to the data—while not always easily obtainable, there is accessible data. So if all of the conditions for good data use are in place, why do we argue that it is not enough to be a truly data-informed institution? The quick response is to look at the impact on student success, which has been negligible.⁵

THE SOLUTION: FOCUS ON THE USER AND BEYOND

In thinking about data use and why there seemed to be little improvement in the process (and student outcomes) despite years of effort, we came to an important realization, perhaps owing to our training as psychology clinicians. We realized the focus has been on the data and not on its use. Most attempts to improve data use focus on understanding charts and tables as if these displays would yield actionable knowledge if only we knew how to read them effectively.

We decided to expand this narrow view of data use and go beyond data literacy by adding a considerable focus on analytics (the patterns

and other meaningful information gathered from the analysis of data), individual users, and educational organizations. This book is about how educators can make effective use of analytics, increase educator's ability to make judgments about information, use that information to make decisions, and create organizational habits to develop a data-informed institution. We use this research to change the college culture around data use by helping educators to develop analytics, reports, and presentations to fully understand a problem, monitor a practice, and evaluate outcomes—and ultimately, to improve student success.

Community colleges desperately need to improve data use. This book argues for and provides a model and proven practices for doing this. We show how data-use work in the past has ignored the fact that educators have to *make sense* of the data. We show how the way our institutions are structured and the habits of our group behavior inhibit good data use practices and how to change those structures and habits.

We want to be clear: in no way is the intent of this book to “blame the researcher.” IR staff do a herculean job of managing the data that they are required to organize and mandated to report. In a typical day, IR staff are extracting data from their student information system (SIS), preparing reports, analyzing survey responses, attending meetings, and more. Their in-boxes are always full; there is always more to do than can be done. They work hard at producing and distributing data.

Unfortunately, with such a load of extremely varied work tasks, with much of the demand coming from a compliance paradigm, they have little time to focus their expertise on data use. So, too often the tables, charts, and reports they generate, or redistribute from federal agencies, state departments, and other entities are in the same format they receive from the source of the information or the local computer programs used to generate the data. And that is just one of the obstacles to putting good data to use.

OBSTACLES TO STRATEGIC DATA USE

As a data coach for Achieving the Dream, Brad was making his first visit to a community college. The research staff was welcoming and cordial, even providing a kolach—a Czech version of pig in a blanket—as

a breakfast treat. It was wonderful (and very smart of the IR staff to provide food at a meeting about data—see chapter 2).

The IR staff were orienting Brad to their work, and he noticed a prominently placed award given by a national research organization to the IR department for their fact book. IR was very proud of this achievement. Brad started looking through the fact book, which was displayed in large binders next to the award. It was very comprehensive, comprising hundreds of pages of data. But as Brad studied the large volume, he saw many pages of tables filled with lots of zeroes. Indeed, it would be nearly impossible for anyone to find anything, let alone find anything that was useful. Brad pointed this out and asked how the fact book was used by the faculty, staff, and administration. The IR staff did not have an answer to his question—and he was never greeted with a kolach again.

There are a number of obstacles standing in the way of more effective data use. Brad's story illustrates one: the mindset that more data, more tables, more charts, more reports, more sophisticated analysis is better. This approach—what we call the “data jockey” approach—is being rewarded by the institutional research community. But this mindset, combined with the volume of work that IR professionals confront every day, makes it extremely difficult to focus on a more strategic use of the data.

A second reason is that researchers are trained to produce reports and data displays for publication in journals or presentations at professional conferences. These reports and displays, however, are not intended to lead to decisions or action. Different users and audiences, those who need to make decisions about policy and practice, require different types of reports and displays.

A third reason that data is not being turned into useful information is because there is a lack of understanding of what it means for data to be actionable. Reporting is driven by stored procedures that make it easy to produce a number of canned reports. It is driven by the accreditation, reporting, and compliance needs of the institution; which, in turn, sets up a just-get-it-done mentality. It not driven by the needs of those engaged in improving student success. There are few checks on

the quality of the data by those receiving it, which exacerbates the problem and reinforces this approach. In fact, the Institute for Education Sciences at the US Department of Education noted, “at least 70 percent and often 80 to 85 percent of the effort in data analytics is devoted to data cleaning, formatting, and alignment.”⁶ When the quality of the data is poor, how can we expect its use to have an impact?

Even the latest business intelligence software is a culprit. The attractiveness of these expensive packages is that they can extract and display data in a multitude of ways. Unfortunately, having more ways to display data is not necessarily the way to increase data use. The bottom line is, reports generated by software can obscure the story that educators need to form a judgment, leading to a decision. Institutional researchers are using the tools they have at their disposal to fulfill one of their key functions, compliance reporting, and are overwhelmed with work to the point that they do not have the time or resources to consider data use. The effects of this system lead too often to a *Where's Waldo?* game—a seemingly endless search across reports that look alike and have no discernable internal pattern or story to tell.

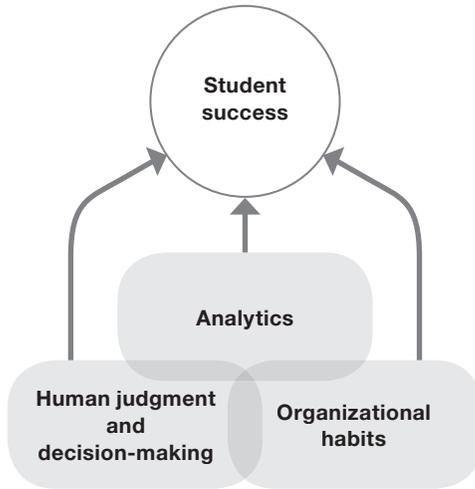
A NEW DATA USE MODEL

The key to our work is to make that data useful, useable, and actionable. How do we achieve this? According to authors and behavior change gurus Chip and Dan Heath, there are three important elements needed: the information has to cause its recipients to *believe* in it, they have to *care* about it, and they have to be able to *act* upon that information.⁷ There is little in our current state-of-the-art reporting systems that helps educators truly engage with data.

Effective data use starts with reframing analytics to make them useful, useable, and actionable, along with an understanding of the research on how we as human beings engage with data to improve decision making and how we can change organizational habits to improve the use of data in the service to students.

The model we developed is made up of these three components (see figure I.1).

FIGURE 1.1 The three components of IEBC's data use model



ABOUT THIS BOOK

This book has three parts. Part 1 describes our data-use model in depth and explains how to apply it. In part 2, we map some common student success problems to research-based solutions and discuss how the model can be used for program improvement efforts. Each of the chapters in these sections begins with an illustrative anecdote, many based directly on real-life dilemmas we have encountered in our work with community colleges. Part 3 consists of chapters written by guest authors describing how they have used aspects of the model at their colleges and the results they are seeing. In the final chapter, we bring it all together and explore the future of effective data use.

Part 1: A New Model for Data Use

Chapter 1 addresses the first component of our model: analytics. We open by describing the current state of analytics on college campuses, and tackle the topic of data quality and why it matters. We discuss how analytics can be employed to increase the ability of the user to

understand data and dispel six common assumptions about the power of data alone. We also present four rules for effective data use and provide a template for engaging in productive data conversations.

Chapter 2 draws from the latest research about behavioral economics and the role of emotion and the environment to examine the most optimum conditions for considering data. This chapter also addresses how to convey the message through telling the story to ensure all educators clearly understand the data, and provides techniques for clearly communicating the messages that data is purporting to tell. The use of templates for presenting data and for coming to consensus around data is also discussed.

Chapter 3 describes recent organizational theory, including the concept of organizational habits, perhaps most clearly described by Charles Duhigg, whose ideas about habits—how they are built and how they can change—have entered the modern vernacular.⁸ Community colleges, like all organizations, have habits that drive a lot of what is done. Using a three-step model for changing habits at the personal level and applying it to organizations, we describe how colleges can examine their habits related to using data, rid their institutions of bad habits, and replace them with effective data use habits.

Part 2: Putting the Model to Work

Chapter 4, introduces the concept of leading and lagging indicators for community colleges and provides examples of their use. Leading and lagging indicators are the vehicle for changing data use in our model. Too often, colleges focus on lagging indicators, which means by the time they get the feedback on their graduation rate, for example, it is too late to take action. Focusing on two or three leading indicators, on the other hand, can be powerful levers for change.

In chapter 5, we describe how our data use model can be employed to successfully address obstacles to student success. This section includes a matrix of high-impact, research-based interventions that can be used to move different indicators of student success, including preparedness, course retention, persistence, basic skill course completion, and college course completion.

Chapter 6 presents a four-stage continuous improvement cycle model and describes how it can be used to monitor and adjust interventions. If leading and lagging indicators are the vehicle for implementing our model, this continuous improvement cycle is the road on which they travel.

Part 3: Case Studies of Data-Driven Reform

In chapter 7, Lauren Davis Sosenko, Director of Institutional Research at Long Beach (California) City College, discusses how a director of institutional research (and former associate director at IEBC) is using the model to improve data use; in particular, how leading and lagging indicators are used to support the college's master plan efforts to improve student success and create a living document.

In chapter 8, Angelica Suarez, Vice President Student Services at Southwestern College (California), describes the how the college applied the model's data use principles to address equity concerns: differential success rates among non-majority subpopulations and special populations (foster youth, veterans, and others). Southwestern College worked with the authors to develop and execute its student equity plan—identifying leading and lagging indicators, implementing research-based interventions, and integrating an evaluation process that helped determine the effectiveness of each intervention. The chapter details the plan, along with the process the college employed and the impact of the work.

In chapter 9, Odessa Community College President Gregory Williams and Vice President for Institutional Effectiveness Don Wood describe how their college's focus on leading indicators transformed the institution into one of the highest-performing two-year colleges in the nation. No other college in the nation has had such rapid and sustained improvement. The chapter authors' relentless focus on leading indicators, while ignoring lagging indicators, changed the culture of the college by identifying these leading indicators for *programs*, *policies*, and *practices*. This resulted in meaningful changes to these "three Ps" and the further use of leading indicators to understand the impact of changes made.

Finally, in the concluding chapter, we bring it all together, painting a picture of what data making itself useful looks like as the norm and all the opportunities this opens to successfully serve students.



We wrote this book to be a useful resource for understanding and implementing a data-use model that results in action. Throughout, we keep in mind that college educators are working hard to address student success issues on campus and typically struggle with getting the right data and presenting it in ways that can motivate others to action. We include activities that prompt community college educators to consider the realities of data use at their institution and practical ways to address data use issues that do not deny these realities. We know from the successes we have had with colleges around the country that thoughtful and considerate application of the model will lead to improvements in the indicators of student success that are crucial to improving our education outcomes and, ultimately, the lives of our students.