A NEW INSTITUTIONAL EFFECTIVENESS METRIC OPERATIONALIZED (NIEMO)

by

Kate Smith

This dissertation is submitted in partial fulfillment of the
requirements for the degree of

Doctor of Education

Ferris State University

June 2022

A NEW INSTITUTIONAL EFFECTIVENESS METRIC OPERATIONALIZED (NIEMO)

by

Kate Smith

Has been approved

June 2022

APPROVED:

Cameron Brunet-Koch, PhD
Committee Chair

Patricia Case, PhD
Committee Member

Deborah Kish Johansen, EdD, JD, MBA
Committee Member

Dissertation Committee

ACCEPTED:

Sandra J Balkema, PhD, Dissertation Director
Community College Leadership Program

ABSTRACT

Community colleges have steadily gained national attention as the postsecondary sector that serves a significant proportion of all undergraduate students and historically has served the majority of underserved students. As public attention has turned towards community colleges, so has public scrutiny, largely informed by the established federal metrics reported through the Integrated Postsecondary Education Data System (IPEDS). IPEDS implemented the Graduation Rate (GR) metric in the early 1990s which became the primary federal data point for research, accountability, and public consumption. This product dissertation examines the current state of institutional effectiveness measures, with historical context and alternative measures noted, and highlights the limitations of the single GR metric. Although an important metric, the limitations include the omission of significant populations of students that community colleges serve, leading to a limited construct of institutional performance and effectiveness for community colleges.

Following a review of current state and historical overview, this product dissertation presents a method for measuring a large population of students that is not considered in any of the institutional effectiveness metrics currently employed: the non-credential-seeking student population (those students who attend community colleges for reasons other than obtaining a degree or certificate). This population of students has been found to be a significant size and is intentionally using the community college for purposes other than obtaining a credential; hence, this author argues that they should be included in institutional effectiveness metrics. This dissertation presents a two-year review of how RSC has endeavored to measure this student

population in terms of completion outcomes, and shares the tools developed, replicability, implications for a new institutional effectiveness metric, and implications for further research.

Keywords: accountability measures, institutional effectiveness, community colleges, non-credential-seeking students

DEDICATION

I dedicate this dissertation to my son Sim. May this dissertation always remind you that you can conquer anything you set your mind to. You are an inspiration, an amazing person, talented and gifted, kind and thoughtful, and I love with you all of my heart!

Cori and Jeff, thank you for your continued support through all of this and your open, kind, caring, and loving ways. You both are incredibly wonderful people, extremely talented, generous, and thoughtful. I am honored to be a part of your lives, and I love you, tons!

Dennis, thank you for being by my side every step of the way. I can't imagine a better partner to walk through this life with.

To the rest of my family, my siblings, my mother, my in-laws — thank you for your unending support and love. Your unwavering support means more than words can express.

To my friends, you truly are family to me, and I appreciate you more than I can express. Thank you for your unconditional love and support every step of the way.

ACKNOWLEDGMENTS

Cameron Brunet-Koch, thank you for your steadfast guidance and support throughout this process as my dissertation chair. I would not be here if it weren't for your relentless encouragement and counsel. Deb Johansen and Pat Case, I am not sure how to thank you both enough for serving on my dissertation committee and providing support, wisdom, feedback, friendship, and kindness. I couldn't be more blessed to have the three of you as my dissertation committee.

Sandy Balkema, Megan Biller, and Roberta Teahan, thank you for your endless grace and support as you supported me (and the many cohorts) through this doctoral program. You were always gracious, supportive, and encouraging — and never doubted us for a minute. I am deeply grateful.

Cohort 10 of the FSU DCCL program, you are the best! I love and appreciate every one of you — thank you for your kindness, support, laughs, and camaraderie throughout this program. I was honored to be among such talented and amazing colleagues.

To the Rio Salado College Executive Team — thank you for your amazing support and your remarkable work through these past three years. I am blessed to call you colleagues and teammates, and I look forward to an incredible future for Rio — together!

Zach Lewis and the Institutional Research team, thank you for your relentless support and work. You are an amazing team, and I am so fortunate to work alongside you. Thank you for all that you do, every day, with grace, humility, and diligence. You are amazing!

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER ONE: INTRODUCTION

INTRODUCTION

Community colleges have been steadily gaining national attention, with a notable inflection in 2009 highlighted with the Obama Administration's call for increasing the national attainment of degrees and certificates, the American Graduation Initiative, including the ambitious goal of increasing attainment rates to 60% for the young adult cohort, and a commitment to "reform and strengthen community colleges" (U.S. White House, 2009). As public attention has turned toward community colleges to significantly help fulfill this goal, so has public scrutiny, informed largely by the established performance metrics that are commonly cited in outcomes and funding discussions. This product dissertation will examine the current state of institutional effectiveness measures, with historical context and alternative measures noted, and introduce the structure for the first implementation of a new institutional effectiveness metric at RSC. The importance and significance of current performance metrics cannot be overstated because the nation's community colleges educate 44% of undergraduate students (Community College Research Center [CCRC], n.d.) and have funding and institutional improvement outcomes tied to these metrics (Ortegus et al., 2020). It is imperative to understand the measurements employed for decision making and to investigate critical questions as to appropriateness and best metrics that provide accurate information about community college institutional performance.

Following a review of current state and historical overview, this dissertation will present a method for defining and measuring outcomes related to a large population of students that are not considered in any of the institutional effectiveness metrics currently employed. This student population consists of a broad spectrum of people who attend community college for purposes other than obtaining a degree or certificate, "non-credential seeking" students. This product dissertation will present a two-year review of how Rio Salado College in Tempe, Arizona, has endeavored to measure this student population, their outcomes, the method's replicability, implications for a new institutional effectiveness metric, and implications for further research.

BRIEF HISTORY

The United States Department of Education was established in 1867 for the purposes of collecting and disseminating statistics and information regarding the "condition and progress of education" (Aliyeva et al., 2018). The federal collection of higher education data regarding enrollment, degree completion, and faculty began in 1869 (Aliyeva et al., 2018). The National Center for Education Statistics (NCES) was established in 1974 with the official responsibility to collect and disseminate education data, and subsequently in 1986, IPEDS was implemented with completion of the first survey of higher education institutions, the Institutional Characteristics Survey (Aliyeva, et al., 2018). Several other surveys were developed and implemented throughout the 1980s and 1990s, and IPEDS quickly became the primary source of national education statistics.

The Student Right-to-Know and Campus Security Act of 1990 (P.L. 101-542) resulted in the Graduation Metric (GR) component being added to the IPEDS survey in 1997, with a 1999 supplement form added that allowed institutions to report GR data up to the 150% program length time. In 2008, the Higher Education Opportunity Act led to the 200% GR data collection

(Aliyeva, et al., 2018). Additional legislative items that contribute to the current state of accountability metrics for community colleges include the Higher Education Act Amendments of 1992 (P.L. 102-325) that mandated IPEDS reporting as part of Title IV funding, leading to virtually universal reporting of graduation rates (Horn et al., 2019), as well as the 1998 amendments to the HEA (P.L. 105-244) that addressed better communication resources so that the public would have easier access to this data (Aliyeva, et al., 2018).

CURRENT STATE OF THE IPEDS SYSTEM AND COMMUNITY COLLEGES

To establish comparability across institutions, the student population included in the IPEDS GR data collection was originally defined and standardized as first-time, full-time, fall-entering, degree-seeking students (Kelly & Whitfield, 2014). This population of students largely mimics four-year institution populations, resulting in a comparability system of two- and four-year institutions with different missions and which excludes roughly 60% of community college students (CCRC, as cited by Boerner, 2015). The large majority of the community college student population and the community college mission is not accounted for in the current metrics. For example, community colleges enroll large numbers of part-time students, returning adult students who already have college credits, transfer students, and spring-start students — none of which are captured in the current metrics. Kelly and Whitfield (2014) cite an analysis of the IPEDS GR data collected on the Kentucky Community and Technical College System, which reveals that only 27% of all completers were included in the IPEDS data, leaving 73% of all community college students out of the metric system used for decision making.

A review of Rio Salada College (RSC), Arizona, data revealed that the 2015–16 graduation data represented 0.4% (113 students) of the student population (RSC, internal data, 2018). RSC's graduation data was built upon a snapshot of enrollment, the census date, and

resulting graduation rates. However, due to the non-traditional student population and the College's rolling start dates, over 99.4% of the College's actual student population was not even being captured in this metric and thus not being used for decision making (RSC, internal data, 2018).

RSC's metric challenge is not unique. According to Patrick Kelly, senior associate at the National Center for Higher Education Management Systems, "The metrics that are out there on a public basis don't really reflect what happens at community colleges" (Boerner, 2015, p.18). Upon review of the IPEDS graduation data, the Michigan Center for Student Success found that the IPEDS data shows approximately a 15% success rate for Michigan community college students as compared to a 52% success rate when the definition of students counted is broadened to include part-time, transfer, and a six-year period (Boerner, 2015). As noted by American Association of Community Colleges (AACC) Policy Analysis Director, Christopher Mullin (2012), the Department of Education's congressionally mandated Committee on Measures of Student Success found, "Although federal graduation rates provide important and comparable data across institutional sectors, limitations in the data understate the success of students enrolled at two-year institutions and can be misleading to the public" (p. 5).

Historically, as measured by the federal government through the IPEDS, the GR has been a flawed institutional effectiveness metric for several reasons: it does not track part-time students, the majority of the community college attending student population; it does not account for the large community college student population that attends for purpose of transferring credits to four-year colleges; the 150% measurement time does not adequately account for completion time for students who are balancing work, families, and school; and it does not adjust for the socioeconomic factors that impact student completion across higher education sectors

(Clotfelter, et al., 2013). There is widespread recognition that the IPEDS GR metrics create an inaccurate and potential underestimation of community college institutional effectiveness, leading to potentially incomplete and inaccurate data informing decision-making processes. Institutional decisions, funding decisions, grant award decisions, and significant amounts of higher education research all are informed by IPEDS, and hence reflect the potential for greatly misinformed decision-making. The limited student population that is included in the metrics, the inability to disaggregate data deeply, and the insufficiency of using four-year institution based metrics to measure two-year institutions that have significantly different and multifaceted missions all contribute to the growing demand for more appropriate measures of institutional effectiveness (Bahr, 2013a; Boerner, 2015; Fischer, 2006; Gellman-Danley, 2016; Joch, 2014; Merisotis & Shedd, 2003; and Whissemore, 2012).

ALTERNATIVE INSTITUTIONAL EFFECTIVENESS MEASUREMENT FRAMEWORKS

In response to this challenge and the potential pitfalls in decision-making, the Voluntary Framework of Accountability (VFA) was established by the AACC in 2012 to address the large numbers of students that are not included as part of the IPEDS data reporting (AACC, 2019). The VFA is designed to be the primary accountability framework for community colleges, one that encompasses the diverse student body of community colleges, the equally diverse goals and desired educational experiences of the students, and the multifaceted scope of the community college mission (AACC, 2019). The VFA was developed in response to several pressing factors: the growing demands for greater public accountability, the 2006 Spellings Commission on the Future of Higher Education, the undertaking of four-year institutions to voluntarily develop common accountability measures, the imperative to educate the public more effectively as to the

role and impact of community colleges, and the enduring collective aspiration of community college leaders to improve student success (AACC, 2019).

The VFA was developed by 60 community college leaders with support from the Lumina Foundation and the Bill and Melinda Gates Foundation. The VFA development was driven by several guiding principles including the ability to provide both formative and summative data (data for continuous improvement as well as data for institutional effectiveness measures), as well as reporting information that addresses federal, state, public, and student needs (AACC, 2019). The metrics of the VFA were created to be as inclusive as possible of the diverse student body served by community colleges, full-time, part-time, credential-seeking, adult basic education, and workforce-focused (AACC, 2019). The measures were designed to allow leaders to disaggregate relevant data and review subpopulations' performance, for purposes of continuous improvement. The goal of the VFA is to provide community colleges with an accurate depiction of their effectiveness in achieving positive outcomes for their stakeholders (AACC, 2019).

Ashford (2017) notes the key differences between the VFA and IPEDS: beyond IPEDS data collection, the VFA includes data on subpopulations, transfer-in student credentials, full- or part-time status changes, and compares two-year institutions only with other two-year institutions. The data examples provided by the VFA summary report include six-year metric outcomes, recognizing that not all students enter community college intending to receive a credential or transfer, descriptions and examples of leading indicator metrics, achievement gap analysis, and the relationship between leading indicators and student achievement (AACC, 2019). Whissemore (2012) highlights one important goal related to the VFA, that community colleges will be empowered to address public misconceptions and enabled to accurately assess

and report on student progress, noncredit workforce programs, and implementation of CTE initiatives. However, it is important to note that for all of the improved reporting that the VFA encompasses related to community college effectiveness metrics, it does not include the non-credential-seeking student population.

THE GR METRIC: CONCERNS

The GR metric is problematic as a ranking or evaluative measurement of institutional effectiveness for two primary reasons:

- an institution's degree completion rate is primarily a reflection of its entering student characteristics, and
- differences among institutions in their degree completion rates are primarily attributable to differences among their student bodies at the time of entry (Astin, 2006, p. 7).

These findings were based on a longitudinal study of 56,818 first-year entering students attending full-time, across 262 baccalaureate degree granting institutions (Astin & Oseguera, 2005). These are compelling findings that demonstrate that the powerful attribution of student characteristics (academic preparation family background, socio-economic status, etc.) to be included when measuring institutional effectiveness (i.e., avoiding the assumption that an institution with high graduation attainment rates means the institution is doing exceptional work with students and, conversely, an institution with low graduation rates infers the institution is "doing something wrong" or "to blame for poor outcomes"). Although this study was completed across four-year institutions, the findings provide important information regarding the limitations of the GR metric and reflect a greater exacerbation of concern when community colleges are considered. Therefore, it is clear that a standalone cross-institutional, let alone cross-sector metric, does not capture the intricacies of measuring institutional effectiveness (Astin, 2006; Clotfelter et al., 2013).

All community college students are *not* included in the institutional effectiveness metrics no matter which accountability system we review, IPEDS, VFA, or other. Although the VFA addresses concerns regarding the limited population included in the GR metric, it does not factor in entering student characteristics, and it does not address the broader non-credential-seeking student population at community colleges. As Bahr (2010, 2011) notes, community colleges have recognized students that attend community college for purposes other than achieving a credential. This population includes students that are working and taking one or more classes for purposes of professional or personal growth. Bahr (2013a) terms this population the "drop-in" student population and defines them as:

> a student who enrolls in a handful of courses over a short period of time, completes these courses successfully at a rate that approaches 100%, and then departs from the system, nearly always without a credential and without transferring to a four-year institution. By and large, these students report that they are enrolling for reasons of personal development or to acquire, maintain, or advance employment skills or licenses; few report that they are seeking a credential (p. 434).

Bahr found this pattern of attendance to be the most common pattern among first-time students in the California community college system (2013a). Through further study of the drop-in student population (later termed "skills builders"), Bahr (2019) found the population to employ a strategic, purposeful, and coherent pattern of course taking, as opposed to a common misperception that these are randomly chosen courses.

Complex and intricate issues arise when attempting to categorize and measure the achievements of this drop-in/non-credential-seeking student population: students may not accurately respond to questions of intent for fear of losing financial aid eligibility; students may be considered as credential-seeking because of accumulated credits, when in fact they are not; students who are credential-seeking may be categorized as drop-in because of a slow accumulation of credits; and not "counting" students until a set number of credits have been

accumulated may mask the students who were credential-seeking, but dropped out (Ewell, 2011). Colorado Mountain College (CMC) attempted to capture student intention during the Spring 2015 semester. In their work, CMC embedded questions on the admissions application that all (credential and non-credential seeking) students were asked to answer (but not required) (CMC Institutional Research Director, personal communication, June 3, 2022). However, CMC did preliminary analysis on data from the 1,015 students who responded, analyzing the self-selected reasons for attending by gender and race (CMC Institutional Research Director, personal communication, June 3, 2022). After this one-semester pilot, the institution moved to collecting data only if a student is credential seeking or non-credential seeking due to the complexity of capturing information combined with other pressing institutional needs (CMC Institutional Research Director, personal communication, June 3, 2022).

As apparent, community colleges are faced with a difficult proposition of outcomes measurement due to their high numbers of part-time students, various intentions for attendance, and the systematic barriers to expressing true intent. Accountability metrics currently do not provide incentive for understanding the student intent or purpose for attending a community college outside of earning a degree or transferring to a four-year institution (Bahr, 2013a), and therefore stymies meaningful outcome measurements. For example, students who attend a community college simply to pick up one or two courses to assist their success at a different postsecondary institution are not considered successes for the community college in the metrics, even if the student successfully completes the intended course(s), and even if the student successfully completes at another institution, again creating a gap of information for decision makers. It is important to measure this student population and their true intent to accurately understand if they are being served well and, if not, how to serve them better. Institutional

leaders also need to accurately identify this student population and separate this population of students from the traditional completion metrics if leaders are going to create an accurate portrait and understanding of how community colleges are performing, what the credential completion numbers truly are (based on students intending to receive a credential), and how to plan strategically to meet community and workforce needs.

STATEMENT OF THE PROBLEM

It has long been recognized that community colleges serve incredibly diverse student populations including age, first time in college, socioeconomic status, race/ethnicity, full-time/part-time, and varying purposes for attending community college. As has been noted, the standard metric of institutional effectiveness and student success is assessed in a single, standardized metric—the GR. The GR survey components include:

- Number of students entering the institution as full-time, first-time degree or certificate-seeking students in a particular year (cohort), by race/ethnicity and gender
- Number of students completing their program within a time period equal to one and a half times (150%) the normal period of time, by race/ethnicity, gender, and Pell status
- Number of students who transferred to other institutions. (NCES, n.d)

However, as previously discussed, this single metric excludes a large proportion of community college students and therefore lacks richness in capturing impact, comprehensive institutional effectiveness, and a full understanding of student success. One student population that has not been captured in these metrics are the non-program/non-credential-seeking students, or drop-in students (Bahr, 2010).

PROFILE OF THE STUDY LOCATION

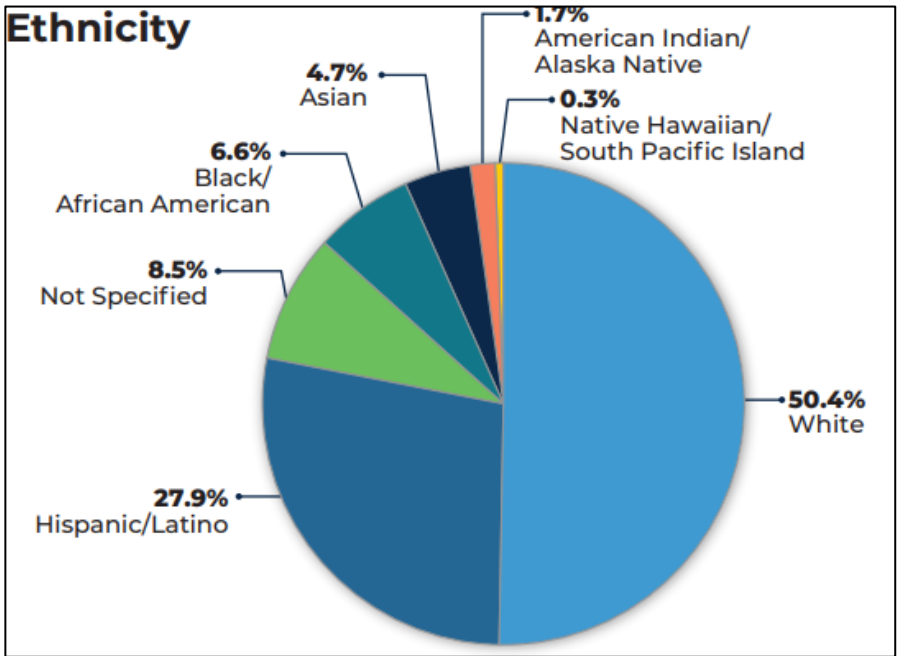
Rio Salada College serves approximately 38,000 students annually through multiple modalities with ten locations spread across the greater Maricopa County in Arizona. RSC was created in 1978 as the "college without walls," with the sole purpose to expand education to students who had previously been denied higher education access as a result of systematic barriers. RSC has always been laser-focused on how to reach students by removing barriers; setting aside traditional educational modes to find ways to make education accessible, affordable, and achievable; and has long recognized that education is critical to combatting systemic racism, promoting economic mobility, and empowering individual agency. RSC's student populations include local and national online students, in-person and correspondence incarcerated students, on-location courses for students in industry, adult basic education and English as a second language students, and military and veteran students at a variety of locations.

RSC offers 130 programs of study, 28 associate in applied science degrees, 80 certificates of completion, 10 academic certificates, nine associate in arts degrees, three Arizona general education diplomas, and over 40 transfer partnerships with clearly articulated pathways to successful credit transfer (RSC internal data, 2021). The students RSC serves are a diverse population in terms of demographics and programs of study: over 23,000 students access RSC via online learning, over 7,000 students are attending through dual enrollment, over 3,000 students are attending for GED or English language learning, over 2,000 are attending classes through their employer, and over 1,000 are attending via incarceration. Thirty-seven thousand students attend annually in both credit and non-credit learning.

Of the student population, 42% are 20–29 years of age (27% are younger than 19), 60% of students are female and 38.5% are male (1.5% unknown), 45% are first generation students, 41% are minority students (with 8.5% unspecified and 50% Caucasian), and 70% are 20 years or

older (RSC Fact Sheet, 2021). A majority of RSC's students are attending to fulfill needs or interests other than credentialing (RSC, 2021), with 90% attending part-time, and 27% seeking credentials (degree/certificate) (RSC Fact Sheet, 2021). The following chart depicts the ethnic demography of the student population (RSC Fact Sheet, 2021):

Figure 1. Ethnic Demography of the RSC Student Population



Tuition costs $85 per credit hour and the College offers 48 start dates throughout the year (RSC website, 2022). It is also important to note that RSC never cancels an online class due to the innovative faculty pay structure (RSC, personal communication, 2022). According to EMSI (2019), RSC added $872.3 million in income to the Maricopa County economy in the 2016–17 academic year, which is equivalent to 10,904 jobs (EMSI, 2019). For every dollar a student spends to attend RSC (including time equated to lost income), his or her average rate of return is 14.5%. For every dollar taxpayers spend to support RSC, their annual rate of return is 17.6% over the course of students' working lives, and the community benefits from an additional $36.2

million in public and private sector savings due to citizens contributing to the economy rather than needing public services such as food stamp supports, housing supports, etc. (EMSI, 2019).

Of the student population RSC serves, 73% is defined as drop-in students. This means that national institutional effectiveness metrics are, at optimum, only considering 27% of the student population at the College. Therefore, it is imperative that the College expand its metrics beyond GR so that it can measure its actual student population's success for purposes of serving its students with targeted approaches that meet their goals and to more accurately measuring institutional effectiveness and institutional impact.

GOALS OF THE RSC METRICS

This challenge led to defining the first research question, "How should RSC measure its non-credential seeking, drop-in, student population?" The product in this dissertation offers the process that RSC created and implemented to capture student intent and measure the completion of that intention, a new completion metric other than the standard GR metric used by a majority of two-year institutions across the country.

The components of this innovative measurement include a mechanism to capture why students are enrolling, their intent for what they want to accomplish at the College in terms of number of courses sought, a tracking system to measure if each student completed what they set out to do with the college, and dashboards that provide the College's decision-making community access to this student population's completion rate. The mechanism chosen to capture student intent was a survey implemented within the learning management system (LMS). The students receiving the survey all had enrolled as non-credential-seeking students (they had not chosen a degree or certificate program) and therefore the survey would not have any effect on financial aid considerations. Embedding the survey in the LMS was chosen over embedding it

in the application process, as the application process is already cumbersome and difficult for students and, as always, the goal has been to support student success and reduce any unintended consequences such as making the process for enrollment longer or more challenging.

However, it is noteworthy that the current application process includes a question about why the student is enrolling and gives each student one of seven choices. The responses allow the institution to establish high level categories but do not provide concrete information that is trackable in terms of measuring student completion of their stated goal with the college. The seven categories listed on the admissions application include (1) Courses for University, (2) Dual or Concurrent Course, (3) Enhance Job Skills, (4) Multiple MCCD Enrollment, (5) Non-Degree Seeking, (6) Transfer to Bachelors, or (7) Undecided. Because no definitions are included, there is ample potential for student confusion regarding what each category means, and there is no further information collected that would empower an institution to track the student progress toward their goal (i.e., how many credits does the student intend to transfer so that a college could measure if the student completed those, or how many courses to enhance job skills, so an institution can measure if the student completed successfully or not). Leaders at RSC also believe there may be motivational factors, such as federal aid applications and calendaring interests, that would cause a student to not answer the survey accurately at the time of application.

DEVELOPING THE RSC METRICS

RSC established a cross-functional team through their strategic plan work to determine the parameters for the Student Intent Survey. The cross-functional team deeply discussed the pros and cons of where in the student enrollment journey to capture the information and how best to frame the question(s) to gather accurate feedback from students. The survey was embedded in

the LMS only for students who did not declare a program/credential seeking pathway, which equates to roughly 8,000 RSC students in online learning. To keep the process simple, this new survey was designed to be only one question that students are required to answer prior to being given access their class(es) within the LMS. The decision to enact a one-question survey was made so as not to discourage students from accessing and beginning their coursework, but rather to capture the student's intention while minimizing barriers and the potential for giving up before even starting his or her coursework.

RSC utilized coders to attach a tag to each student based on his or her responses to the survey in the Student Information System (SIS). With the tag in place, RSC's institutional researchers are able to run reports each semester on students' intentions. This information is then compiled into a dashboard for college-wide monitoring of student completion that includes all of RSC's student populations: degree-seeking, certificate-seeking, and non-credential seeking, or drop-in students. In addition to using this data to monitor comprehensive student completion, RSC leaders use this data to inform the work of individual departments in increasing student success and completion. Capturing student intention and measuring completion of that intention ensures the College is serving *all* students and being accountable to delivering on its multiple missions including serving the community.

Concurrent to implementing this survey, tracking, and reporting, RSC implemented the Four Disciplines of Execution (4DX) framework. The 4DX framework provides the structure for a plan-do-check-act cycle with shorter term goals that require teams to establish lead measures that ultimately impact the lag measure of student completion. Together, all of these items provide a comprehensive approach to measuring the drop-in student population. It is important to note that RSC is just in the beginning stages of this work. The first two iterations of this process are

provided in Chapter Four, and RSC's plans for future iterations along with the author's suggestions for future research questions and the replicability of this work are laid out in Chapter Five.

RESEARCH QUESTIONS

Following are the three research questions that guided the work of this product dissertation and the development of the RSC Metrics model:

1. How can community colleges measure non-credential-seeking student completion?
2. What is the significance of measuring non-credential-seeking student completion?
3. How does including non-credential-seeking student completion impact institutional effectiveness metrics and decision-making?

LIMITATIONS, DELIMITATIONS, AND ASSUMPTIONS OF THE RSC METRICS MODEL

LIMITATIONS

The limitations of the model include the following:

Status Declaration

Some students will declare to be program-seeking when they are really a drop-in student, for purposes of obtaining financial aid to assist with paying for the number of courses they need to complete at the College. Students that declare to be program-seeking would not be considered in this measurement and would be considered as a non-completer within their credentialed program, even though they had no intention of completing that credential. While this product dissertation presents work that greatly increases capturing student intention, there remains a gap (and when replicated the potential for a significant gap depending on the institution's student population) due to the nature of financial aid requirements.

RSC Calendar

RSC has a unique calendaring system, the block calendar, that empowers weekly start dates and Title IV financial aid access. The block calendar allows a student to enroll on any Monday within a two-month period, and then complete their course within an allotted sixteen weeks from that student's individual start date — that is the block of time they have to complete, and they are not able to start a next set of courses until that block is over. The purpose of the block calendar is for meeting the attendance taking requirements for Title IV funding. The limitation this causes is that some students will choose not to declare their program of study (the credential they are seeking) because they do not want to adhere to the block calendar that is requisite for program seekers to adhere to at RSC — even if they are actually a credential seeking student — therefore becoming mis-aligned in terms of tracking intention to completion.

DELIMITATIONS AND ASSUMPTIONS

The delimitations and assumptions inherent in this model are the following:

1. The data captured is for RSC online students.
2. The survey that captures the metrics was developed to be a one-question survey in order to reduce potential barriers; this structure, however, significantly limits the information collected.
3. Because the data is collected at only one point in time, students may change their intention or goals while they are in courses, and this initial study does not capture that change in intention.

DEFINITIONS

The following definitions are used for purposes of this product dissertation:

Institutional effectiveness refers to the processes higher education institutions implement to plan, measure, assess, and monitor for improvement of programs and processes that support the realization of the college's mission and vision.

Institutional effectiveness metrics are defined as the measurements used to assess success of colleges. The common metrics used to assess effectiveness have been the traditional

graduation rate and *transfer to a four-year institution rate*. According to a survey conducted by Dougherty, Hare, and Natow (2009), nine out of ten states surveyed used only those two metrics in state performance reporting systems for community colleges.

Community college students are defined as any individual who enrolls to participate in coursework of any kind through a community college.

Drop-in student refers to the student population that attends community college for reasons other than obtaining any type of credential. According to Bahr (2013a) a drop-in student is one who enrolls "in a handful of courses over a short period of time, completes these courses successfully at a rate that approaches 100%, and then departs from the system, nearly always without a credential and without transferring to a four-year institution" (p. 434).

Non-credential seeking student refers to the same population characteristics of students as the drop-in student population defined above. The two terms are used interchangeably throughout the dissertation.

Supplemental student is the term that RSC has historically used to describe the drop-in or non-credential-seeking student population. Supplemental student is used in some of the figures throughout the dissertation because that has been the historical institutional language to describe this student population. However, RSC has shared that it is interested in using a different term to describe this student population.

The 4 Disciplines of Execution® (FranklinCovey, n.d.): refers to a framework designed by FranklinCovey to implement strategic execution to create high performing organizations with demonstrable outcomes. The four disciplines consist of focus, leverage, engagement, and accountability (FranklinCovey, n.d.). Discipline one refers to the determination to focus on one or two wildly important outcomes. Discipline two is the practice of identifying lead measures to focus on and measure, and discipline three is creating score cards to track and report on the lead measure. Discipline four is the practice of creating a cadence of accountability (FranklinCovey, n.d.).

Lead measure: "Lead measures track the critical activities that drive or lead to the lag measure. They predict the success of the lag measure and are influenced directly by the team" (FranklinCovey, Discipline 2, n.d.).

Lag measure: "Lag measures track the success of your wildly important goal. They are things like revenue, profit, quality, and customer satisfaction. They are called lags because by the time you see them, the performance that drove them has already passed" (FranklinCovey, Discipline 2, n.d.).

CHAPTER SUMMARY

Chapter One introduced a brief history around institutional effectiveness metrics, provided an overview of the common data analytics framework used federally, IPEDS, and

introduced the concerns regarding the system and the use of the GR metric as the predominant single measure of institutional effectiveness. Chapter One also introduced the statement of the problem and three research questions that led to the product contained within this product dissertation. Chapter Two provides a comprehensive literature review associated with institutional effectiveness metrics and the GR metric as well as work related to measuring the drop-in student population. Chapter Three describes the process that was used to construct this new institutional effectiveness metric. Chapter Four provides the survey that was implemented, the tools that were used for tracking, the data management tool, and the 4DX assessment cycles that this data informs. Chapter Five discusses areas for continued research and a concluding summary.

CHAPTER TWO: LITERATURE REVIEW

INTRODUCTION: MEASURING SUCCESS

In 2019, two-year institutions served 5.6 million students, of which 37% attended full-time, while four-year institutions served 11 million students, of which 74% attended full-time (NCES, n.d.). Community colleges have served a very diverse student population with multiple missions including workforce development, short-term training, personal development, transfer to a four-year institution, serving traditionally underserved populations, providing community education, and serving as local economic generators (Cohen & Brawer, 2003). According to Marcotte et al. (2005), using the National Education Longitudinal Survey (NELS), the economic benefits of attending community college consistently showed that students who enrolled and completed coursework and those that earned an associate degree had substantially higher earnings than their peers who did not engage with education post high school. Cunha and Miller (2014) discuss the challenges of measuring higher education as it relates to the added value to a student and explore the use of commonly available institutional data. In their review, Cunha and Miller (2014) noted the increase of governmental agencies across the United States (and other countries) using or considering using performance metrics (quantitative measures) to target funding and the lack of research to guide development of optimal policy. The authors discuss the standard quantitative measures used for determining value-add (and often linked to PBF) as GR, persistence rates, and post-college earnings, but note that these measures are only observed once

(persistence and graduation) or are post-enrollment and therefore limit research design (Cunha & Miller, 2014).

Ewell (2011) overviews the growing community college interest, concern, and movements related to accountability and institutional effectiveness dating to 1986. Ewell (2011) notes the variety of stakeholders and their associated interests in community college accountability measures, including states, federal government, accreditors, local/regional communities, employers, press and third-party agencies. He outlines some of the challenges facing community colleges as they work to meet the multiple accountability demands, and he recognizes the multiple missions of community colleges as well as the challenges of defining which students are included in traditional metrics (Ewell, 2011).

As community college institutional effectiveness is considered, Wang (2004) highlights one important tenet of the multi-missions of community colleges regarding service to the local community through community education programs. The students that attend community education programs through a community college are not seeking a degree or certificate and usually have short-term goals and attend part-time (Cohen & Brawer, 2003). This is an additional population that is not considered in current quantitative performance metrics. Additionally, Ladd and Loeb (2019) provide an interesting discussion regarding the complexities of measuring school quality. Although their focus is on public K-12 education, they explain the interconnection of values with determining markers of quality in education and the common proxies used to measure as determinants of quality, as well as the interconnection of resources and measurable outcomes (Ladd & Loeb, 2019). Although not directly related to the discussion of postsecondary institutional effectiveness metrics, their work is insightful in understanding the deeply complex issues associated with measuring quality and the validity of recognizing

imprecision in single measures while understanding the value add of different metrics/markers of quality.

Community colleges traditionally had operated with formal accountability being managed through governing boards to state legislatures, local voters, and the community, and relied more upon inputs than outputs (Dellow & Romano, 2002; Harbour & Day, 2009). However, in the 1980s, accountability for community colleges shifted as state legislatures began implementing new accountability measures concerning institutional performance — performance-reporting, performance-budgeting, and performance-funding initiatives (Harbour &Day, 2009). In the early 2000s, the accountability movement continued to grow with more policymakers interested in tying funding to institutional outcomes, greater public scrutiny of outcomes, and greater competition for state funds normally allocated to community colleges (Bailey, et al., 2005). In their work on the community college institutional accountability environment, Harbour and Day (2009), discuss the potential ethical dilemmas that institutions face in managing implementation of their mission while balancing performance-based accountability programs (i.e., open access mission contrasted with increasing completion metrics). Harbour and Day (2009), citing prior research, note that when mandated accountability measures are connected to funding, there is the risk that these measures may become a de facto mission of a community college.

HISTORY OF INSTITUTIONAL EFFECTIVENESS METRICS

Measuring the effectiveness of institutions of higher education has been of integral importance to setting performance standards, continuous improvement practices, effectively communicating the benefits of higher education, responding to PBF, and increasingly competing with market-driven consumerism. The United States Department of Education was established in

1867 for the purposes of collecting and disseminating statistics and information regarding the "condition and progress of education" (Aliyeva et al., 2018). The federal collection of higher education data regarding enrollment, degree completion and faculty began in 1869 (Aliyeva et al., 2018). The NCES was established in 1974 with the official responsibility to collect and disseminate education data and subsequently, in 1986, IPEDS was implemented with completion of the first survey of higher education institutions, the Institutional Characteristics survey (Aliyeva, et al., 2018). Several other surveys were developed and implemented throughout the 1980s and 1990s, and IPEDS quickly became the primary source of national education statistics.

The Student Right-to-Know and Campus Security Act of 1990 (P.L. 101-542) resulted in the GR component being added to the IPEDS survey in 1997, with a 1999 supplement form added that allowed institutions to report GR data up to the 150% program length time. In 2008, the Higher Education Opportunity Act led to the 200% GR data collection (Aliyeva, et al., 2018). Additional legislative items that contribute to the current state of accountability metrics for community colleges include the HEA Amendments of 1992 (P.L. 102-325) that mandated IPEDS reporting as part of Title IV funding, leading to virtually universal reporting of graduation rates (Horn et al., 2019) as well as the 1998 amendments to the HEA (P.L. 105-244) which addressed better communication resources so that the public would have easier access to this data (Aliyeva, et al., 2018; Miller & Shedd, 2019).

Towards the end of the 20th century, the interplay between government and education continued to shift, with higher education increasingly being recognized as an integral part to state economic strategies and to the national economic investment in a thriving, technology enabled, high skilled society (Alexander, 2000). This growing recognition of the economic need for a more educated citizenry led to increased scrutiny of using traditional input-based metrics as

opposed to output based funding metrics (Alexander, 2000; Barnett & Bjarnason, 1999; Ewell & Jones, 1994). As the need for education massification was recognized, so was the battle for funding decisions waged, leading to the age of the accountability movement in higher education; the development of evaluative tools to measure institutional effectiveness and productivity of colleges and universities that provide comparability between institutions, or performance-based accountability (Alexander, 2000). According to The Economist (1997), massification is "the biggest single change in higher education over the past two decades. Before long, it will become a normal expectation of every student in rich countries to have access to some form of postsecondary education" (p. 5). This accountability movement was intensified by the increasingly constrained state budgetary environments where other demands on state resources, such as health care and corrections, led to reductions in community college funding in many states (Kane et al., 2003).

As described by Miller and Shedd (2019), the historical collection of IPEDS data was related to providing descriptive information for policymakers (primarily) regarding the state and performance of postsecondary education. However, the authors noted that the last couple of decades has seen a shift to making that data available to researchers and then to make it both available and consumable by families, students, and parents, to be able to compare institutions (Miller & Shedd, 2019). Institutional researchers have used the data extensively, largely in performing peer institution comparisons and benchmarking analyses, while families have found greater access to the IPEDS data through systems such as College Navigator, a website that allows students and families to search for colleges based on the NCES IPEDS information (Miller & Shedd, 2019).

LIMITATIONS OF IPEDS GR METRIC

Historically, as measured by the federal government through the IPEDS, the GR has been a flawed institutional effectiveness metric for community colleges for several reasons: it does not track part-time students, the majority of the community college attending student population; it does not account for the large community college student population that attends for purpose of transferring credits to four-year colleges; the 150% measurement time does not adequately account for completion time for students that are balancing work, families, and school; and it does not adjust for the socioeconomic factors that impact student completion across higher education sectors (Clotfelter, et al., 2013). Upon review of the IPEDS graduation data, the Michigan Center for Student Success found that the IPEDS data shows approximately a 15% success rate for Michigan community college students as compared to a 52% success rate when the definition of students counted is broadened to include part-time, transfer, and a six-year time period (Boerner, 2015). As noted by AACC Policy Analysis Director, Christopher Mullin (2012), the Department of Education's congressionally mandated CMSS found, "Although federal graduation rates provide important and comparable data across institutional sectors, limitations in the data understate the success of students enrolled at two-year institutions and can be misleading to the public" (p. 5).

It is worth noting the work of the Advisory Committee on Student Financial Assistance (ACSFA) (2013) that found significant inequity in measures of college performance when raw measures of college performance, graduation rates, and measures of academic performance are not adjusted to reflect factors such as differences in institutional mission, student characteristics, and other constraints beyond the college's control. Of relevance to this product dissertation is the finding of potentially penalizing institutions who serve large numbers of low-income students when funding in the Pell and campus-based programs is linked to the raw measures of college

performance, primarily the GR as measured by IPEDS (ACSFA, 2013). Although the colleges included within this study were nonprofit four-year public and private colleges, the findings are insightful for community college effectiveness considerations (ACSFA, 2013):

- Using raw output measures, such as rates of graduation or student academic progress, in the awarding or allocation of Title IV student aid will harm low-income students and the colleges that serve them.
- To prevent such harm, output measures must be adjusted to adequately reflect differences in inputs, in particular, college mission, student characteristics, resources, and factors beyond colleges' control (p. 3).

Miller (2014) noted that "although graduation data are available from numerous sources, the parameters used to define graduation cohorts are not applicable to the majority of institutions with an adult student majority" (p. 146).

Bailey and Xu (2012) provide a comprehensive overview of the literature related to measuring and comparing institutional effectiveness, followed by arguments regarding methods for adjusting raw graduation rates according to institutional and student characteristics. Regarding graduation rates, Bailey and Xu (2012) found that the single graduation metric as the measure of effectiveness may result in flawed conclusions for the following reasons: an institution may increase GR without addressing underlying institutional performance, the IPEDS graduation data may present a distorted image of college performance, there is value to an accumulation of college credits without degree completion (Shulock & Jenkins, 2011, as cited by Bailey & Xu, 2012), and there is concern throughout the literature regarding the multiple missions of higher education institutions and therefore the graduation metric as a singular performance indicator may be inappropriate (e.g., Archibald & Feldman, 2008; Bolt & Roberts, 1997; Kelchen & Harris, 2011; Lavin & Hyllagard, 1996; Muffo, 1996, as cited by Bailey & Xu, 2012).

Dellow and Romano (2002) provide a review of the first-time, full-time student cohort-based metric for a community college within the State University of New York System (SUNY) and the limitations of defining outcome metrics by that cohort of students for community colleges. In their study, they found that the first-time, full-time cohort missed approximately two-thirds of the completers at the community college and therefore demonstrated an incomplete metric that SUNY was proposing to use as part of a PBF model (Dellow & Romano, 2002). The authors noted that research studies that use the IPEDS database will continue to reflect a distorted picture of the community college (Dellow &Romano, 2002, p. 52).

Bailey et al. (2005) noted an important limitation to the IPEDS Student-Right-to-Know GR data collection finding that up to 40% of first-time community college students attended more than one institution over the six-year period studied. This study corroborates the community college advocates' concern that the IPEDS GR metric leaves out many students and does not account for the students that complete at another institution — the students are registered as a non-completer at their initial institution, even though they were a successful completer elsewhere (Bailey et al., 2005). Bailey et al. (2005) also researched the effectiveness of the IPEDS transfer rate metric, as it was commonly thought that the transfer rate would account for the students completing at a different institution. In their study, the authors compared the IPEDS transfer rate data with student data pulled from the Beginning Postsecondary Students Longitudinal Study and found a significant difference.

In their report for the National Student Clearinghouse, Shapiro, et al. (2016) confirm Bailey et al. (2005) findings regarding the impact on completion rates when the individual student journey is considered across institutions, rather than at a singular institution only. The IPEDS system reports by institution and the National Student Clearinghouse reviews student data

across institutions. In the report on the 2010 cohort, at the six-year mark, Shapiro, et al. (2016) found that one-fourth of exclusively full-time students that began in a two-year institution completed at a different institution and therefore are not included in the IPEDS graduation rates for the initial institution.

Ewell (2011) sites four issues with the IPEDS Graduation Rate Survey (GRS): many community college students have prior postsecondary education experience; many students attend less than full-time (which has now been addressed within the GRS); due to the part-time attendance pattern of community college students, the 200% completion time may be too short for accurate capture; and students may complete a credential at another institution. As basis for their work, Moosai et al. (2011), cited the work of Adelman (1999, 2004) that suggests graduation rates may not be "the most effective method for comparing institutions or measuring performance" because of multiple factors related to the diversity of mission and diversity of student base community colleges serve (student preparation, student mobility, prior earned credits, developmental education enrollment) (p. 805). In the findings of their research regarding a GR ratio (expected to actual), Moosai et al. (2011) suggest that policymakers should look beyond the one-dimensional GR when determining institutional performance, citing significant literature regarding variable institutional factors including a distinctly diverse student population and multidimensional data sources.

THE GR METRIC AND PERFORMANCE BASED FUNDING

As of 2020, 41 states have implemented a performance-based funding (PBF) policy that ties some part of postsecondary funding to institutional outcomes, inclusive of the GR as the most common performance outcomes metric (Ortegus et al., 2020). PBF policies began in 1979 when the state of Tennessee adopted the first PBF policy that linked a percentage of state

allocation to performance outcomes. The first wave of PBF policies came in the 1990s, and the second wave happened in the late 2000s (Ortegus et al., 2020). The way in which PBF policies are constructed and implemented have been shown to cause unintended consequences resulting in potential increased inequalities and have not been shown to improve student outcomes (Hillman et al., 2015; Ortegus et al., 2020; Umbricht et al., 2017). Umbricht et al. (2017) found that performance funding can create "real, unintended consequences" that may restrict admissions requirements and limit access for minority and low-income students (p. 667).

The inherent risk with PBF policies is that any misattribution of poor performance will be at best, unfair to the funding of the college, and at worst, debilitating to already under-funded colleges (Horn et al., 2019). As performance incentives continue to be implemented, it is incumbent on community colleges to educate legislative leaders on the multiple missions and diverse populations that are served by community colleges, and metrics are needed that accurately reflect the performance of community colleges. Underlying the conceptual framework of PBF is the primary assumption that increasing completion rates will only be accomplished by directing attention to them through performance incentives (Horn et al., 2019; Humphreys, 2012). In the larger context of incomplete performance metrics being used to define and measure institutional success, accurate effectiveness data points and data disaggregation become fundamentally important to the work of community colleges.

COMMUNITY COLLEGE INSTITUTIONAL EFFECTIVENESS ALTERNATIVE MEASURES AND METRICS

As stated in Chapter One, the student population included in the IPEDS GR data collection was defined and standardized as first-time, full-time, fall-entering, degree-seeking students, a metric that is reflective of a four-year institution student population (Kelly &

Whitfield, 2014). According to Clotfelter et al. (2013) community colleges present a level of complexity in their multiple missions that makes measuring effectiveness challenging. Community colleges serve a significantly more diverse student population with a much broader set and types of educational programs that include short-term training programs, adult education, degrees, certificates, high school equivalency, and transfer credits (Clotfelter, et al., 2013). Within this construct, Clotfelter et al. (2013) researched the possibility for constructing "meaningful measures of the overall effectiveness of community colleges" and found that similar to the standard GR metric, any unadjusted measures that do not take account of students' pre-college preparation (preparation, aptitude, and resources) could result in "quite misleading" results (p. 820).

Bailey et al. (2006) recognized the limitations of the standard IPEDS GR metric and developed an adjusted metric to account for the majority of community college student populations. The model developed by Bailey et al. (2006) adjusted the raw graduation rates for characteristics such as student composition, college resources, size, and location by "applying a weighted least-squares procedure for grouped data to estimate an institutional-completion rates model" (p. 1). Similarly, also due to the limitations of the IPEDS GR metric parameters as the standard for evaluating community colleges, Achieving the Dream (ATD) (2008) led the development of alternative performance measures. Six state systems — Connecticut, Florida, North Carolina, Ohio, Texas, and Virginia — participated in testing the new measures that included a largely expanded population of students to include part-time students, transfer (as an outcome) students, and expanding the timeframe for graduation or transfer from three years to six years (ATD, 2008). Through this expanded methodology, some states found success rates for students beginning full-time nearly doubling and tripling for part-time students. Those results

were not consistent across all pilot systems and in some states found lower rates of graduation success when correlated with part-time student status (ATD, 2008). However, the expanded studies only included degree and certificate seeking students and did not include the large population of students who attend for reasons other than degree or certificate completion (non-degree seeking/drop-in student population) (ATD, 2008; Bailey et al., 2006).

In recognition of the different student base that community colleges serve, the AACC developed an alternative data collection methodology for capturing the GR of community college students with greater inclusion and accuracy. The VFA was established by AACC in 2012 to address the large numbers of students that are not included as part of the IPEDS data reporting (AACC, 2019). The VFA is designed to be the primary accountability framework for community colleges; one that encompasses the diverse student body of community colleges, the equally diverse goals and desired educational experiences of the students, and the multifaceted scope of the community college mission (AACC, 2019). The VFA was developed in response to several pressing factors: the growing demands for greater public accountability, the 2006 Spellings' Commission on the Future of Higher Education, the undertaking of four-year institutions to voluntarily develop common accountability measures, the imperative to educate the public more effectively as to the role and impact of community colleges, and the enduring collective aspiration of community college leaders to improve student success (AACC, 2019).

The VFA was developed by 60 community college leaders with support from the Lumina Foundation and the Bill and Melinda Gates Foundation. The VFA development was driven by several guiding principles including, the ability to provide both formative and summative data (data for continuous improvement and data for institutional effectiveness measures) as well as reporting information that addresses federal, state, public, and student needs (AACC, 2019). The

metrics of the VFA were created to be as inclusive as possible of the diverse student body served by community colleges: full-time, part-time, credential-seeking, adult basic education, and workforce-focused. The measures were designed to allow leaders to disaggregate relevant data and review subpopulations' performance, for purposes of continuous improvement. The goal of the VFA is to provide community colleges with an accurate depiction of their effectiveness in achieving positive outcomes for their stakeholders (AACC, 2019). The VFA does not include measures on the non-credential-seeking student population.

Ashford (2017) notes the key differences between the VFA and IPEDS: beyond IPEDS data collection, the VFA includes data on subpopulations, transfer-in student credentials, full- or part-time status changes, and compares two-year institutions only with other two-year institutions. The data examples provided by the VFA summary report include six-year metric outcomes, recognizing that not all students enter community college intending to receive a credential or transfer within the 150% timeframe, descriptions and examples of leading indicator metrics, achievement gap analysis, and the relationship between leading indicators and student achievement (AACC, 2019). Whissemore (2012) highlights an important goal related to the VFA, that community colleges will be empowered to address public misconceptions and enabled to accurately assess and report on student progress, noncredit workforce programs, and implementation of CTE initiatives. However, at the time of writing this dissertation, IPEDS remains the only national standard for institutional effectiveness metrics.

According to Miller (2014), the continued discourse related to degree completion has gained greater prominence due to the federal government's focus on graduation metrics as well as multiple states tying funding to performance metrics. Miller (2014) notes that several national education organizations have recognized that the success of nontraditional students is a key

element to postsecondary institutions accomplishing higher graduation rates, which led to his review and comparison of three data systems to better understand the lack of benchmarking data available for nontraditional students.

Horn and Lee (2016) investigated the reliability and validity of estimating the difference between an actual and predicted GR as a potential alternative for measuring institutional effectiveness in relation to degree completion. In their study, the authors note that given the prominence of the GR use in accountability systems, it is unlikely that relevant dimensions of institutional effectiveness are being adequately assessed (Horn & Lee, 2016, p. 470). Although the study was conducted using four-year institutions, Horn and Lee (2016) found measuring effectiveness as the difference between the actual and predicted completion rate among four-year institutions hold a fairly high level of reliability and validity.

Dougherty et al. (2009) deliver a comprehensive review of community college institutional effectiveness metrics, what was used in 10 states, comparison to IPEDS data, and make recommendations for a more comprehensive data collection system (this report was created to inform the development of the VFA). Of notice, in their findings, the authors note multiple times the lack of "student learning" as a key institutional effectiveness metric (Dougherty, et al., 2009). Related to this observation, Alfred et al. (2007) recommend core indicators for measuring institutional effectiveness that link directly to assessing student learning: Core Indicator 6 Program Learning Outcomes and Mastery of Discipline; Core Indicator 7 Demonstration of General Education Competencies. Alfred et al. (2007) discuss how community colleges can define the core indicators of institutional effectiveness, implement measurements, and effectively communicate effectiveness measurements.

NON-CREDENTIAL SEEKING STUDENT POPULATION

Dellow and Romano (2002) identified the credit bearing but non-credential-seeking student population in their review of Adelman's (1999) work. They noted that Adelman excluded students that completed less than a semester's worth of credits, which is in juxtaposition to the work of Bahr (2010) in which he identified this student population as a significant portion of entering community college students across the California Community College system. Dellow and Romano (2002) went on to describe this non-credential-seeking student population as having diverse motivations for taking credit courses. In describing their study, the authors note that 15.8% of the student headcount were students not matriculated for a degree (non-credential seeking) and that although it was not appropriate to include this population in their study, they note that these students "should be included in a more comprehensive analysis of institutional effectiveness" (Dellow & Romano, 2002, p. 49).

Bahr (2010, 2011, 2013a, & 2013b) provides a substantial review of the literature related to community college performance accountability measures. He overviews the concerns regarding the GRS as the prominent measure of institutional effectiveness for community colleges (Bailey et al., 2005; Bailey & Xu, 2012; Clotfelter et al., 2013; Dellow & Romano, 2002; Ewell, 2011; Shapiro et al., 2016) and shares research regarding the establishment of a community college student typology and building on that to propose a community college classification structure (Bahr, 2010, 2011, 2013a, & 2013b). Bahr makes the argument that to measure institutional effectiveness, understanding the patterns and how students are using the community college is fundamentally important to designing meaningful and appropriate measures of institutional effectiveness (2010, 2011, 2013a, & 2013b).

In his work on developing a student typology, Bahr (2010, 2011) identified six major clusters of first-time community college students that he described using the following labels:

drop-in, experimental, noncredit, vocational, transfer, and exploratory (p. 34). The drop-in student cluster reflects the non-credential-seeking student population [Note: for purposes of this dissertation, the author is including only the definitions of drop-in and experimental students, as identified by Bahr (2011): Drop-in students, on average, remain in the system for one or two semesters, enroll in about two courses total, but complete these courses at a high rate (95%). Experimental students remain in the system for a short period of time but enroll in heavier course loads (approximately half-time load) and complete these courses at a low rate (23%).]

In 2012, Bahr and Booth (2012) released a report regarding Bahr's (2010, 2011) student typology in which he originally determined the student cluster drop-in students as those taking an average of two courses over two years, in which Bahr and Booth (2012), based on further analysis that showed this student population to be strategic and coherent in the course-taking patterns identified this population as skills builders. In their work, Bahr and Booth (2012) used a retrospective view of student data, from the eight-year longitudinal typology study (Bahr 2010, 2011) to perform several data analytics including identifying student intent/goal, duration of enrollment, academic success (as determined by course success rates), demographics, academic discipline, and labor market success (as determined by pre- and post-enrollment earnings). The authors argue that limiting the definition of student success to GR excludes a substantial population (approximately one-third of all new students across the California community college system) who are succeeding with accomplishing their goal as demonstrated by improving their standard of living by completing community college courses without earning a degree or certificate (Bahr & Booth, 2012). The authors shared compelling data to support their case. For example, they found that skills-builder students who completed three credits saw an average 7%

quarterly earnings gain and a jump to 29% after 12 credits in the water and wastewater technology coursework (Bahr & Booth, 2012).

In his work, *Classifying Community Colleges Based on Students' Patterns of Use*, Bahr (2013a) discusses his research study and findings related to students' patterns of community college use conducted across 105 California Community Colleges (Bahr 2010, 2011). He determined five classifications for community colleges and investigates the dominant influencing factors for the classifications — institution policy and practice or local community interest and need — as well as determining to what extent these patterns correlate with observed institutional performance (Bahr, 2013a). His conclusion notes that the patterns of use are associated with several measures of institutional performance and suggests that continued study of the patterns related to classifications of student use and institutional classifications will further the work towards creating equitable and productive systems of performance accountability (Bahr, 2013a).

Bahr (2013b) discusses the importance of a deconstructive approach to community college student research to unearth *how* students are progressing through a community college and then recommends further qualitative research to understand *why* community college students are making the choices and actions that they do. In this particular study, Bahr (2013b) notes that in the research and discussion concerning student degree attainment and institutional performance, there is a significant lack of "cogency concerning the innumerable ways in which students use open-access institutions, and the ways in which students' patterns of use interact with institutional policies and practices to influence the outcomes that they experience" (p. 138). He also summarized the lack of information regarding student behaviors from college entry to college exit (Bahr, 2013b).

Booth (2014) summarized the work completed by Bahr and Booth (2012), emphasizes the need to expand performance metrics, and then adds recommendations for actions that could be undertaken by policymakers, college leaders, and career and technical education (CTE) directors and faculty. The recommendations include (1) policymakers expanding community college success metrics by looking at employment, earning, and third-party certifications separate from completion, as well as improving data access between governmental licensing entities, community colleges, and interstate sharing of earnings; (2) college leaders expanding community college success metrics by including a broader array of student outcomes (including employment, earnings, third-party certifications) and setting policies for skills builder (drop-in) students regarding assessment, educational planning, and course repeatability; and (3) CTE faculty and directors studying the skills-builder student population movement through the college to create insight and understanding to drive goal setting, program development, and appropriate advising, and assess programs on more comprehensive metrics (Booth, 2014).

Bahr (2019) expanded on earlier research regarding labor market returns to a community college education, particularly focusing on the labor market returns for students who do not complete a credential. Bahr (2019) provided a comprehensive overview of prior research, citing numerous studies that confirm the foundational work of Kane and Rouse (1995) regarding equivalent returns on a community college education without earning the associate degree (credits dependent), and describing the drop-in student population he identified (Bahr, 2010, 2011) and subsequently termed “skills builders” (Bahr & Booth, 2012). The study found that the percentage of return per credit (X% return on Y credits) is positive and often times strong in CTE, especially when linked to less credential-intensive labor market fields (i.e., business, management, engineering) (Bahr, 2019). Bahr (2019) closed his study summary by noting that

"communicating the successes that cannot be measured by counting credentials or transfers has become an increasingly important aspect of institutional and system efforts to manage relationships with communities served, with policymakers, and with other stakeholders" (p. 239).

SUMMARY

Chapter Two provided a review of literature associated with institutional effectiveness metrics, with a focus on reviewing the common national standard for evaluation, the GR. The chapter reviews a brief history of institutional effectiveness metrics, the evolution of IPEDS, the alternative framework developed by AACC, the concerns with the single GR metric, attempts at developing input-adjusted metrics, and then closed with a review of research targeted at understanding the student population herein referred to as the non-credential seeking (drop-in, skills-builder) student population.

The literature supports that a need exists for community colleges to have expanded measures of institutional effectiveness that are better matched to their multiple missions of access, equity, and workforce development and serving a very diverse student population with very diverse reasons for attending community college. The literature review shared results from distinctive longitudinal studies that identified critical patterns among the non-credential-seeking student population. An important distinction between the studies presented in the literature and the work shared in this product dissertation is the ability to capture student intention/goal and track to completion in real time, providing actionable information to institutions. Chapter Three of this product dissertation outlines the conceptual framework and structure for a new institutional effectiveness metric implemented at a community college in Tempe, Arizona.

CHAPTER THREE: DEVELOPMENT OF THE MODEL

INTRODUCTION

This dissertation was designed as a product dissertation, which is defined as a dissertation that addresses a specific and significant need in community colleges by providing a distinct solution (Ferris State University, n.d.a). Ferris State University (n.d.a) notes that a product dissertation is grounded in research and data and predicated on the author's experience and expertise. The methodology of a product dissertation is differentiated from a quantitative or qualitative dissertation by the content contained in Chapters Three and Four. Chapter Three of a product dissertation addresses the process the author followed in developing the product inclusive of either the organizing principles or the structure of the program that was developed (Ferris State University. n.d.b). Chapter Four presents the actual product, the solution that the author developed.

In the case of this product dissertation, Chapter Three provides an overview of the design, structure, processes, and purpose of the product developed. The product dissertation contained herein presents a solution that addresses a gap in the research and institutional effectiveness metrics concerning non-credential-seeking students. Historically, the non-credential-seeking student population has been given little attention in terms of measuring student intention, patterns of attendance, and measurements of completion. The non-credential-seeking student population has not been factored into institutional effectiveness metrics and has long been assumed to be a small part of the community college student body, attending without distinct

purpose. However, more recent research (Bahr, 2010, 2011, 2012, 2013a, 2013b, & 2019) demonstrate that this population of students is a potentially large and has intentional and coherent course taking patterns.

This product dissertation was designed to address the following three research questions:

1. How can community colleges measure non-credential-seeking student completion?
2. What is the significance of measuring non-credential-seeking student completion?
3. How does including non-credential-seeking student completion impact institutional effectiveness metrics and decision-making?

As described throughout Chapter Two of this dissertation, the current standard institutional effectiveness metric most commonly reviewed for purposes of evaluating institutional effectiveness, funding considerations, and rankings is the Graduation Metric (GR) as defined by IPEDS. The limitations of this metric were explored in Chapter Two as well as alternative institutional effectiveness data measures and systems such as the VFA system and the ATD model (AACC, 2019; ATD, 2008). The literature review demonstrated common findings regarding the significant limitations of the traditional IPEDS Graduation Metric, which does not include the majority of community college students — part-time students, returning students, spring, summer- or post-fall census date entering students, and non-credential-seeking students — excluding all from the traditional IPEDS measures. The literature review also demonstrated considerable work across the community college higher education sector to study expanded measurements for community college effectiveness. The CCRC, AACC, ATD, and numerous researchers have studied adjusted metrics to reflect and include the full community college student population more accurately. However, throughout the research studies conducted and the measurements and systems piloted, the non-credential-seeking student population continues to be excluded from college effectiveness metrics.

As noted by Bahr (2013a) the non-credential-seeking student population or drop-in student population is defined as:

> a student who enrolls in a handful of courses over a short period of time, completes these courses successfully at a rate that approaches 100%, and then departs from the system, nearly always without a credential and without transferring to a four-year institution. (p. 434)

This student population identifies a variety of reasons for attending from personal interest, professional development for their job, or to transfer credits to a different institution. Bahr (2013a) found this pattern of attendance to be the most common pattern among first-time students in the California Community College system. This is the largest population of students attending RSC in Tempe, Arizona. RSC currently serves close to 37,000 students and approximately 73% of these students are attending for a reason other than earning a credential. Given this large percentage of students at RSC, the deficiency of not including them in institutional effectiveness metrics is the issue that this dissertation addresses.

CONTEXT FOR THE RSC METRICS MODEL

NON-CREDENTIAL SEEKING STUDENTS

RSC was founded in 1978 as a "college without walls" to serve underserved student populations by making education accessible through traditional and non-traditional approaches. RSC began offering college courses in the community (in churches, storefronts, community centers, etc.) and quickly became a leader in distance education, evolving from video tape instruction, correspondence, and television, to being one of the early colleges to deliver online education in the 1990s. This dedication to continuous innovation and continuous improvement for student access and success became a hallmark of the institution and propelled the College forward to serve all students, regardless of intent. The College focused on providing access in

delivery mode, in disability accessibility, and in flexibility that allows students to begin class on 48 Mondays throughout a calendar year and complete on their individual schedule (choose the length of time they will complete the course).

The history of the College has led to an institution that prides itself on being part of a student's journey, regardless of the path the student is on. Many students who come to RSC are taking between one to three courses for purposes of transferring credits and completing a credential at a home institution. This is becoming a point of pride for the College — helping students complete their degree or credential wherever they are studying as a home institution. It is an integrally important role the College has because of the incredible flexibility that allows a student who may withdraw part way through a semester to be able to complete their requisite course and continue on their path. For example, RSC has students who discover, during their final semester of a degree program, that they are missing a course and will not be able to graduate at their home institution — and potentially accept the job they have been offered — if they cannot complete their degree requirements. RSC fills that gap by providing the flexibility for the student to enroll in the needed class on the following Monday and choose a shorter semester option than a traditional institution. While this option is integral to that student's completion, it does not show up on any measures of institutional effectiveness or any measure of the GR for RSC. Likewise, a student who needs two classes in order to receive a promotion at work may attend RSC, successfully complete the two courses, receive the promotion, and, again, not be captured in any current measures of completion, graduation, or institutional effectiveness. While RSC serves a large population of similar non-credential-seeking students, all community colleges serve this same population; therefore, establishing a way to measure this population is important not only for RSC, but for community colleges across the country.

Capturing Intent

Understanding why a student is attending the college and what they hope to accomplish while attending is imperative in understanding how colleges are serving this large student demographic. Without capturing the student intent for the number of classes they intend to complete, it is not possible to measure if that student successfully met their intent. Once colleges create and validate a system for capturing student intention and the associated tracking mechanisms, they will be empowered to understand this student population, disaggregate data about this population to improve services and supports, and discuss this student population from a data-informed perspective, better understanding how the community college is impacting the community than is currently captured in the current graduation metric. Finally, PBF is currently not connected to this student population, regardless of how large the population is, and therefore reenforces the importance of being able to discuss the outcomes related to this population as more states implement some type of PBF equation. A funding system that does not include this student population could be financially devastating to institutions that serve a large non-credential-seeking student population. Decreased funding due to such a system could result in lack of funds to support this important population and hinder institutions from realizing their multiple missions within a community.

Supplementing the GR Metric

Given the historical development of the GR metric as a reflection of a traditional four-year institution population (majority full-time, fall-entering, degree-seeking), the underrepresentation of community college students in the metric, the interplay of the GR metric with funding decisions, and the inability to include the drop-in student population that is the majority of students served by RSC, the need to consider how to measure institutional

effectiveness in terms of this demographic becomes evident. The value of measuring the drop-in student population is three-fold: understanding the success of this student population will impact institutional strategy in terms of resource allocation, intentionality, and student supports; understanding the goals, needs, and successes of this student population will empower community colleges to more effectively tell their story of service and impact, which, in turn, impacts funding decisions that enable the institution to better serve students and the community; and recognizing the needs and goals of this population empowers the institution to better support student success of all students.

The work described in this chapter and presented in Chapter Four of this dissertation addresses the initial work being completed by RSC to address this gap in measuring institutional effectiveness and student success. Following is an overview of the journey that led to RSC developing this product, and a description of how the work to measure student intention to completion was designed, structured, and the implementation processes. This chapter will then share the methodology for developing each of the six distinct elements that make up the product.

THE RSC JOURNEY

EARLY DATA COLLECTION EFFORTS

RSC has historically noted the non-credential student population data as a challenge in terms of data review and communication. The non-credential-seeking student population has long been discussed at the institution in terms of how to manage within the college's data architecture, collection schemes, and institutional effectiveness metrics. The institution has recognized this important population of students but was not intentional in finding a way to manage data around the student population or intentionally serving them beyond standard enrollment services and standard student services.

As an example of early considerations about this population, the College surveyed students across general education courses in 2011. According to the 2011 General Education Program Review Report, a pre-test survey was administered at the beginning of multiple general education courses and as a follow-up at the end of the general education course. A majority of the pre-test respondents (N= 584, 55.41%) indicated their primary reason for taking a general education course was to transfer the credits to another university or college. Over one quarter of the respondents (N= 286, 27.13%) indicated they were taking a general education course because it was a degree requirement at RSC. Ninety-five respondents (9.01%) indicated they were simply taking a general education course for their own personal interest. In terms of their goals, the majority of the post-test survey respondents (85.80%) agreed their goal was met.

Table 1: What is Your Primary Reason for Taking this General Education Class?

	N	PERCENT
Blank	17	1.61
Certificate requirement at Rio	20	1.90
Degree requirement at Rio	286	27.13
Job-related	52	4.93
Personal interest	95	9.01
Transfer to another college or university	584	55.41
Total	1054	100

Source: RSC, 2011

Table 2: Considering Your Primary Reason for Taking this General Education Class, Did You Meet Your Goal?

	N	PERCENT
Blank	2	1.18
No	22	13.02

	N	PERCENT
Yes	145	85.80
Total	169	100.00

Source: RSC General Education Program Review Report, 2011

In 2017, the general education program review highlighted the large population of RSC students who were attending RSC and taking general education classes for reasons other than obtaining a credential at RSC:

> Current data indicate that only approximately 26% of students are seeking degrees and certificates from Rio. The rest are enrolled in courses for career advancement, personal development, transfer credits, or non-credit classes. The goal of the vast majority of the students taking General Education courses is not to complete their entire program at the College. Rather, the goal is to successfully complete one or more Gen Ed courses to enhance their skills or supplement programs in which they are enrolled at other institutions. Thus, successful course completion can be used as a measure of whether or not the students' goals are being accomplished. The chart below includes the percentage of students retained* and successfully retained** in the courses selected for this review. (RSC, 2017)

Table 3: Percentage of Students Retain Versus Successfully Retained Students

FISCAL YEAR	PERCENTAGE OF STUDENTS RETAINED *	PERCENTAGE OF SUCCESSFULLY RETAINED STUDENTS **
2011-12	92	68
2012-13	94	73
2013-14	95	77
2014-15	95	78
2015-16	95	79
TOTALS	94	75

Notes:
*Retained = students earned a grade other than a W or Y
**Successfully retained = students earned an A, B, C, or P
Source: RSC, 2017

Although these two examples are directly tied to general education assessment, it demonstrates the culture of assessment at RSC and a recognition of, and interest in, the non-credential seeking population.

CAPTURING STUDENT INTENT

More intentional and focused discussion around measuring the success of the non-credential-seeking student population began in earnest in 2018. Determining how to structure the work of capturing student intent in terms of number of courses (as the first iteration of this work) took over a year. Sub-groups of faculty and staff from across the institution met to discuss the best way to capture student intent without creating additional barriers to student enrollment and participation. For context, RSC is one of ten independently accredited colleges within the Maricopa County Community College District (MCCCD). As a result of being part of the MCCCD, RSC must use a standard application for enrollment that is used across the system. The admissions application asks students to select one of the following seven categories listed under "supplemental intent": Courses for University, Dual or Concurrent Course, Enhance Job Skills, Multiple MCCD Enrollment, Non-Degree Seeking, Transfer to Bachelors, or Undecided. Through student focus group feedback, students shared that the categories are not clear for expressing their reason for attending RSC. For example, one student shared the choice of taking a public speaking course that, although it would assist them with their job, their main intent was personal interest. The category of "Enhance Job Skills" did not seem to be a good fit for their reason. There was also confusion between "Courses for University" and "Transfer to Bachelors."

Recognizing that these questions were already present on the admissions application, and the fact that the application was already deemed significantly cumbersome in its current state, the discussion focused on identifying another point in the enrollment process where it would make

sense to collect data on student intent while causing the least disruption. After much debate, it was determined to structure the information gathering as a one-question survey within the LMS that students would be required to answer before accessing their first class. After the structure for the survey was determined, the work of disaggregating the student data began so that the survey could be administered only to the non-credential-seeking student population — excluding students in special programs such as Dual Enrollment or Educational Service Partnerships (ESP). Both of those programs provide non-credential pathways but are supported with dedicated staff and tracked for completion and intervention. Academic program codes that aligned with the non-credential-seeking student population, exclusive of said programs, were determined and programmed to receive the Student Intent Survey within the LMS.

It was also decided that the survey would only be administered once, at the beginning of the students' first semester. The reasoning was, again, to not disrupt or cause barriers to subsequent access to coursework. However, the limitation of that structure was that, if a student changes their intent, that change would not be captured. The institution chose to move forward with this approach for the first iteration of the work to learn more about the student population before deciding on subsequent iterations which might adjust the timing and frequency of the survey administration. It was also deemed important to ask students to validate their choice on the admissions application as to why they were attending RSC. This validation was combined with the one question regarding number of classes the student planned to complete at RSC.

The combination of both points of data allows for analysis not only of completion and completion disaggregated by demographics, but also analyses of completion by category of reason for attending. Finally, the last piece of structure developed to capitalize on the data being collected was the implementation of the 4DX framework and the development of an RSC-

specific website to facilitate the implementation of the 4DX framework and the plan-do-check-act cycle of assessment. These elements provided the college with the mechanisms to make use of the data being collected from the non-credential-seeking students to improve services and increase completion of student intention.

THE RSC METRICS MODEL STRUCTURE

The product conveyed in Chapter Four of this dissertation depicts the steps RSC has implemented in creating a new institutional effectiveness metric: capturing the intention of the drop-in student population, measuring the completion of that intention, and using that data as part of a plan-do-check-act assessment cycle to improve institutional performance. This product shares the first iteration of developing this metric that will eventually empower institutions to understand their impact with all student populations; more effectively demonstrate institutional impact and outcomes; include in funding conversations and formulas; and provide better supports to this student demographic, which represents the largest and most common pattern of attendance among first-time students in the California Community College system (Bahr, 2013a).

The structure of creating this new effectiveness metric is shared through six elements: the functional specifications outlined for the first survey attempt to collect the data on drop-in student intent; the functional specifications for the second iteration of the survey implemented; the dashboard used to track and display the drop-in student population completion as part of the college strategic plan goals; an overview of the data captured; the dashboard created to share the data used to track and learn through this process; and the RSC 4DX website and tracking that was created to support the plan-do-check-act cycle inherent in executing the 4DX methodology that this data informs. Each element includes an explanation and discussion of the element. As a

reminder, this is the beginning of creating a new metric, and Chapter Five will outline future steps for RSC as well as future research to solidify this metric as an integral part of institutional evaluation and more accurate communication of the effectiveness of community colleges.

ELEMENT I – PHASE I FUNCTIONAL SPECIFICATIONS

The Phase I Functional Specifications were developed to provide a clear roadmap for how to create and implement a tool that would result in understanding the non-credential seeking/drop-in student population, creating the ability to serve the population with intentionality, and measure the completion rate for this population. The resulting specifications were the outcome of thoughtful conversations regarding how to capture student intent in the most effective way without creating unintentional barriers for student enrollment. There were concerns regarding the methodology to capture student intent: where and when in the enrollment process did it make sense to gather information from students; would this survey create repetition from the questions on the admissions application; and how to create a simple survey that would not take the student much time and would be completed honestly. After much deliberation and investigations, it was determined to create a short survey that would be embedded within the LMS. The survey was designed so that students were required to complete the survey before being admitted into their first course at RSC, and the LMS was chosen as the least obstructive location, least intrusive, and able to reach the most students most effectively.

The goal of these specifications was to confirm the validity of the admissions application survey categories for students' intent and to capture the number of classes students were intending to complete with the college. It was also determined not to include students in the ESP because of the nature of their enrollment (they are enrolled through their company and work in a closed program); incarcerated students were exempted from the survey because they do not have

access to technology and because of the nature of incarceration (and their potential move to different facilities during any given course); external partner students were excluded because of the nature of their enrollment being exclusively tied to their work (therefore ending up in this category would demonstrate that there was an error in our system of how they were categorized); and dual enrollment students were exempted from the survey because they do not access the RSC LMS and they take courses while in high school for college credits that will transfer (information the college already has access to). Dual Enrollment students complete their courses at their local high school and use the technologies and tools hosted by the high school, rather than the RSC LMS.

The Phase I Functional Specifications provided clarity to the college community and everyone who was designing the tool, implementing the tool, or mining the data resulting from implementation. The specifications intended that only students who had not selected a program of study (degree or certificate seeking) received the survey. The specifications that were used to administer the survey capture the academic codes in which the students are categorized, based on their application. These codes are, thus, for non-credential-seeking students only and therefore the survey was only administered to students within those codes. The specifications shared in Chapter Four also detail the design of the survey and how the survey was displayed through the LMS.

ELEMENT II – PHASE II FUNCTIONAL SPECIFICATIONS

Phase I specifications were used to implement the first iteration of the Student Intent Survey. After we had collected the data for the first cohort of students, it became apparent that the survey was not specific enough regarding the number of courses that a student intended to complete. The first iteration used a range of number of courses that a student intended to

complete (1–2, 3–4, etc.), which led to potential inaccuracies in measuring student completion. For example, if a student submitted that they intended to complete three to four courses, then following three semesters of successfully completing three courses, they could be counted as a successful completer of their intention/goal. However, if their actual intent was to complete four courses, and they completed three, but never completed the fourth course, they should be measured as a non-completer instead of a successful completer. Hence, the range of courses presented in the survey were quickly identified as being problematic for measuring accuracy.

The Phase II Functional Specifications demonstrate an important change that was made to the survey: students need to choose a single number of courses they intend to complete, rather than a range. This change allows for accurate measurement of student completion of their stated goal/intention. The functional specifications presented in Phase II share the codes for non-credential-seeking students (drop-in students) that made it possible to flag the drop-in student population and track their progress towards completing their stated intention/goal. The interchangeability of *intention* and *goal* reflects the institution's language of measuring student goal completion—to be inclusive of *all* student populations—whether that goal is a degree, a certificate, or a set number of courses.

Additionally, the Phase II specifications show the changes from the Phase I specifications: the first and third originally planned enhancements in Phase I specifications were removed. The first enhancement, also administering the survey to degree-seeking students, was removed because the risk of not making that enhancement was determined to be quite small. Although administering the survey to all degree-seeking students as well may be valuable in the longer term (as a means to address students who potentially declare a degree intent for purposes of accessing financial aid), the majority of RSC students do not access financial aid and therefore

this is a small risk; the greater risk was determined to lie in increasing barriers for students that have a clear path.

The third enhancement from the Phase I specifications, *Integration with proactive advisement and systems such as Civitas* was changed to *Integration with success coaches and/or advisors for follow-up on additional outcomes such as transfer intent*. This change was the result of the institution collecting and monitoring the drop-in student population. It became clear that RSC was lacking intentionality around serving this student population beyond enrollment and standard student supports linked to completing courses successfully. RSC recognized that it is only possible to serve this population with intentionality as a result of beginning to measure this student group as a measure of institutional effectiveness because the College had to first learn who this population was, why they were attending, and their success rates. With that information, the College was empowered to engage in thoughtful review of resources needed to support the non-credential-seeking students. As a result of Phase II, RSC reorganized human resources and restructured the support models for credential-seeking and non-credential-seeking students to better meet their needs and chose to move away from a third-party data analytics vendor.

The specifications also detail what is new in Phase II, which includes more student-friendly language to confirm student intent, as well as greater specificity in the number of classes students intend to take to create greater accuracy in measuring student completion. From the student perspective, the language on the admissions application often lacks clarity either because of the overlapping nature of the responses, or unfamiliarity with the terminology and language in the application. After Phase I, the institution recognized the importance of not replicating the same potential confusion and ambiguity and, therefore, condensed the categories to provide greater clarity and more user-friendly language.

ELEMENT III – DROP-IN STUDENT COMPLETION TRACKING DASHBOARDS

Measuring the completion rates of non-credential seeking, drop-in students is an important component of measuring institutional effectiveness. As Bahr (2013a) noted, the drop-in student population was the largest population of incoming students across the California Community College system. If community colleges are not measuring this student population, they risk missing a vital part of their student population. This drop-in student population is an important part of the community college story—how the community college serves the community. Supporting these learners with intentionality can only be accomplished if the College knows who this population is, creates a way to identify them in the Student Intent Survey, and creates report-out mechanisms that share and create understanding of their success. Therefore, the third element of the product developed were the dashboards created to display the completion-tracking information.

In addition to the critical purpose of this work being to serve students more effectively, this work is crucial to community colleges being able to communicate their effectiveness in more comprehensive ways, with data to support their claims. The value of community college has long been recognized within local communities, but with perennially low graduation rates and shrinking funding across states and federally, it is of paramount importance for community colleges to be able to tell the whole story—which includes how they successfully serve the non-credential-seeking student population. In support of this direction, RSC made a commitment in its strategic plan to increase goal attainment by 23% to capture intentionality in increasing completion rates for both credential seeking and non-credential-seeking students. The dashboards developed represent the institutional commitment to continuing to measure and improve on the standard graduation metric, as well as the commitment to measure the large drop-in student population that attends the college. The dashboards were chosen as the primary

mechanism to display the tracking and completion of all students so that all college employees would have ready access to the data, transparent communication and real time data access, and stay informed by the Student Intent Survey described in Element I and Element II and the related tracking of the drop-in student population. These dashboards also facilitate accountability for the college community in meeting the needs of this particular population that heretofore has not been assessed in terms of completion.

The first dashboard created displays the overall tracking of the College's first strategic goal to increase completion or goal attainment for both credential seeking and non-credential-seeking students. The graphs were designed to display the current yearly measurement for annual completion rate for both credential seeking and non-credential-seeking students, and the College's progress toward the increase goal for that year. The dashboards also state the completion goal for each year, needed to make the overall goal of 23% increase that will result in the ultimate goal for GR / completion rate for credential and non-credential-seeking students. This decision was made for purposes of transparency and making the data actionable in real time because these students enroll and complete weekly throughout the year.

The second graph constructed on the dashboard measures awards conferred (degrees and academic certificates) for the credential-seeking student population and displays the measure of the current year awards conferred against the current year goal. Important to note is the impact of the weekly enrollment model at RSC on designing and monitoring student data. Because of the weekly enrollment model, students complete throughout the academic year and an award may, then, be conferred at any point in the academic year. Because of this "rolling" award timing, the awards conferred is not a static metric and, therefore, it was important to have a dashboard that College employees can access at any point to monitor progress towards meeting the strategic

goal. The fluctuation in these numbers is illustrated by this example: at the time of dashboard capture in March 2022, 1,484 awards had been conferred, but as of the end of April 2022, 3,450 awards had been conferred.

The dashboard displays a third graph constructed for purposes of tracking the new institutional effectiveness metric presented in this product: tracking the completion of non-credential-seeking or drop-in students. The dashboard shows the measurement of student completion against the yearly goal. The yearly goals for the drop-in student population that will result in the overall accomplishment of the college's strategic goal to accomplish a 23% increase in student goal completion are displayed as well.

ELEMENT IV – OVERVIEW OF DATA COLLECTION

The fourth component of the product shares the data analyses used to inform discussions that ensued on creating support mechanisms for the drop-in student population. The data analyses shared in Element IV were used to engage key college-wide stakeholders to review the current process for measuring non-credential-seeking student completion rates and the initial findings. The power of this new institutional effectiveness metric is that it emboldens deeply informed institutional review and resource reorganization. As noted earlier in this chapter, the review and college-wide discussions that resulted from the sharing of this data led to the reorganization of resources within the College to create a success coach team dedicated strictly to the drop-in student population, also further discussed in Chapter Four.

The first data display in Element IV shows the data collected from the first two rounds of survey implementation and outcome tracking results. The data represents the non-credential-seeking student cohort outcomes categorized by term, size of cohort, percentage of students that reached or exceeded goal, and the amount of time it took students to complete. This data capture

was developed to provide key baseline information to college stakeholders in order to enhance our understanding of the population and how they were performing against their self-identified goals.

The second data display in Element IV shows a different analysis conducted on the data of the non-credential-seeking drop-in students who completed the Student Intent Survey (functional specifications described in Element I and Element II above). In this analysis the question from the admissions application regarding "Why are you attending?" was correlated to the completion success rate for the non-credential-seeking student population, based on the outcomes tracked from the Student Intent Survey. Within this analysis, student completion was categorized under "% Met Goals" and "% Exceeded Goals," cross-walked by the student's supplemental intent response they provided and validated through the Student Intent Survey. The "% Met Goals" column shows the percentage of students who chose that particular supplemental intent category and successfully completed their stated goal. The "% Exceeded Goals" is the percentage of the total student population that chose the designated supplemental intent category on the admissions application but took more courses than they stated was their intention in the Student Intent Survey.

The purpose of tracking this data and looking at potential correlations is to provide insight and potential validation, or not, of the admissions application categories. As this population of students has not previously been tracked or attended to beyond regular enrollment and classroom support, RSC chose to examine correlation of completion success across the admissions categories. The correlation allows the College to validate student intent and potentially measure impact in the future (for example, to track the students to successful completion at another institution, job promotion, etc.).

The third data display in Element IV presents two semesters' worth of tracking the non-credential-seeking student population for completion of their stated intention/goal by number of terms taken to complete and categorized by the supplemental intent categories on the admissions application. This analysis provides for longitudinal understanding of non-credential-seeking student completion rates.

The fourth data display in Element IV provides summary data of the longitudinal cohort tracking and shows that, in aggregate, 70.18% of non-credential-seeking students complete their intended goal within six months of enrollment, with decreasing numbers of students completing across 37 months. The data was then analyzed by which months had the largest number of students completing. Collecting this data was intended to provide additional, exploratory information about the student population and was designed to display as a heat map, with the areas in green showing the greatest number of completions, the areas in yellow showing smaller numbers, and the areas in orange and red showing the smallest number of completions respectively. This data display was selected to make the information quickly and easily understandable.

The last data display in Element IV provides further exploratory analysis of the non-credential-seeking drop-in student completion rates. In this analysis, data was sorted by the student choice of supplemental intent on the admissions application and cross-walked with age. This analysis focuses on the non-credential-seeking students who did *not* complete their goal/intention. The value of this analysis is to enhance our understanding and awareness of the overall cohort of non-credential-seeking students as well as to identify potential areas needing targeted supports and interventions.

ELEMENT V – DASHBOARD TO DISPLAY DATA TRACKING ON DROP-IN STUDENT POPULATION

As RSC began collecting and reviewing the data shared in Element IV of this product, it was decided to create a dashboard that could easily collate and display the data reports shared in Element IV in more user-centric and easily accessible ways. For context, RSC had spent the last three years working to develop a stronger data architecture. Following a data audit review, the College determined to invest in Power BI, an interactive business intelligence data visualization software product, as the tool for building more easily accessible data to meet the needs of employees and departments across the College. The College now has a robust dashboard system, a data steering team, and regular training and updates on accessing relevant data.

Element V show the first three dashboards created to display the information that was being mined from the non-credential-seeking student population data collection in a more accessible way than the charts described in Element IV. The first dashboard created in Element V provide a high-level overview of some basic descriptive information of the non-credential-seeking student population. The dashboard shows the average number of courses completed within two terms (semesters), the average number of courses by which students exceeded their goal, the likelihood of completion by gender and age, the total number of students surveyed, and the overall completion rate. As previously stated, this was the first iteration of the dashboards and, therefore, there are several changes still needed to share the information more effectively. For example, the dashboard does not show the range of years of the data collection process, and it does not clarify how the average age to goal completion was calculated nor how the older/younger average for completion was calculated. However, with those corrections made, the dashboard provides an easily navigable and quickly digestible view of the data regarding the successful (completers) non-credential-seeking student population. This data is helpful to the College in strategically aligning efforts and resources to support this student population.

The second dashbaord created within Element V presents aggregated data on students who were not successful in completing their goal. This dashboard uses a treemap to display the multiple reasons students did not complete their courses. The treemap visually displays the size of the population under each category, as well as the reason a student didn't complete. This dashboard also uses a circle graph to display the percentage of students who do not complete their intended goal. The display makes it quickly understandable for the College community. Finally, the dashboard presents two aggregate data highlights: unsuccessful students on average completed 1.87 classes fewer than intended, and the average age of non-completing students was two-and-a-half years older than the average age of students who completed their intended goal.

The third dashboard created in Element V shares term-over-term comparisons based on the admissions application categories since spring 2018 for three distinct data points: (1) completions by number of terms (semesters), (2) completions by gender, and (3) completions by age range. This dashboard provides a scrolling function within each of the three categories, so the reader can scroll through each term for comparisons. The dashboard also provides a total category that explains the aggregated percentages of completions under each category. Element VI of this product describes the framework the College adopted to make the data actionable towards setting and achieving goals that are informed by and tracked with the dashboard data.

ELEMENT VI – THE 4DX RSC WEBSITE

RSC leadership chose to adopt the 4DX framework to empower focus and achievement across the College as a result of setting three significant strategic goals in the College's 2020–24 Strategic Plan. In 2019, RSC undertook a comprehensive strategic planning process. One of the outcomes of the strategic planning process was establishing three strategic goals. Recognizing that the first goal was established as a lofty goal to ensure making significant progress towards

increasing student completion (increase completion of both credential-seeking and non-credential-seeking students by 23% by 2024), the College adopted the 4DX framework. The framework empowers short-term goal adoption and iteration based on data feedback. The work described in Elements I–V of this product dissertation were used to create the data feedback loop for RSC employees. The 4DX framework is how the College is actualizing the data feedback into actionable steps to increase student completion for non-credential seeking/drop-in students. Following are key definitions, as shared in Chapter One, to understand this element of the work that was done to measure, track and increase the completion rates for non-credential-seeking students.

- The 4DX (FranklinCovey, n.d.) refers to a framework designed by FranklinCovey to implement strategic execution to create high performing organizations with demonstrable outcomes.
- The four disciplines consist of focus, leverage, engagement, and accountability (FranklinCovey, n.d.). Discipline one refers to the determination to focus on one or two wildly important outcomes. Discipline two is the practice of identifying lead measures to focus on and measure, and discipline three is creating score cards to track and report on the lead measure. Discipline four is the practice of creating a cadence of accountability (FranklinCovey, n.d.).
- 4DX uses leading and lagging measures: "Lead measures track the critical activities that drive or lead to the lag measure. They predict the success of the lag measure and are influenced directly by the team" (FranklinCovey, Discipline 2, n.d.). "Lag measures track the success of your wildly important goal. They are things like revenue, profit, quality, and customer satisfaction. They are called lags because by the time you see them, the performance that drove them has already passed" (FranklinCovey, Discipline 2, n.d.).

Given 4DX's focus on setting one short-term goal at a time and then measuring, tracking, and reporting out on progress to the goal, the 4DX framework was determined to be an excellent model for the agile development of a new institutional effectiveness metric at RSC. The short-term focus on lead measures provides the institution with the ability to track numerous initiatives that are working to impact the overarching completion rates. The 4DX framework was chosen

because it also aligns with two long-standing working frameworks at the College: cycles of continuous improvement known as the plan-do-check-act cycle (which the 4DX model operationalizes) and the Quality Matters development framework. The 4DX framework also allows for dynamic feedback from the data collection described throughout Elements I–V, which empowers real-time interventions to increase student completion. The focus on short-term goals empowers movement and action to accomplishing increases in student completion rates. The new institutional effectiveness metric proposed within this product empowers institutions to inclusively support all students, and the tracking of this data empowers RSC to adjust and study impact and provide actionable feedback in real-time to increase student success.

The College invested in training and development of a strong support infrastructure through RSC's Employee Engagement Division to enact successful change management as the 4DX model was implemented. As noted in the RSC Strategic Plan,

> The president charged each department of the College to select one college-wide goal to focus on and utilize the Franklin Covey® 4DX framework to cascade the strategic goals to the departmental level for action planning. In order to facilitate this level of decentralized planning, the College invested in dedicated roles to support the implementation of the strategic goals. The Quality Assurance Manager worked with the Employee Engagement & Resource Center to develop a comprehensive training program and infrastructure whereby each team at the college had a designated Team Lead and a dedicated Coach. Team Leads were responsible for facilitating the identification of a team-level goal on prescribed timelines. Coaches were trained to provide consultation and expertise in writing SMART goals as well as provide quality assurance with the goals and metrics identified. Individual teams planned their goals and strategies in division retreats, department meetings, and facilitated sessions throughout Fall 2020 (RSC, n.d.b, p. 13).

Key to this implementation was the development of specific website for RSC's 4DX work and implementation. The Employee Engagement Office partnered with RSC's Quality Assurance Manager to create an in-house website (RSC 4DX website) that includes all training materials as well as established department goals and scorecards. The RSC 4DX website

provides around the clock access to requisite information related to implementing the 4DX model. Every employee at the College (as well as external visitors) has access to the materials, trainings, sample "Wildly Important Goals" (WIGs), every department's independently established goal and associated scorecard, and frequently asked questions. Access to this material, along with a dedicated Team Lead, proved critical to this process as it resulted in empowerment and understanding at the department and individual employee level. The website shares critical and comprehensive information to build college-wide competence with this framework.

SUMMARY

Chapter Three reviewed the importance of measuring the non-credential-seeking student population and then provided the reader with context related to RSC, and the purpose, design, structure, and processes of the product that will be shared in Chapter Four. The non-credential-seeking student population has historically received very little attention or intention from community colleges, and yet, is a significant population of students that community colleges serve. These students might be attending for purposes of personal interest, upskilling, reskilling, obtaining critical credits to transfer, or other reasons we might not have yet identified. The product contained within this dissertation provides a first step in changing the national dialogue to include the non-credential-seeking population as an important component of the work community colleges do and the impact they have on their greater communities. Chapter Four provides the reader with the critical elements that make up this product.

CHAPTER FOUR: THE PRODUCT

INTRODUCTION

The following pages share the model RSC developed to measure the completion rates of non-credential-seeking students, also referred to as drop-in students (Bahr, 2010, 2011). RSC is located in Tempe, Arizona, and serves close to 38,000 students annually (approximately 50,000 students pre-pandemic) with approximately 73% attending the college for reasons other than seeking a degree or certificate, known as non-credential-seeking or drop-in students. The current standard institutional effectiveness metrics are closely related to the standard IPEDS definitions of the Graduation (GR) metric, which is not inclusive of the non-credential-seeking, drop-in student population. As part of the journey to implementing a new metric for completion, it is important to understand the context regarding the development of the current GR as the primary institutional effectiveness metric.

CONTEXT

The federal collection of higher education data regarding enrollment, degree completion and faculty began in 1869 (Aliyeva et al., 2018). The NCES was established in 1974 with the official responsibility to collect and disseminate education data, and subsequently in 1986, IPEDS was implemented with completion of the first survey of higher education institutions, the Institutional Characteristics survey (Aliyeva, et al., 2018). Several other surveys were developed and implemented throughout the 1980s and 1990s, and IPEDS quickly became the primary source of national education statistics.

The Student Right-to-Know and Campus Security Act of 1990 resulted in the GR component being added to the IPEDS survey in 1997, with a 1999 Supplement form added that allowed institutions to report GR data up to the 150% program length time. In 2008, the Higher Education Opportunity Act led to the 200% GR data collection (Aliyeva, et al., 2018). Additional legislative items that contribute to the current state of accountability metrics for community colleges include the Higher Education Act Amendments of 1992 that mandated IPEDS reporting as part of Title IV funding, leading to virtually universal reporting of graduation rates (Horn et al., 2019) as well as the 1998 amendments to the HEA (P.L. 105-244) which addressed better communication resources so that the public would have easier access to this data (Aliyeva, et al., 2018).

IPEDS GR data collection was defined and standardized as first-time, full-time, fall-entering, degree-seeking students, a metric that is reflective of a four-year institution student population (Kelly & Whitfield, 2014). Community colleges serve a significantly more diverse student population with a much broader set and types of educational programs that include short-term training programs, adult education, degrees, certificates, high school equivalency, and transfer credits, and therefore present a level of complexity in their multiple missions that makes measuring effectiveness challenging (Clotfelter, et al., 2013).

Historically, as measured by the federal government through IPEDS, the GR has been a flawed institutional effectiveness metric for several reasons: it does not track part-time students, the majority of the community college attending student population; it does not account for the large community college student population that attends for purpose of transferring credits to four-year colleges; the 150% measurement time does not adequately account for completion time for students that are balancing work, families, and school; and it does not adjust for the

socioeconomic factors that impact student completion across higher education sectors (Clotfelter, et al., 2013). There is widespread recognition that the IPEDS GR metrics create an inaccurate and potential underestimation of community college institutional effectiveness. The limited student population that is included in the metrics, the inability to disaggregate data deeply, and the insufficiency of using four-year institution based metrics to measure two-year institutions that have significantly different and multi-faceted missions all contribute to the growing demand for more appropriate measures of institutional effectiveness for community colleges (Bahr, 2013a; Boerner, 2015; Fischer, 2006; Gellman-Danley, 2016; Joch, 2014; Merisotis & Shedd, 2003; and Whissemore, 2012). As noted by AACC Policy Analysis Director, Christopher Mullin (2012), the Department of Education's congressionally mandated CMSS found, "Although federal graduation rates provide important and comparable data across institutional sectors, limitations in the data understate the success of students enrolled at two-year institutions and can be misleading to the public" (p. 5).

Towards the end of the 20th century, the interplay between government and education continued to shift, with higher education increasingly being recognized as an integral part to state economic strategies and to the national economic investment in a thriving, technology enabled, high skilled society (Alexander, 2000). This growing recognition of the economic need for a more educated citizenry led to increased scrutiny of using traditional input-based metrics as opposed to output based funding metrics (Alexander, 2000; Barnett & Bjarnason, 1999; Ewell & Jones, 1994). As the need for education massification was recognized, so was the battle for funding decisions waged, leading to the age of the accountability movement in higher education; the development of evaluative tools to measure institutional effectiveness and productivity of colleges and universities that provide comparability between institutions, or performance-based

accountability (Alexander, 2000). This accountability movement was intensified by the increasingly constrained state budgetary environments where other demands on state resources, such as health care and corrections, led to reductions in community college funding in many states (Kane et al., 2003).

Given the historical development of the GR metric as a reflection of a traditional four-year institution population (majority full-time, fall-entering, degree-seeking), the underrepresentation of community college students in the metric, the interplay of the GR metric with funding decisions, and the inability to include the drop-in student population that is the majority of students served by RSC, the need to consider how to measure institutional effectiveness in terms of this demographic becomes evident. The value of measuring the drop-in student population is three-fold: understanding the success of this student population will impact institutional strategy in terms of resource allocation, intentionality, and student supports; understanding the goals, needs, and successes of this student population will empower community colleges to more effectively tell their story of service and impact, which, in turn, may impact funding decisions that enable the institution to better serve students and the community; and recognizing the needs and goals of this population empowers the institution to better support student success of all students.

PRODUCT OVERVIEW

The product conveyed here depicts the steps RSC implemented in creating a new institutional effectiveness metric: capturing the intention of the drop-in student population, measuring the completion of that intention, and using that data as part of a plan-do-check-act assessment cycle to improve institutional performance. This is the first iteration of developing this metric that will eventually empower institutions to understand their impact with all student

populations; more effectively demonstrate institutional impact and outcomes; include in funding conversations and formulas; and provide better supports to this student demographic, which represents the largest and most common pattern of attendance among first-time students in the California Community College system (Bahr, 2013a).

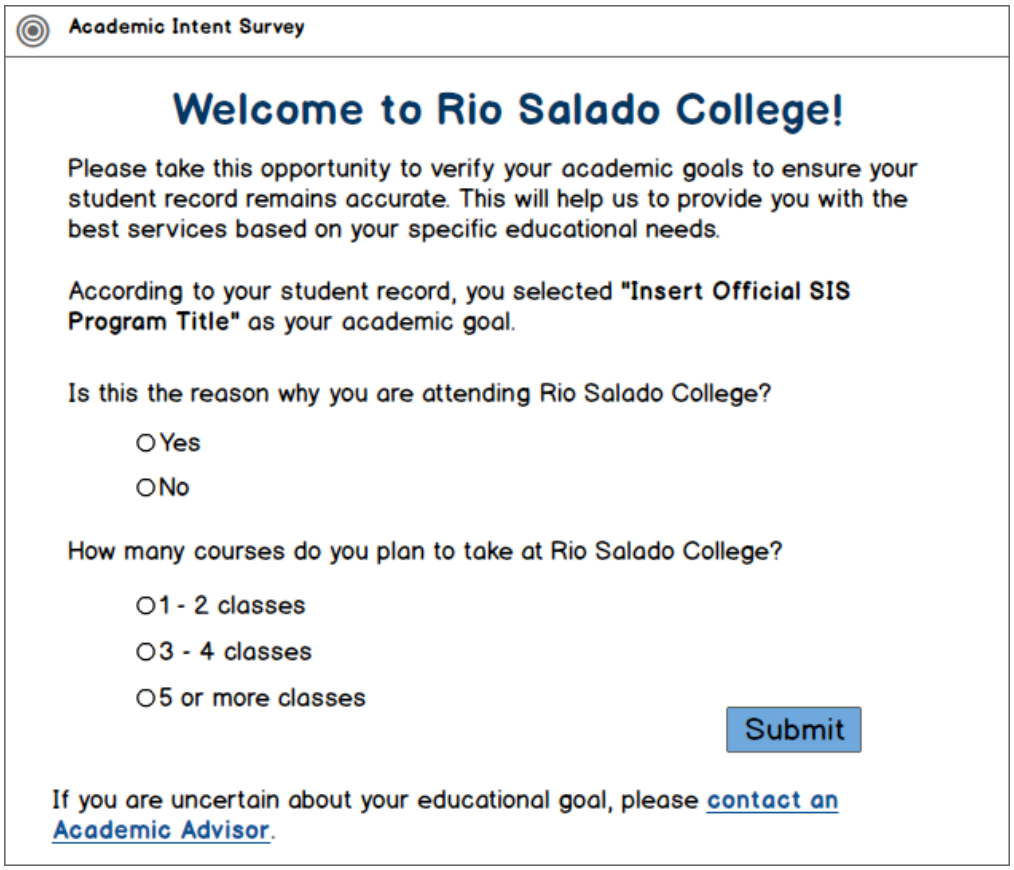
The depiction of creating this new effectiveness metric is captured in the following six elements: (1) the functional specifications outlined for the first survey attempt to collect the data on drop-in student intent; (2) the functional specifications for the second iteration of the survey implemented; (3) the dashboard used to track and display the non-credential-seeking, drop-in student population completion as part of the College's strategic plan goals; (4) an overview of the data captured; (5) the dashboard created to share out the data used to track and learn through this process; and (6) the RSC 4DX website and tracking that was created to support the plan-do-check-act cycle inherent in executing the 4DX methodology that this data informs. Each element includes an explanation and discussion of the element. As a reminder, this is the beginning of creating a new metric and Chapter Five will outline future steps for RSC as well as future research to solidify this metric as an integral part of accreditation and more accurate communication of the effectiveness of community colleges.

ELEMENT I – PHASE I FUNCTIONAL SPECIFICATIONS

The Phase I Functional Specifications were developed as a result of sustained interest in understanding the drop-in student population, creating the ability to serve the population with intentionality, and measure the completion rate for this population. The resulting specifications were the outcome of many cross-functional discussions and work by the director of Institutional Research, dean of Student Affairs, vice president of Academic Affairs, faculty leadership, Information Technology leadership, and representatives from Advisement and the Instructional

Helpdesk departments. The discussions sifted through the nuances of how to capture student intent in the most effective way without creating unintentional barriers for student enrollment. The team identified concerns regarding the proposed methodology to capture student intent such as, *Where and when in the enrollment process did it make sense to gather information from students? Would this survey create repetition from the questions on the admissions application?* and *How to create a simple survey that would not take the student much time and that students would answer honestly?* After much deliberation and investigation into capabilities, RSC decided to create a short survey that would be embedded within the LMS. The survey shown in Figure 2 was embedded in the LMS during Fall 2020 and designed so that students were required to complete the survey before being admitted into their first course at RSC.

Figure 2. Student Intent Survey Mockup



The survey was constructed to be as simple as possible so as not to be a barrier for students navigating to their coursework for the first time in the LMS. The specifications detailed that only those students who had *not* selected a program of study (degree or certificate seeking) received the survey. The College was able to identify students by utilizing academic codes within the SIS. When a student applies to RSC, the student chooses from the following categories: Courses for University, Dual or Concurrent Course, Enhance Job Skills, Multiple MCCD Enrollment, Non-Degree Seeking, Transfer to Bachelors, or Undecided. From that information, RSC could determine which students were non-credential seeking and therefore which students should receive the survey. It is important to note that the survey was only administered to students within the specific codes that aligned with being non-credential seeking. In the design, the RSC team detailed in the specifications how the survey was to be displayed and technically administered.

The goal of these specifications was to confirm the validity of the admissions application survey categories for students' intent and to capture the number of classes students were intending to complete with the College. The RSC team also determined that it was in the best interest of the validity of the survey to exclude four distinct student populations: ESP students, incarcerated students, external partner students, and dual enrollment students. ESP students were excluded because of the nature of their enrollment through their employer in a closed program with RSC. Incarcerated students were exempted from the survey because this student population did not have access to the technology needed for the survey and because of the potential for them to move to different facilities during any given course causing disruption in their studies. External partner students were excluded because of the nature of their enrollment being exclusively tied to their employment. Finally, dual enrollment students were exempted from the

survey because they were taking courses while in high school for college credits that will transfer, information the college already has access to, as well as they do not access the LMS because their coursework is fully at the high school and therefore uses the current high school systems and tools.

The functional specifications provided clarity to the College community and the team that was designing the survey tool, implementing the survey tool, and/or mining the data that resulted from its implementation. The specifications offered the College team a roadmap to ensure thoughtful and consistent implementation and ensured clear communication.

Student Intent Functional Specifications – Phase I

When a student signs into the LMS, RioLearn, for the first semester of coursework at RSC, he or she will be asked to validate academic intent. The Phase I version of the survey tool was offered only to non-program seekers. The question the College was seeking an answer for was simply: "What is the student's goal for taking classes at RSC?"

Future survey phases will include the following enhancements:

- Inclusion of degree-seeking student population
- Requirement to answer every term of enrollment
- Integration with proactive advisement and predictive analytic systems such as Civitas

These enhancements were identified for the following reasons: including the degree-seeking student population would help to identify students who declared a program of study for purposes of applying for financial aid but who are not actually degree seeking; it would also provide validation of the degree-seeking students' chosen pathway or provide opportunity for intervention to change their program of study. Requiring students to complete the survey would provide important data regarding changes in students' intentions and goals. Integration of this

information with advisement and predictive analytic systems would provide actionable information for advisors to both review student progress and provide support as well as to discuss opportunities for continuing with their education, depending on the individual student.

Student Population Specifications

The student population defines the non-program-seeking, or drop-in, student population. The academic plan codes represent a subset of students that are not credential-seeking students.

The steps for determining the specified users to present the survey to is:

- User has authenticated by logging in to RioLearn
- User has a "Student" role
- User is currently enrolled in course(s)
- Non-Program seeking students
    - Academic plan code in: 7112N, 7120N, 7900N, 7110, 7110N, 7111, 7111N, 7100, 7100N, 7152, 7152N, 7154, 7154N, 7150, 7150N, 7142, 7142N
- Exclude students in the following groups:
    - Educational Service Partnerships
    - Incarcerated
    - External partners
    - Dual Enrollment

Survey Design Specifications

- Display title bar with an icon and "Academic Intent Survey"
- Display heading: "Welcome to Rio Salado College!"
- Display text: "Please take this opportunity to verify your academic goals to ensure your student record remains accurate. This will help us to provide you with the best services based on your specific educational needs."
- Display text: "According to your student record, you selected "{Academic Intent Response}" as your academic goal."

    - Non-Program seeking academic intent responses from streamlined admissions application:
        - Current university students taking courses to meet university requirements
        - Take courses to transfer
        - Take courses for job skills
        - Take courses to apply to a degree/certificate at another Maricopa college
        - Personal interest
- Display text: “Is this the reason why you are attending Rio Salado College?”
    - Mark this question as required
- Display “Yes” and “No” radio buttons
- Display text: “How many courses do you plan to take at Rio Salado College?”
    - Mark this question as required
- Provide radio buttons with the following options:
    - “1–2 classes”
    - “3–4 classes”
    - “5 or more classes”
- Provide a “Submit” button
    - Verify that both questions are answered before recording the responses.
- Display text: “If you are uncertain about your educational goal, please contact an Academic Advisor”
    - Link “Contact an Academic Advisor” to open http://www.riosalado.edu/advisement/Pages/default.aspx in a new tab
- Once user has submitted, display “Thank you for your response!” and provide a way to close the survey.
- Grant access to RioLearn

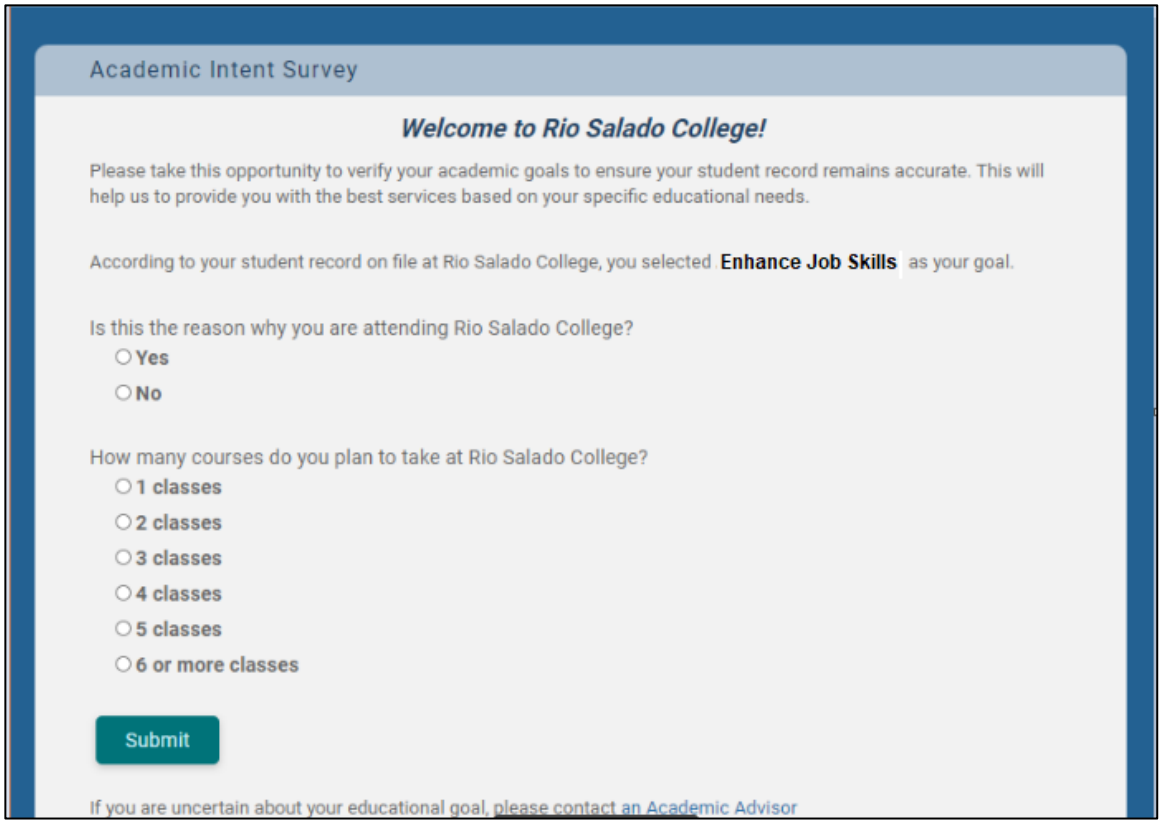
ELEMENT II – PHASE II FUNCTIONAL SPECIFICATIONS

Phase I specifications were used to implement the first iteration of the Student Intent Survey. After collecting the data for the first cohort of students in Fall 2019 it became apparent that the Student Intent Survey was not specific enough regarding the number of courses a student intended to complete. The range of number of courses led to potential inaccuracies in measuring student completion. For example, if a student submitted that they intended to complete one to two courses, then following one semester of successfully completing one course, they could be counted as a successful completer of their intention/goal. However, if their actual intent was to complete two courses, and they completed one, but never completed the second course, they should be measured as a non-completer instead of a successful completer. Hence, the range of courses presented in the survey were quickly identified as being problematic for measuring accuracy. [It is also important to note that a discussion of students changing their intention/goal after initial collection is beyond the scope of the work presented in this product but is an important future iteration that will be addressed in Chapter Five.]

Hence, the Phase II Functional Specifications demonstrate an important change that was made to the Student Intent Survey: a single number of courses to choose from, as shown in Figure 3. This change allows for more accurate measurement of student completion of stated goal/intention. The functional specifications presented in Phase II demonstrate the codes for non-credential-seeking students (drop-in students) that were used to track the students who completed the Student Intent Survey. These codes then made it possible to flag the drop-in student population and track their progress towards completing their stated intention/goal. The interchangeability of *intention* and *goal* reflects the institution's language of measuring student

goal completion—to be inclusive of *all* student populations—whether that goal is a degree, a certificate, or a set number of courses.

Figure 3. Student Intent Survey Mockup Phase II



Additionally, the Phase II specifications demonstrate that one of the originally planned enhancements in Phase I specifications was removed: administering the Student Intent Survey to degree-seeking students as well. Although surveying that population may very well be valuable in the longer term as a means to address students who potentially declare a degree intent for purposes of accessing financial aid, the more immediate enhancements will not include degree-seeking students. The majority of RSC students do not access financial aid and, because this is a small population, the team did not want to take the greater risk in increasing barriers for students who have a clear path. The third enhancement from the Phase I specifications, "Integration with

proactive advisement and systems such as Civitas" was changed to "Integration with success coaches and/or advisors for follow-up on additional outcomes such as transfer intent." This change was the result of the evolution of this work. As the institution began collecting and monitoring the drop-in student population, it became clear that RSC was lacking intentionality around serving this student population beyond enrollment and standard student supports linked to completing courses successfully. RSC engaged in discussions about the importance of serving this population with intentional services that met the students' needs. However, that is only possible as a result of beginning to measure this student population as an institutional effectiveness metric. The College had to first learn who this population was, why they were attending, and their success rates, so that the College could be intentional in what supports it built and how it allocated resources appropriately.

As a result of Phase I, RSC chose to move away from a third-party data analytics vendor. As a result of Phase II implementation, RSC reorganized human resources and restructured the support models for credential-seeking and non-credential-seeking students to better meet their needs.

The specifications also detail what is new in Phase II, including more student-friendly language to confirm student intent, as well as greater specificity in the number of classes students intend to take to create greater accuracy in measuring student completion. Under the heading "Survey Specifications," the fourth bullet reflects the change in language that was used to confirm the response a student had given on their admissions application as to why they were attending the College. The language on the admissions application often lacks clarity from the student perspective either because of the overlapping nature of the responses, or unfamiliarity with the wording / language. Because the admissions application is a MCCCD application that

all ten colleges in the system use, it was not possible for RSC to modify the language. However, after Phase I, the institution recognized the need to not replicate the same potential confusion and ambiguity and therefore condensed the categories to provide greater clarity and more user-friendly language. The Phase II Student Intent Survey provides for improved accuracy in reporting on completion metrics.

Student Intent Functional Specifications – Phase II

When a student signs into RioLearn for the first semester of coursework at RSC, he or she will be asked to validate academic intent. The Phase II version of this tool is only offered to non-program seekers. The question RSC is seeking an answer for is: "What is the student's goal for taking classes at Rio Salado College?"

Changes from Phase I of the Student Intent Survey include an updated look and feel as well as the requirement for students to specify an exact number of courses they plan to take and collapsing the various Student Intent Survey non-credential program statuses into more easily understood categories.

Future Student Intent Survey phases will include the following enhancements:

- Requirement to answer every term of enrollment which will address the potential concerns that a student changes their intent/goal from semester to semester, and
- Integration with success coaches and/or advisors for follow-up on additional outcomes such as transfer intent.

Student Population Specifications

Present Student Intent Survey to the following users:

- User has authenticated by logging in to RioLearn
- User has a "Student" role
- User is currently enrolled in course(s)

- Non-Program seeking students
    - Academic plan code in: 7112N, 7120N, 7900N, 7110, 7110N, 7111, 7111N, 7100, 7100N, 7152, 7152N, 7154, 7154N, 7150, 7150N, 7142, 7142N
- Exclude students in the following groups:
    - ESP
    - Incarcerated
    - External partners
    - Dual Enrollment

Student Intent Survey Specifications

- Display title bar with an icon and "Academic Intent Survey"
- Display heading: "Welcome to Rio Salado College!"
- Display text: "Please take this opportunity to verify your academic goals to ensure your student record remains accurate. This will help us to provide you with the best services based on your specific educational needs."
- Display text: "According to your student record, you selected '**{Academic Intent Response}**' as your academic goal."
    - NEW FOR PHASE II: Intent options collapsed into more intuitive groupings for respondents:
        - Taking courses to transfer to another college or university
        - Taking courses to advance in or enter the job market
        - Taking courses for personal interest and not seeking a degree or certificate
    - Groupings outlined above are based on academic intent responses from the admissions application:
        - Current university students taking courses to meet university requirements
        - Take courses to transfer
        - Take courses for job skills
        - Take courses to apply to a degree/certificate at another Maricopa college
        - Personal interest

- Display text: “Is this the reason why you are attending Rio Salado College?”
    - Mark this question as required
- Display “Yes” and “No” radio buttons
- Display text: “How many courses do you plan to take at Rio Salado College?”
    - Mark this question as required
- **NEW FOR PHASE II:** Provide radio buttons with the following options:
    - “1 class”
    - “2 classes”
    - “3 classes”
    - “4 classes”
    - “5 classes”
    - “6 or more classes”
- Provide a “Submit” button
    - Verify that both questions are answered before recording the responses.
- Display text: “If you are uncertain about your educational goal, please contact an Academic Advisor.”
    - Link “Contact an Academic Advisor” to open http://www.riosalado.edu/advisement/Pages/default.aspx in a new tab
- Once user has submitted, display “Thank you for your response!” and provide a way to close the Student Intent Survey.
- Grant access to RioLearn.

ELEMENT III – DROP-IN STUDENT COMPLETION TRACKING DASHBOARDS

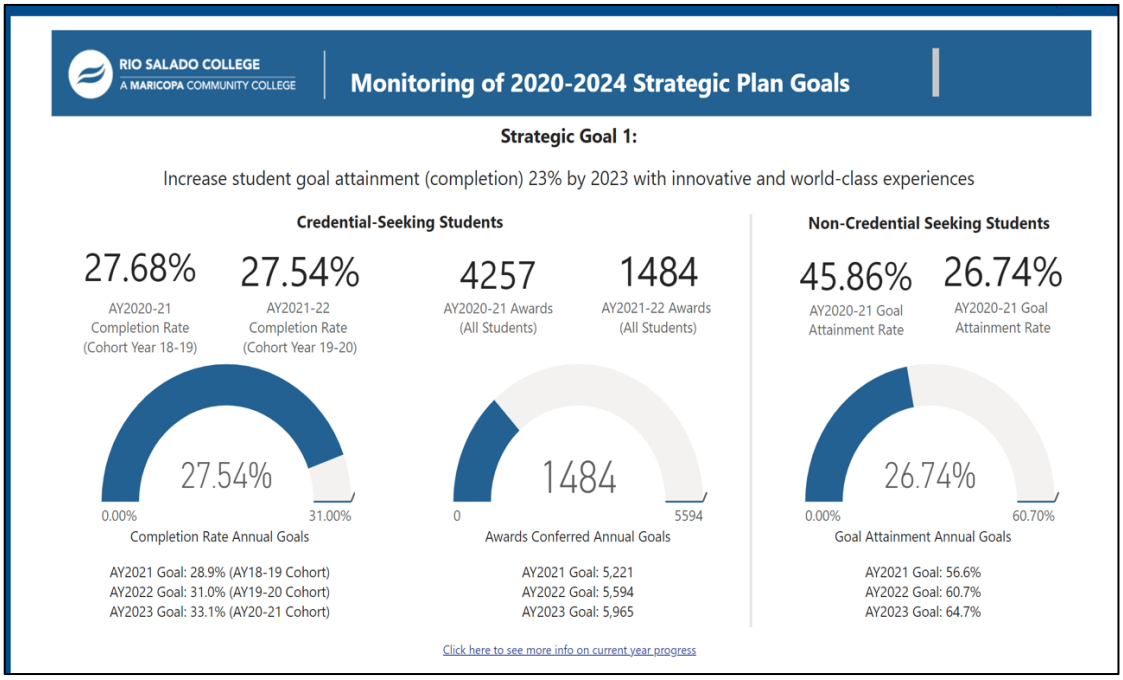
Measuring the completion rates of non-credential-seeking students, drop-in students is an important component of measuring institutional effectiveness. As Bahr (2013a) noted, the drop-in student population was the largest population of incoming students across the California Community College system. If community colleges are not measuring this student population,

they risk missing a vital part of their student population. This drop-in student population is an important part of the community college story—how the community college serves the community. Supporting these learners with intentionality can only be accomplished if the College knows who this population is, creates a way to identify them in the Student Intent Survey, and creates report-out mechanisms that share and create understanding of their success. In addition to the ultimate purpose of this work being to serve students more effectively, this work is crucial to community colleges being able to communicate their effectiveness in more comprehensive ways, with data to support their claims. The value of community college has long been recognized within local communities, but with perennially low graduation rates and shrinking funding across states and federally, it is of paramount importance for community colleges to be able to tell the whole story—which includes how they successfully serve the drop-in student population.

In support of this direction, RSC made a commitment in its strategic plan to increase goal attainment by 23% in order to capture intentionality in increasing both credential seeking and non-credential-seeking students' completion rates. The following dashboards represent the institutional commitment to continuing to measure and improve on the standard graduation metric as well as the commitment to measure the large drop-in student population that attends the college. This is the first iteration of establishing a new metric to assess and ensure the college is addressing the needs of all its learners. These dashboards are informed by the Student Intent Survey described in Element I and Element II, and the related tracking of the drop-in student population. These dashboards facilitate accountability for the college community in meeting the needs of this specific population that, before now, has not been assessed in terms of completion.

The dashboard shown in Figure 4 is the overall tracking of the College's first strategic goal to increase completion or goal attainment for both credential-seeking and non-credential-seeking students. Again, the goal is to increase completion rates by 23%. The first graph displayed under the credential seeking student category shows the current yearly measurement for annual completion rate and the college's progress toward the increase goal for that year. Directly beneath the graph, the dashboard states the completion goal for each year, needed to make the overall goal of 23% increase that will result in the ultimate goal of a 33.1% GR/completion rate for credential seeking students.

Figure 4. Completion Dashboard



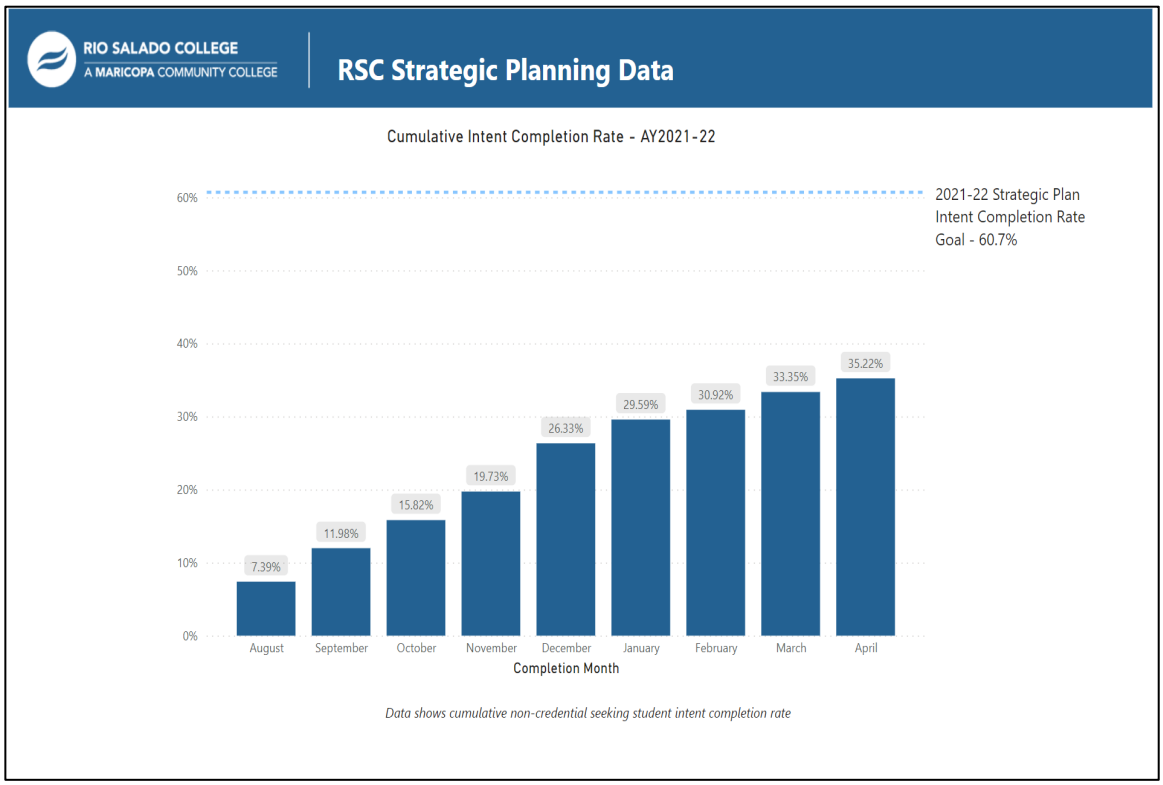
The second graph under the credential seeking student heading measures awards conferred (degrees and academic certificates) and displays the measure of the current year awards conferred against the current year goal. At the time of the dashboard capture, March 2022, in Figure 4, there had been 1,484 awards conferred in academic year 2021–22 (summer,

fall, spring) and the goal for the year is conferring 5,594 awards. It is noteworthy that the target increases were determined prior to the onset of the COVID-19 pandemic, which resulted in year over year 10%+ enrollment losses. Hence, the target goal may seem less realistic given the drastic reduction in students attending. Equally important to note is the impact of the weekly enrollment model at RSC on designing and monitoring student data. Because of the weekly enrollment model, students complete throughout the academic year and an award may be conferred at any point in the academic year. Because awards may be conferred at any point during the year, the awards conferred is not a static metric and, therefore, it is important to have a dashboard that the college community can access to monitor progress towards meeting the strategic goal. For example, at the time of capture of the dashboard in March 2022, there had been 1,484 awards conferred, but as of the end of April 2022, there were 3,450 awards conferred. Because of the unique structure of weekly start and end dates, the College annualizes its data for internal comparisons after the last end date tied to the spring semester.

The third graph shown in Figure 4 displays the tracking of the new institutional effectiveness metric presented in this product: tracking the completion of non-credential-seeking students, or drop-in students. The graph underneath the non-credential-seeking student heading shows the measurement of student completion against the yearly goal. Beneath the graph, the yearly goals for the drop-in student population are listed that will result in the overall accomplishment of the College's strategic goal to accomplish a 23% increase in student goal completion. At the time of capture of the dashboard, 26.74% of drop-in students had completed their stated goal with the Academic Year goal being 60.7% will complete by end of the academic year.

Figure 5 shows the dashboard created to capture, track, and inform the College community of the non-credential-seeking student completion rate by month. This dashboard was created to monitor progress of student completion month by month. As students at RSC begin weekly, completion of their intended goal may parallel those weekly starts, and, therefore, a monthly view of progress can provide the college community with important data to provide real-time review and possible interventions to support student completion. The dashboard in Figure 6 shows a dotted line across the top of the graph that represents the annual completion rate goal as determined in the strategic plan. The bar graph in the figure shows an increasing cumulative completion rate for the months August through April of academic year 2021–22. The month of August showed a 7.39% completion rate, and the month of April shows a 35.2% completion rate, well below the strategic plan goal of a 60.7% completion rate.

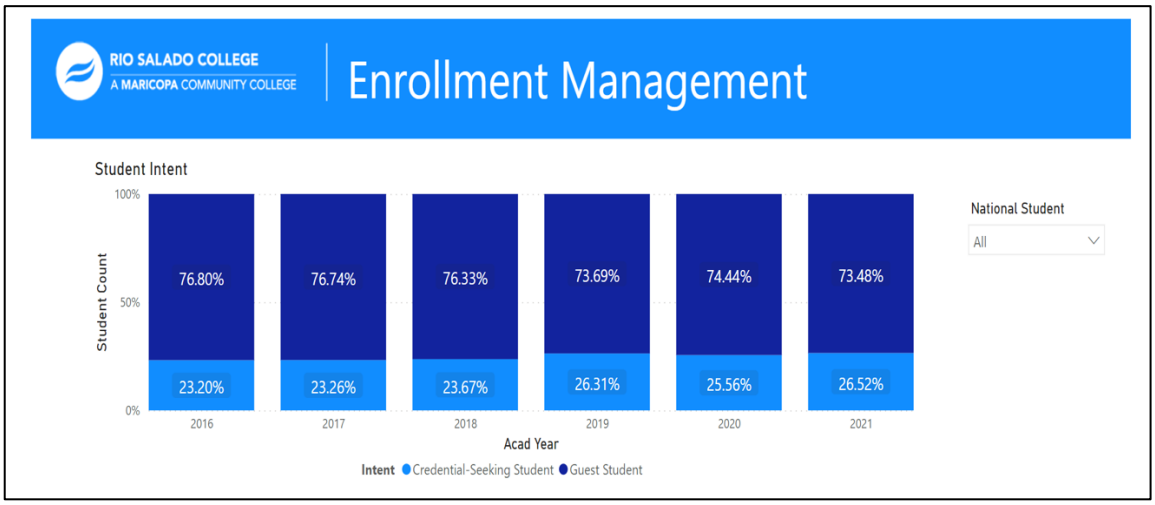
Figure 5. Non-Credential Seeking Student Completion Rate by Month



The value of tracking this data is that it becomes actionable data when combined with the individual student tracking discussed in Elements I and II. First, this data provides us with the understanding that this population of students is not completing at the rates of prior years. RSC now has the capacity to reach out to current drop-in students and provide supports to increase their completion and to learn what may be causing the lower completion rates. Tracking monthly year over year empowers the College to take action at the time students are still enrolled to address any unidentified needs. Without capturing this student population's intentions, colleges are unaware of the students' intentions, goals, and success. Without tracking this population, the college cannot address the needs of thousands of students to increase their successful completion. Successful completion of the non-credential-seeking students' goals may result in successful completion of a degree at another institution, a promotion, a new job, etc. The impact of this work is important to the impact community college has on individuals and on the communities they serve.

Figure 6, Student Populations, depicts the percentage of students RSC serves that are credential-seeking and the percentage of students that are non-credential seeking. The graph in Figure 7 shows that there has been a general trend of increase for the credential-seeking student population, with the exception of academic year 2020-21. Overall, between academic year 2016-17 and academic year 2021-22, there was a 3.2% increase in the credential-seeking student population attending RSC. Most striking in this data is the visual description of the large cohort that the non-credential-seeking student population represents. By tracking this information and making it accessible to the college community, the college is empowered to strategically consider ways to align resources to the needs of the different RSC student populations.

Figure 6. Student Populations



ELEMENT IV – OVERVIEW OF DATA COLLECTION

Figures 7-9 and Tables 4-6 demonstrate the data-informed discussions that ensued on creating support mechanisms for the drop-in student population. The items presented in Figures 7 through 12 were used to engage key collegewide stakeholders to review the current process for measuring non-credential-seeking student completion rates and the initial findings. The power of this new institutional effectiveness metric is that it emboldens deeply informed institutional review and informs resource reorganization considerations. For RSC, the review and college-wide discussions that resulted from the sharing of this data led to the reorganization of resources within the College to create a success coach team dedicated strictly to the drop-in student population. RSC had previously invested resources in creating success teams to support the national student population (students enrolling from across the country, outside of the state of Arizona). After reviewing the data and identifying the need to provide better support for the drop-in student cohort, all credential-seeking national students were shifted to dedicated advisors who already served all in-state credential-seeking students. The success coaches trained for the national student population were reassigned to all non-credential-seeking, drop-in students, to

provide support from application through enrollment. Additional success coaches were then hired, bringing the total number to eight, to provide greater retention and persistence support as well.

Figure 7. Student Intent Survey

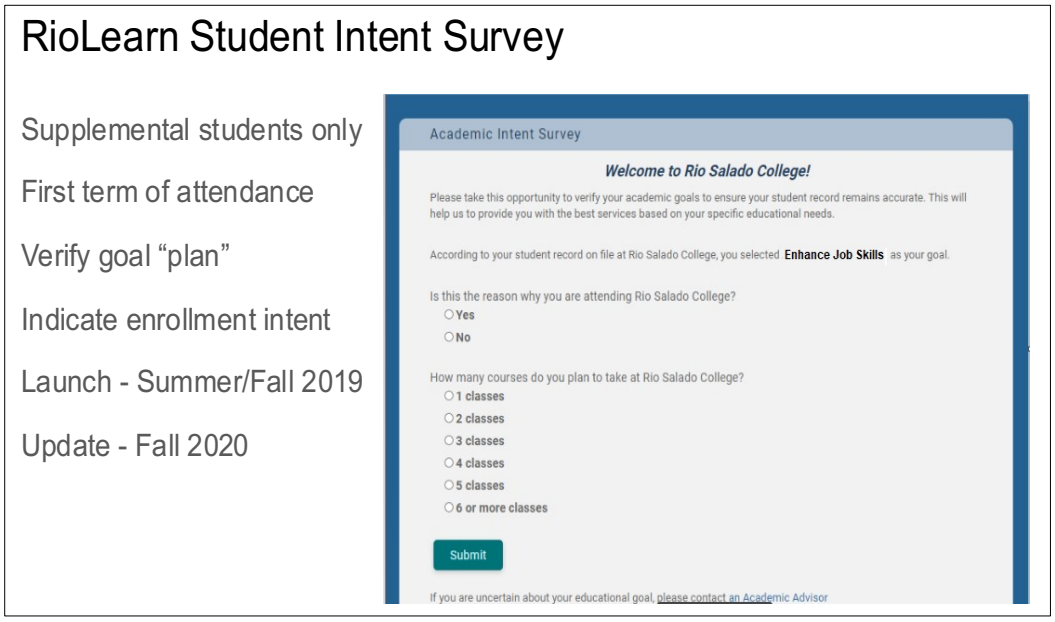


Figure 7, the RioLearn Student Intent Survey, shows the current iteration of the survey to collect student intent and validate admissions application choice that was shared for collegewide discussion purposes. It served as a reminder of who the target population being assessed and needing support was. On the left side of the Figure, the student cohort is defined as "supplemental students only" because that was the term previously used at RSC for the non-credential-seeking, drop-in student population. In addition to helping define the student population, it serves as a reminder of the import of streamlining language and ensuring a communication plan when language is changed at the college, so the name of the student population under review is clear and holds the same meaning to all constituents.

On the left side of the slide, the other parameters for the capture of this data are listed, including that the Student Intent Survey was administered in the students' first semester only, was designed to verify what the student had selected on the admissions application for reason for attending, captured the students' intent in terms of number of courses the student intended to complete with RSC, and that the College was administering the second version of the Student Intent Survey. The right side of the slide shows the current iteration of the survey being used. This slide was used to begin discussions regarding the non-credential-seeking student population and what the College has learned about the population to inform discussions about what resources were needed to support this population and what the College's next steps would be in terms of building intentionality around the success of these students.

Table 4, Overall Outcomes of Non-Credential Seeking by Term, shows the data collected from the first two rounds of Student Intent Survey implementation and outcome tracking results. The data depicted in Figure 9 represents the non-credential-seeking student cohort outcomes categorized by term, size of cohort, percentage of students who reached or exceeded goal, and the amount of time it took students to complete. It is clear from the data that there is relatively high completion of intention/goals with the average length of time to completion being less than eight months. The "exceeded goal" category represents students that took more classes than they had responded was their goal. Five of the six terms measured show an above 80% completion rate of students' goals and the one semester below the 80% mark had a 77% completion rate. The exceeded goal (completed more courses than originally intended) category has more variability term to term with a percentage of students successfully completing more than intended ranging from 33% for the Summer 2021 cohort up to 63% for the Summer 2020 cohort.

Table 4: Overall Outcomes of Non-Credential Seeking by Term

YEAR	TERM	COUNT	% REACHED GOAL	% EXCEEDED GOAL	AVG MONTHS
2019-20	Fall 19	2,897	83	54	7.8
	Spring 20	2,043	84	49	6.6
	Summer 20	1,101	80	63	48
2020-21	Fall 20	1,627	83	52	5.2
	Spring 21	1,576	77	36	4.8
	Summer 21	701	80	33	3.4

As this is a relatively new set of data collection and new analyses, the reasons for the variation are still under investigation. It is noteworthy that the significantly smaller cohort sizes appear to be consistent with the overall enrollment drop due to the COVID-19 pandemic. It is also revealing to see the consistently high goal attainment among this population, consistent with Bahr's (2013a) findings across the California Community College system that had consistently high completion rates. Factoring this large student population's success is critical to sharing the community college impact story to local, state, and national stakeholders and funders. It is also important to recognize again that this is early iterations of this data collection and analysis, and over time the author believes it will become increasingly important to understand the impact to the individual as well as the community that is associated with this student population having high rates of completion.

Table 5, Outcomes by Admissions Application Intent Category, shows a different analysis conducted on the data of the non-credential-seeking, drop-in students who completed the LMS survey (functional specifications described in Element I and Element II above). In the analysis depicted in Table 5, the question from the admissions application regarding, "Why are you attending?" was correlated to the completion success rate for the non-credential-seeking student population, based on the outcomes tracked from the Student Intent Survey, Figure 7.

When students apply to RSC, they have seven categories to choose from if they are not choosing a degree or certificate program of study. The admissions application asks students to select one of the following seven categories listed under "supplemental intent": Courses for University, Dual or Concurrent Course, Enhance Job Skills, Multiple MCCD Enrollment, Non-Degree Seeking, Transfer to Bachelors, or Undecided.

Table 5: Outcomes by Admissions Application Intent Category

SUPPLEMENTAL INTENT	COUNT	% MET GOALS	% EXCEEDED GOAL
Courses for University	7,924	72	53
Dual or Concurrent Courses	1,507	82	73
Enhance Job Skills	1,008	58	34
Multiple MCCD Enrollment	4,236	74	54
Non-Degree Seeking	2,737	67	52
Transfer to Bachelor's	12	67	33
Undecided	17	42	29

On Table 5, the "Count" column refers to the number of students who chose each supplemental intent category. The "% Met Goals" column is the percentage of students who chose that specific supplemental intent category and successfully completed their stated goal (based on the Student Intent Survey they completed within the LMS), with the exception of the dual or concurrent category, which simply measured dual or concurrent students according to their success rate in their courses (they did not complete the Student Intent Survey). The Dual/Concurrent population did not receive the Student Intent Survey because of their high success rates given the nature of the dual enrollment program being administered while students are still in high school with increased supports through their high school location. The "% Exceeded Goals" is the percentage of the total student population that chose the designated

supplemental intent category on the admissions application but took more courses than they had stated was their intention in the Student Intent Survey.

Aside from the Dual/Concurrent student population, the highest completion rates were correlated with students who had chosen "Multiple MCCD Enrollment," which means the student is taking classes at other colleges within the MCCCD. There were 4,236 students in this category, and they yielded a 74% "Met Goals" or completion rate (with 54% Exceeded Goals). The next highest performing group according to this correlational analysis was the students choosing "Courses for University" category on the admissions application. This group represents the largest group of students, 7,924 students, who had a 72% "Met Goals"/completion rate (with 53% Exceeded Goals). The student category with the lowest percentage of "Met Goals" was the student group that chose "Undecided" on the admissions application survey with a 42% completion rate and a 29% "Exceeded Goals." It is noteworthy that there were only 17 students in this category, as a smaller number of additional students may have a large impact on the percentage correlations.

The purpose of tracking this data and looking at potential correlations is to provide insight and potential validation of the admissions application categories. As this population of students has not previously been tracked or attended to, beyond regular enrollment and classroom support, RSC chose to examine correlation of completion success across the admissions categories. The correlation allows the college to validate student intent and potentially measure impact in the future (track the students to successful completion at another institution, job promotion, etc.).

Table 8, Cohort Tracking by Category and Completion Time, presents two semesters worth of tracking the non-credential-seeking student population for completion of their stated

intention/goal by number of terms taken to complete and categorized by the "Supplemental Intent" categories on the admissions application. The analysis represented in Figure 11 provides for longitudinal understanding of non-credential-seeking student completion rates. The Fall 2019 cohort tracked a total of 2,405 students with the largest group of students choosing "Courses for University" for their "Supplemental Intent" question on the admissions application: 975 students. Of these, 52.6% completed their goal within one term/semester (RSC uses terms because the College offers flexible start dates that do not always align to the traditional interpretation of a semester) with 22.3% completing in their second term of attendance.

Table 6: Cohort Tracking by Category and Completion Time – Longitudinal Cohort Tracking

SEMESTER	N	% COMPLETED				
		IN 1 TERM	IN 2 TERMS	IN 3 TERMS	IN 4 TERMS	IN 5+ TERMS
Fall 2019	2,405					
o Courses for University	975	52.6	22.3	11.3	6.7	7.2
o Dual or Concurrent Course	328	19.8	21.6	15.9	12.8	29.9
o Enhance Job Skills	62	51.6	16.1	11.3	11.3	11.3
o Multiple MCCCD Enrollment	631	46.4	25.0	13.6	7.6	7.3
o Non-Degree Seeking	406	54.9	25.9	8.1	4.4	6.7
o Trnsfr to Bachelor Degree	2	100.0	8.1	4.4	0	0
o Undecided	1	0	0	0	0	100.0
Spring 2020	1,714					
o Courses for University	766	59.7	23.0	9.3	4.6	3.5
o Dual or Concurrent Course	92	46.7	23.9	15.2	5.4	8.7
o Enhance Job Skills	56	75.0	14.3	5.4	0	5.4
o Multiple MCCCD Enrollment	489	45.2	26.4	13.7	7.4	7.4
o Non-Degree Seeking	310	55.2	21.6	12.3	4.2	6.8
o Trnsfr to Bachelor Degree	0	0	0	0	0	0
o Undecided	1	0	100.0	0	0	0

The next largest cohort of students aligned with the category "Multiple MCCCD Enrollment," a total of 631 students. This is the population that is declaring they are taking courses at another college within the MCCCD. The majority of the students, 71.4%, completed within their first two terms. This was the same pattern across all the student group categories, with the exception of the Dual/Concurrent grouping and the one Undecided student. The College theorizes, but research needs to be completed, that the pattern among the Dual/Concurrent group is more dispersed because many Dual students take courses across multiple years of their high school enrollment. The Undecided category is a sample of one and, therefore, does not provide any conclusive insights.

For Spring 2020, the student cohort was 1,714 students who completed the admissions supplemental intent question and were then subsequently tracked according to the Student Intent Survey. Interestingly, the high completion rates within the first two semesters holds across all the student groups. The College theorizes that the Dual/Concurrent group may have had more seniors that registered for classes in the spring semester and therefore had a higher completion rate within one term. Also noteworthy is that no students chose the "Transfer to Bachelor Degree" option on the admissions application, which is likely a result of the confusion of the options on the application between "Courses for University" and "Transfer to Bachelor Degree" as students who are taking classes for transfer are likely to select Courses for University rather than the Bachelor Degree Transfer option. This tracking and analysis provide College stakeholders with information and insight as to who the non-credential-seeking student population is, how they are engaging with the institution, for how long and develop informed discussions of how to support this population and how to speak about this student population to the larger higher education community.

The Exploratory Analysis, Figure 8, provides summary data of the longitudinal cohort tracking and shows that, in aggregate, 70.18% of non-credential-seeking students complete their intended goal within six months of enrollment. In months 7 through 12, another 10.08% completed with decreasing numbers of students completing out more than 37 months. The data was then analyzed by which months had the largest number of students completing. This data is exploratory in nature to learn more about the student population. The graph on the right in Figure 8 analyzed which months had the highest number of students completing. The "zero months" classification for completions was determined to result from students who began later in the spring semester and did not complete until the first month of the new academic year. As they completed in that month, they were recorded as completing in zero months. The iterative process associated with developing a new metric allowed the author to recognize this error and correct for the second iteration of data collection.

The graph is displayed as a heat map with the areas in green showing the greatest number of completions, the areas in yellow showing smaller numbers, and the areas in orange and red showing the smallest number of completions respectively. This display of data makes it quickly apparent that the largest group of non-credential-seeking students are completing within two months. This is likely due to the confluence of having a large number of students taking courses for university, combined with the ability to adjust course length within the RSC system. Students can enroll in a course and then have options for the length of time they intend to complete the course in (this range depends on the course, but common options are 4 weeks, 8 weeks, 14 weeks, and 16 weeks). Hence, it makes sense that students working to complete a course for their degree at another institution would choose an 8-week option, potentially resulting in the large completion rate at the 2-month mark.

Figure 8. Exploratory Analysis

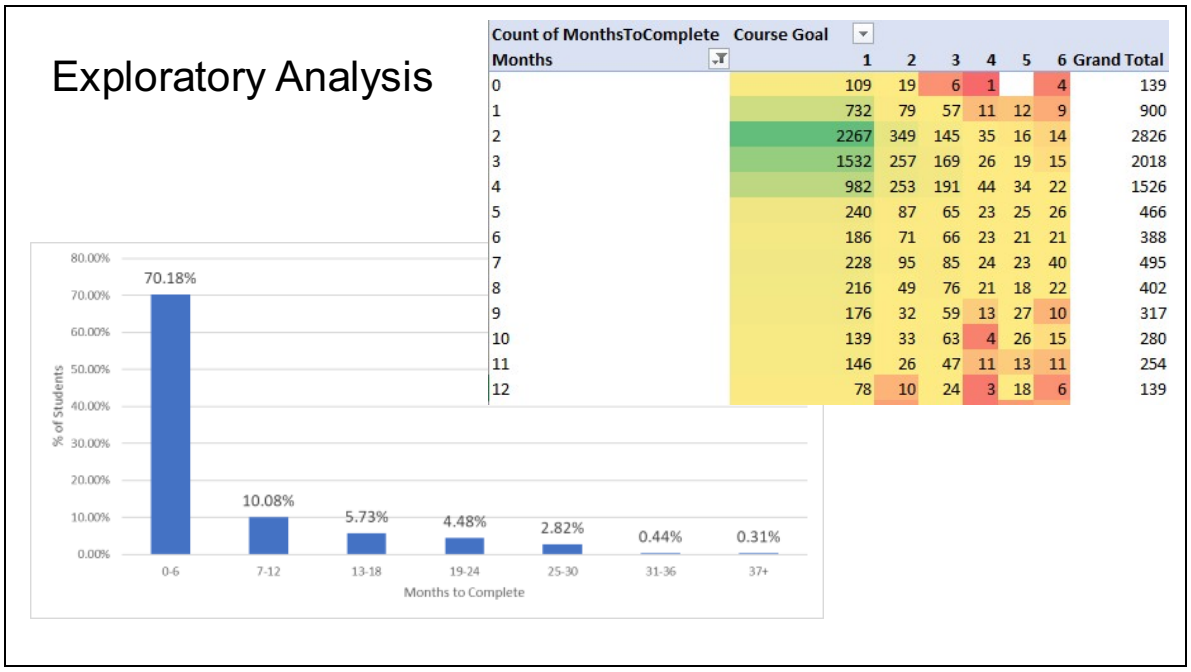
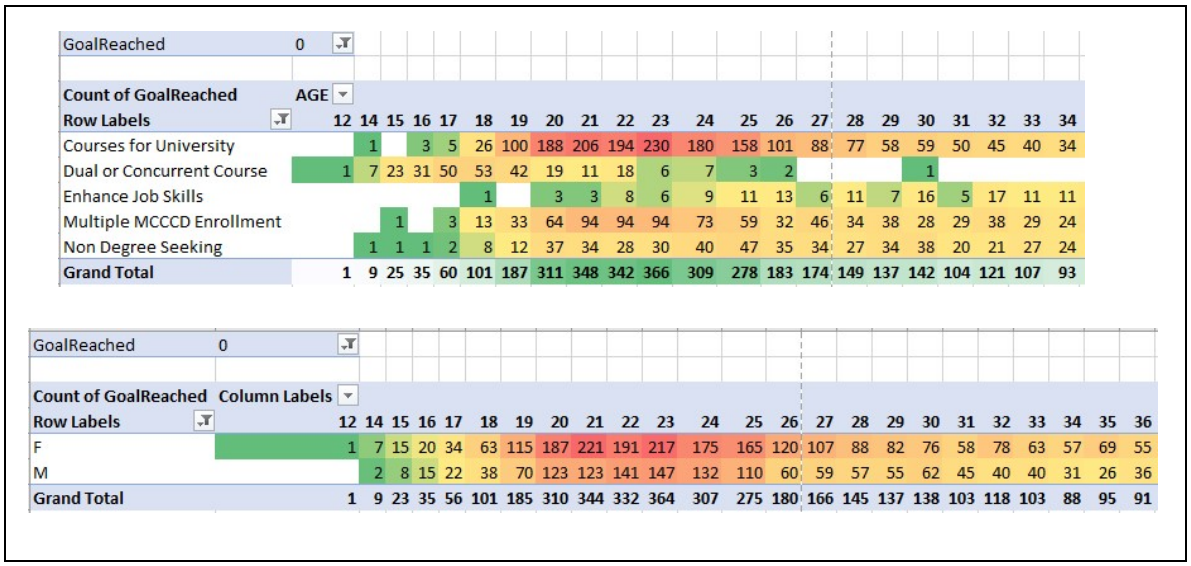


Figure 9, Exploratory Analysis II, provides further exploratory analysis of the non-credential seeking/drop-in student completion rates. In this analysis, considering the data shown in the top graph in Figure 9, data was sorted by the student choice of "Supplemental Intent" on the admissions application and cross walked with age. This analysis focuses on the non-credential-seeking students who did *not* complete their goal/intention. The top of the graph states "goal reached '0,'" indicating that the data being reviewed were students that did not complete their goal. The data shows the number of students at each age depicted across the top row who did not complete. The heat map in this case shows the lowest number of non-completers in green, the middle number of non-completers in yellow, and then the highest number of non-completers are shown in the red and orange respectively, except for in the grand total, which then uses the green to show the greatest aggregation of non-completers. The heat map provides for a quick view that shows which ages are having the greatest and least success in terms of numbers of students not completing their goal. Interestingly, the data show that the largest group of

students not completing their goal are the students that classified themselves as “Courses for University” on the admissions application and were between 19 years of age and 26 years of age. Within the self-identified categories of “Multiple MCCCD Enrollment” and “Non-Degree Seeking,” the 19–26 age range was again the age range that had the highest number of non-completers. Of note, the weakness of this first iteration of data analysis is the use of the green color representing the largest number of completers on one graph and the smallest number of completers on the second graph. The object of using the green color is accurate in that it is quickly highlighting what will be interpreted as the strongest, the best, or the highlight in each scenario. The confusion comes from the switching scenario of completers to non-completers.

Figure 9. Exploratory Analysis II



GoalReached	0																						
Count of GoalReached	AGE																						
Row Labels	12	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	
Courses for University		1		3	5	26	100	188	206	194	230	180	158	101	88	77	58	59	50	45	40	34	
Dual or Concurrent Course	1	7	23	31	50	53	42	19	11	18	6	7	3	2				1					
Enhance Job Skills						1		3	3	8	6	9	11	13	6	11	7	16	5	17	11	11	
Multiple MCCCD Enrollment			1		3	13	33	64	94	94	94	73	59	32	46	34	38	28	29	38	29	24	
Non Degree Seeking		1	1	1	2	8	12	37	34	28	30	40	47	35	34	27	34	38	20	21	27	24	
Grand Total	1	9	25	35	60	101	187	311	348	342	366	309	278	183	174	149	137	142	104	121	107	93	

GoalReached	0																								
Count of GoalReached	Column Labels																								
Row Labels	12	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
F	1	7	15	20	34	63	115	187	221	191	217	175	165	120	107	88	82	76	58	78	63	57	69	55	
M		2	8	15	22	38	70	123	123	141	147	132	110	60	59	57	55	62	45	40	40	31	26	36	
Grand Total	1	9	23	35	56	101	185	310	344	332	364	307	275	180	166	145	137	138	103	118	103	88	95	91	

In the second chart shown in Figure 9 displays the non-completion students by gender, using the same heat map coloring (green for lowest number of non-completers and red/orange for highest number of non-completers). In this analysis, all the non-credential-seeking students were grouped together and simply disaggregated by completion or not according to gender. The highest group of non-completers for both genders was reflected in the same age range, 19–26

years of age, with the larger population being female. This may not be surprising as the majority of students attending RSC are female, so it stands to reason that the larger population of female students would lead to a larger number also not completing. Further discussion of how this deeper analysis will be used in the future is found in Chapter Five of this dissertation.

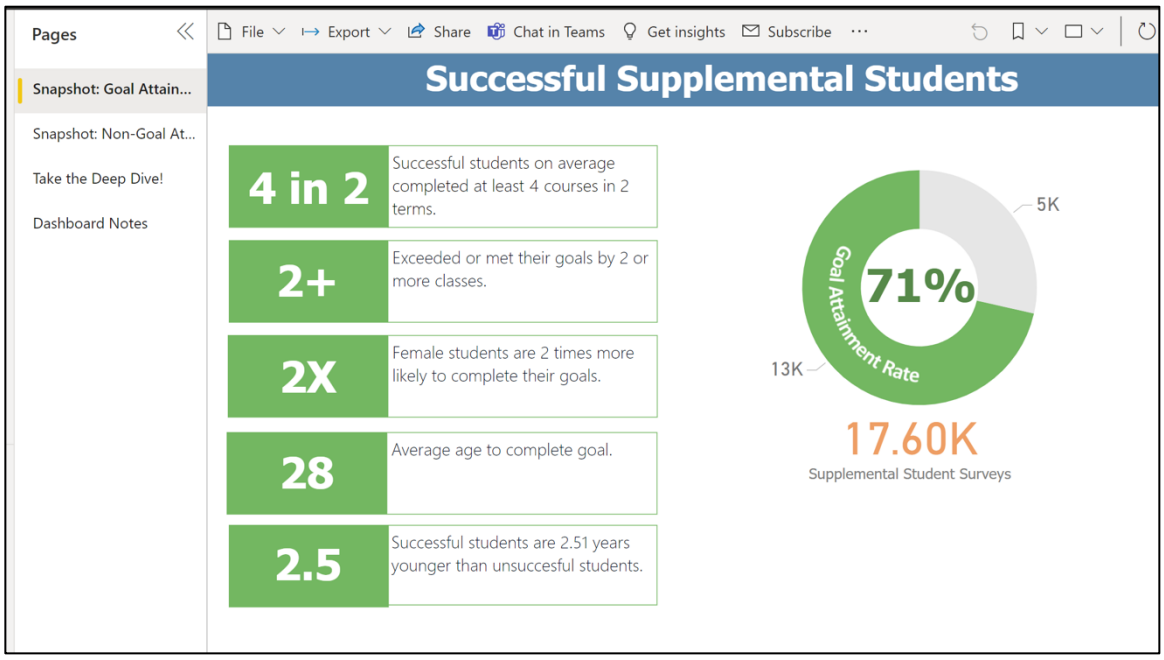
ELEMENT V – DASHBOARD TO DISPLAY DATA TRACKING ON DROP-IN STUDENT POPULATION

As RSC began collecting and reviewing the data shared in Element IV of this product, it was decided to create a dashboard that could easily collate and display the data in more user-centric and easily accessible ways. For context, RSC has spent the last three years working to develop a stronger data architecture. The College invested in a consultant who conducted a data audit, to map out the various data sources, how the data is communicated, and how stakeholders across the college are using the data. From the data audit review, the College determined to invest in PowerBI, an interactive data visualization software product developed by Microsoft, as the tool for building more easily accessible data that meets the needs of employees and departments across the College. The College now has a robust dashboard system, a data steering team, and regular training and updates on accessing relevant data. Element VI of this product describes the framework the College adopted to make the College's data actionable towards setting and achieving goals that are informed by and tracked with the dashboards that have been created.

Figures 8-9 and Tables 4-6 show the first iteration of the non-credential-seeking student population dashboard. Please note that the screen shots of the dashboard describe this student population as the supplemental student population. This language was used because it has been the long-used descriptor at RSC to describe the non-credential seeking/drop-in student population but will be modified as the College moves forward with one descriptor. The

following Figures show the first three dashboards created to display the information that was being mined from the non-credential-seeking student population data collection in a more accessible way than the charts shared in Element IV. Figure 10 provides a high-level overview of some basic descriptive information of the non-credential-seeking student population. The dashboard shows the average number of courses completed within two terms (semesters), the average number of courses students exceeded their goal by the likelihood of completion by gender, age related data, and total number of students surveyed and the overall completion rate. As previously stated, this is the first iteration of the dashboards and therefore there are several changes still needed to better share the information. For example, the dashboard does not show the range of years the data was collected over, and it does not clarify how the average age to goal completion was calculated nor how the older/younger average for completion was calculated.

Figure 10. Successful Supplemental Students



However, with those corrections made, the dashboard does provide an easily navigable and quickly digestible view of the data regarding the successful (completers) non-credential-

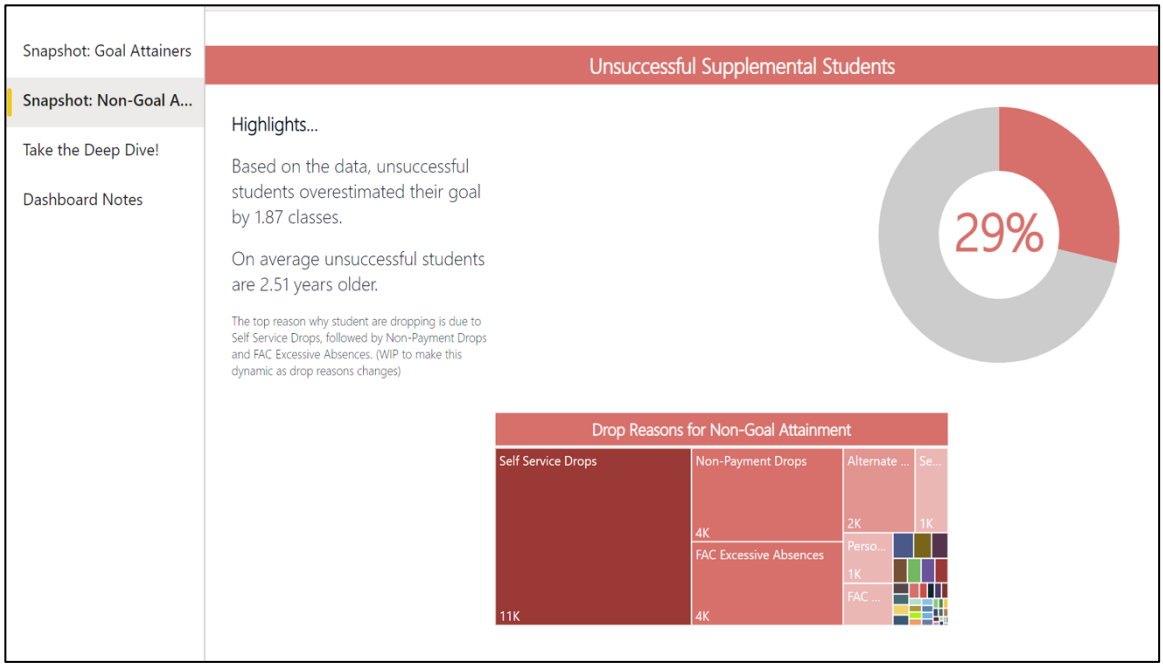
seeking student population. At least four courses are completed within two terms on average, for the successful non-credential-seeking student population. Additionally, in aggregate, the successful students exceeded their goal, on average, by two or more classes. For example, if a student completed the Student Intent Survey and stated their goal was to complete two courses, the successful student would be likely to have completed four courses instead. The dashboard also presents quick figures regarding success metrics by gender and age. Female students were found to be twice as likely to complete than male students, the average of completers is 28 years of age, and the average age of completers is two and a half years younger than the unsuccessful (non-completers) population.

This data is helpful to the College in strategically aligning efforts and resources to support this student population. For example, success coaches assigned to the non-credential-seeking student population might plan for an earlier outreach to male students to understand their needs earlier in their course-taking with the goal of increasing completion.

Figure 11, Unsuccessful Supplemental Students, presents aggregated data on students who were not successful in completing their goal. This dashboard uses a treemap to display the multiple reasons students did not complete their courses. The treemap quickly informs the reader of the size of the population under each category as well as the reason a student didn't complete. The largest category of students, 11,000 students, falls under the "Self Service Drops" category. Self Service Drops are difficult because the system does not require a student to indicate why they are dropping a course; therefore, efforts to understand how we might better support student goal completion is stymied by the lack of information and the large number of students falling in that category. The College has worked with the District Office in the MCCCD to require a

student to answer a question as to why they are dropping prior to processing the drop. This change will provide valuable and actionable information to the College.

Figure 11. Unsuccessful Supplemental Students

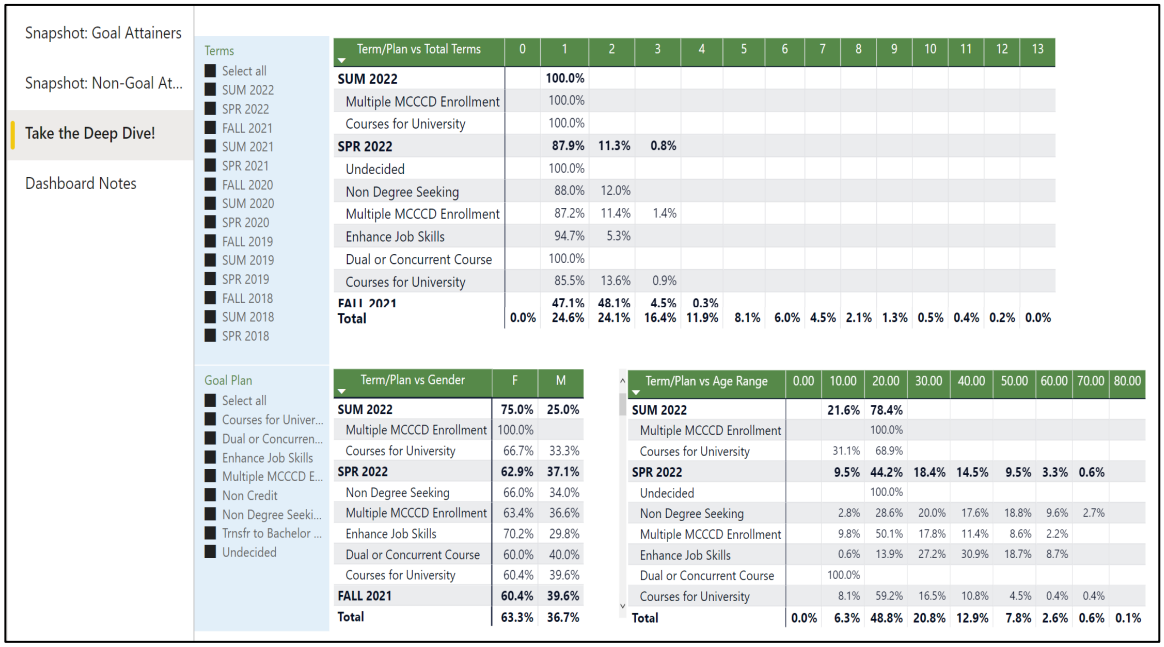


This dashboard also uses a circle graph to display the percentage of students that do not complete their intended goal, 29%. The display makes it quickly understandable for the College community. Finally, the slide presents two aggregate data highlights: unsuccessful students on average completed 1.87 classes less than intended and the average age of non-completing students was two and a half years older than the average age of students that completed their intended goal.

Figure 12, Deep Dive, shares term-over-term comparisons since Spring 2018 of three distinct data points: completions by number of terms (semesters), completions by gender, and completions by age range. This dashboard provides a scrolling function within each of the three categories, so the reader can scroll through each term to see the comparisons. The dashboard also provides a total category that explains the aggregated percentages of completions under each

category. In the first chart in this dashboard, the reader can easily view the aggregated data and see that the highest percentage of students complete their goal within one term (semester), followed closely by the next highest percentage of completions happening within two terms. The second graph presents a view of completions by gender and demonstrates that, in aggregate, females complete their stated goal at a rate close to three times more than male students. The third graph demonstrates completions within ten-year age ranges and shows the highest rate of completions is among the 20–29-year-old age group with close to half of all completers being within that age group.

Figure 12. Deep Dive



ELEMENT VI – THE 4DX RSC WEBSITE

In 2019, RSC undertook a comprehensive strategic planning process. One of the outcomes of the strategic planning process was the development of three strategic goals. In recognition of the fact that the first goal was established as a lofty goal to ensure making significant progress towards increasing student completion (increase completion of both

credential seeking and non-credential-seeking students by 23% by 2024), RSC leadership discussed various frameworks within which to orchestrate the work needed to accomplish this goal. As a result, RSC chose to adopt the 4DX framework to empower focus and achievement across the College. The adopted 4DX framework empowers short term goal adoption and iteration based on data feedback. The work described in Elements I–V of Chapter Four were used to create the data feedback loop to employees to assist in decision-making. The 4DX framework is how the College is actualizing the data feedback into actionable steps to increase student completion for non-credential seeking, drop-in students. The following are key definitions to understand this element of the work that was done to measure, track, and increase the completion rates for non-credential-seeking students.

The 4DX (FranklinCovey, n.d.) refers to a framework designed by FranklinCovey to implement strategic execution to create high performing organizations with demonstrable outcomes. The four disciplines consist of focus, leverage, engagement, and accountability (FranklinCovey, n.d.). Discipline one refers to the determination to focus on one or two wildly important outcomes. Discipline two is the practice of identifying lead measures to focus on and measure, and discipline three is creating score cards to track and report on the lead measure. Discipline four is the practice of creating a cadence of accountability (FranklinCovey, n.d.).

4DX uses leading and lagging measures: “Lead measures track the critical activities that drive or lead to the lag measure. They predict the success of the lag measure and are influenced directly by the team” (FranklinCovey, Discipline 2, n.d.): “Lag measures track the success of your wildly important goal. They are things like revenue, profit, quality, and customer satisfaction. They are called lags because by the time you see them, the performance that drove them has already passed” (FranklinCovey, Discipline 2, n.d.).

Given 4DX's focus on setting one short-term goal at a time and then measuring, tracking, and reporting out on progress to the goal, the 4DX framework was determined to be an excellent model for the agile development of a new institutional effectiveness metric at RSC. The short-term focus on lead measures provides the institution with the ability to track numerous initiatives that are working to impact the overarching completion rates. The 4DX framework also aligns with two long-standing working frameworks at the college: cycles of continuous improvement known as the plan-do-check-act cycle (which the 4DX model operationalizes) and the Quality Matters development framework. The 4DX framework also allows for dynamic feedback from the data collection described throughout Elements I–V, which empowers real-time interventions to increase student completion. The focus on short-term goals empowers movement and action to accomplishing increases in student completion rates. The new institutional effectiveness metric proposed within this product empowers institutions to inclusively support all students, and the tracking of this data empowers RSC to adjust and study impact and provide actionable feedback in real-time to increase student success. The 4DX model was chosen as an optimal framework within which this could be accomplished.

The College invested in training and development of a strong support infrastructure through the Employee Engagement division to enact successful change management as the 4DX model was implemented. As noted in the RSC Strategic Plan,

> The president charged each department of the College to select one college-wide goal to focus on and utilize the Franklin Covey® 4DX framework to cascade the strategic goals to the departmental level for action planning. To facilitate this level of decentralized planning, the College invested in dedicated roles to support the implementation of the strategic goals. The Quality Assurance Manager worked with the Employee Engagement & Resource Center to develop a comprehensive training program and infrastructure whereby each team at the College had a designated Team Lead and a dedicated Coach. Team Leads were responsible for facilitating the identification of a team-level goal on prescribed timelines. Coaches were trained to provide consultation and expertise in writing SMART goals as well as provide quality assurance with the goals and metrics

> identified. Individual teams planned their goals and strategies in division retreats, department meetings, and facilitated sessions throughout Fall 2020. (RSC, Strategic Plan, 2020, p. 13)

Additionally, the Employee Engagement Office partnered with the Quality Assurance Manager to create an in-house website (RSC 4DX website) that includes all training materials as well as the established department goals and scorecards. The RSC 4DX website provides around the clock access to requisite information related to implementing the 4DX model. Every employee at the College (as well as external visitors) has access to the materials, trainings, sample WIGs, every department's independently established goal and associated scorecard, and frequently asked questions. Access to this material, along with a dedicated Team Lead, proved critical to this process as it resulted in empowerment and understanding at the department and individual employee level.

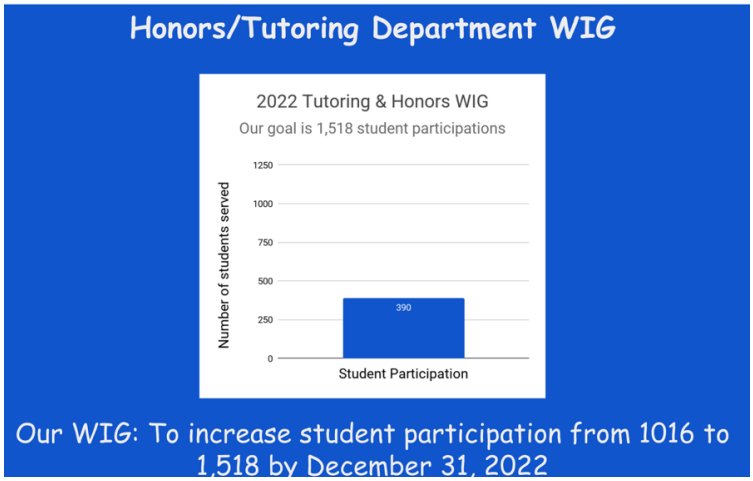
Figure 13, Example of a WIG® and Scorecard Related to Completion, demonstrates an example of how a team might structure their WIG® and scorecard. Figure 13 shows a goal of increasing student participation in academic support services or honors program. The WIG® is written using the 4DX formula, "increase from X to Y by Date." The team then chose a lead measure, which represents the action that will be taken regularly and tracked weekly and was determined to be a fulcrum for increasing the overall student participation. The lead measure chosen shows that each team member will be responsible for proactively reaching out to one student per week and sharing one study skill tip. Weekly the team will meet, update their tracking sheet for accountability, and briefly share any feedback from their action that week. It is important to note that WIGs have been determined to be a goal that everyone focuses on, in the midst of all other competing responsibilities. The concept is that if a team meets weekly for accountability purposes, reviews, and tracks their work on that one item, the team will ultimately be successful at completing their stated goal.

On the website RSC created, the College instituted collection of how a team's WIG is connected to, and impacts, the strategic goal of the college. In Figure 13, the team describes a study that validates increased student success being correlated with student connection to the college and building relationships within the college community. The team then provides a brief description of how their services build that connection and sense of belonging, and therefore why they chose to work on increasing student participation in their services. Finally in Figure 13, the team's scoreboard as originally designed is shared. This scoreboard reflects the number of students participating in services and is updated weekly as well.

Figure 13. Example of a WIG® and Scorecard Related to Completion, Academic Support, and Honors

To increase student participation from 1,016 to 1,320 by December 2021.

Lead Measure 1:
Each team will email or speak to 1 student/week about the Honors program and include one study skill tip e.g., video, link, etc.…



Connection between Strategic Goal 1 and the WIG:

Research shows that when students feel connected to campus and build relationships that matter, they are more likely to succeed (Klem & Connell, 2004). We create a safe learning environment by providing student-centered academic support and financial opportunities via the Honors Program. We help students feel they belong at Rio by plugging them into extracurricular activities, such as the Honors Program or providing mentorship where students build meaningful relationships with our tutors. Given the connection between student engagement and success, our shared WIG is to increase the number of students participating in either the Honors or Academic Support programs at Rio Salado College.

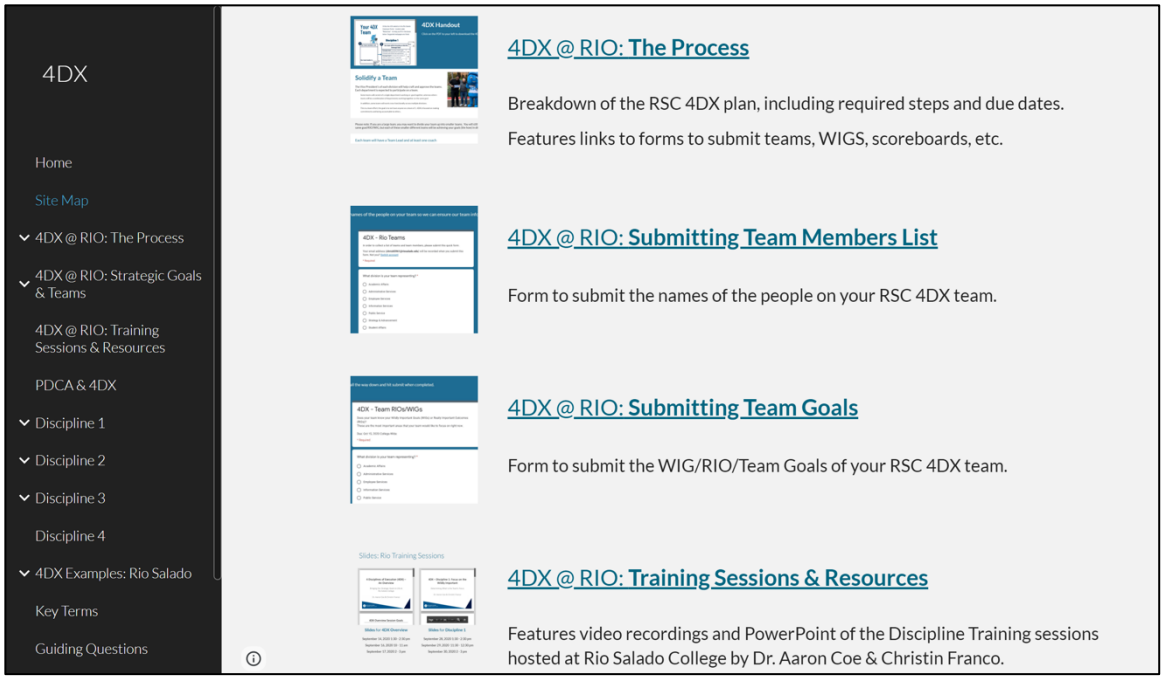
Another example of how the 4DX process might be used to serve the non-credential-seeking student population follows. The newly created success coach team, dedicated to

supporting the non-credential-seeking student population may review the data contained in Element IV that informs the team that the majority of non-credential-seeking students completed within two months. Upon review of this data, the team may set a WIG to increase student completions. The WIG would be written in the form of "the success coach team will increase completion of non-credential-seeking students from X% to Y% by June 2023." The team would then establish a lead measure to track. In this example, the data from Element IV that showed the greatest number of completions happen at the two-month mark, the team could establish the lead measure to conduct a set number of outreach contacts to be done within the first six weeks of a student enrollment: "every success coach will conduct one outreach to all students within the first three weeks and then one outreach within the second three weeks." The team would then create a scorecard to track their progress in completing the lead measure activity. The team would meet weekly for approximately 15 minutes to review what had been done the prior week and to update their scorecard. As the semester progressed, the team could review the lag measure data of the number and percentage of non-credential-seeking students completing. The team then could review their work and decide if the dedicated activity had made impact or not (plan-do-check-act) and whether to continue the activity, modify, or engage in a different intervention.

The website shares critical and comprehensive information to build collegewide competence with the framework. It is important to note that the website introduces an alternate term for WIG (Wildly Important Goal) and uses both terms throughout the site. The alternate term was developed because it is a long-standing practice at the institution to brand initiatives within the RSC language, or known internally, as to "Rio-ize" the language. In this case, the term Really Important Outcome (RIO) was introduced as an alternative language to WIG for the obvious reason that the acronym reflects the first word in the name of the College. Hence,

throughout the site one will see WIG/RIO used to refer to the short-term singular goal a team will focus on.

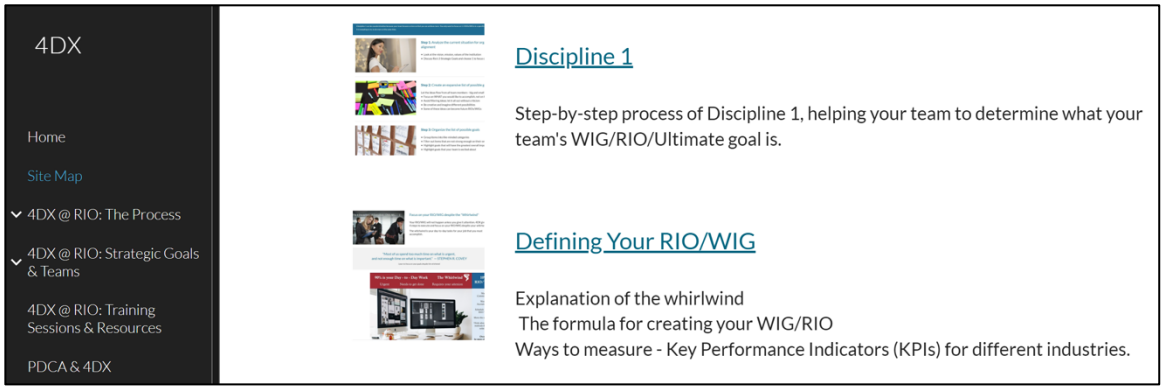
Figure 14. 4DX@RIO Site Map



The website contains a home page that provides an overview of the 4DX framework, the four disciplines, the RSC strategic plan goals, and the related links to access relevant information. The site map provides a screen shot and link to every component on the website. It begins with access to the home page and then provides an overview of the RSC 4DX process—how RSC is implementing the 4DX process. The Process Overview shares a rundown of the RSC plan for implementation and includes the required steps, timelines, and links to requisite forms that need to be completed (submitting team members, WIGs, scorecards). The next two sections of the site map link the visitor to the forms for submitting the team member lists and then the forms to submit the goals (WIGs). These sections are followed by links to the recorded trainings and power points that were created and delivered by the RSC 4DX Lead Coach and Trainer.

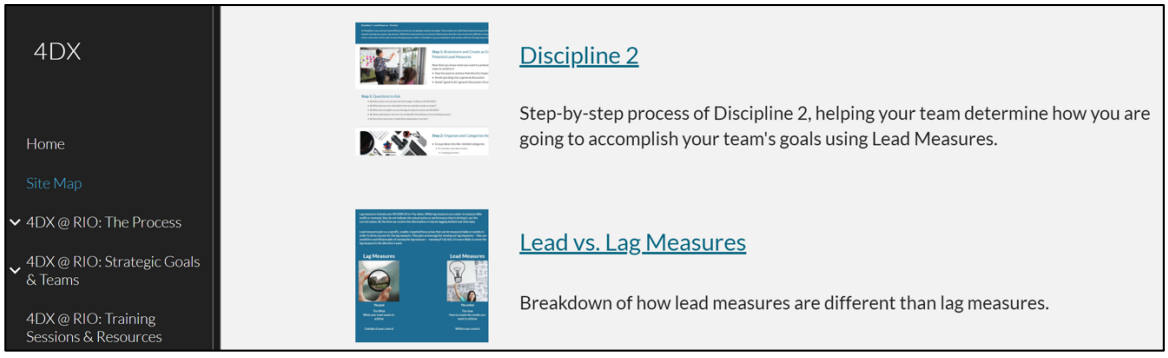
The Site Map provides links to each discipline with a subcategory that provides greater definitions and explanations of how to implement each discipline at RSC. For example, Discipline 1 presents the step-by-step process of how to determine the team's ultimate goal/WIG. The Discipline 1 link is then followed by a second link that shares deeper explanations of what is called the "whirlwind," the formula for creating the team WIG, and instructions for how to measure the WIG using Key Performance Indicators (KPIs), using examples from various industries.

Figure 15. Discipline 1 Webpage



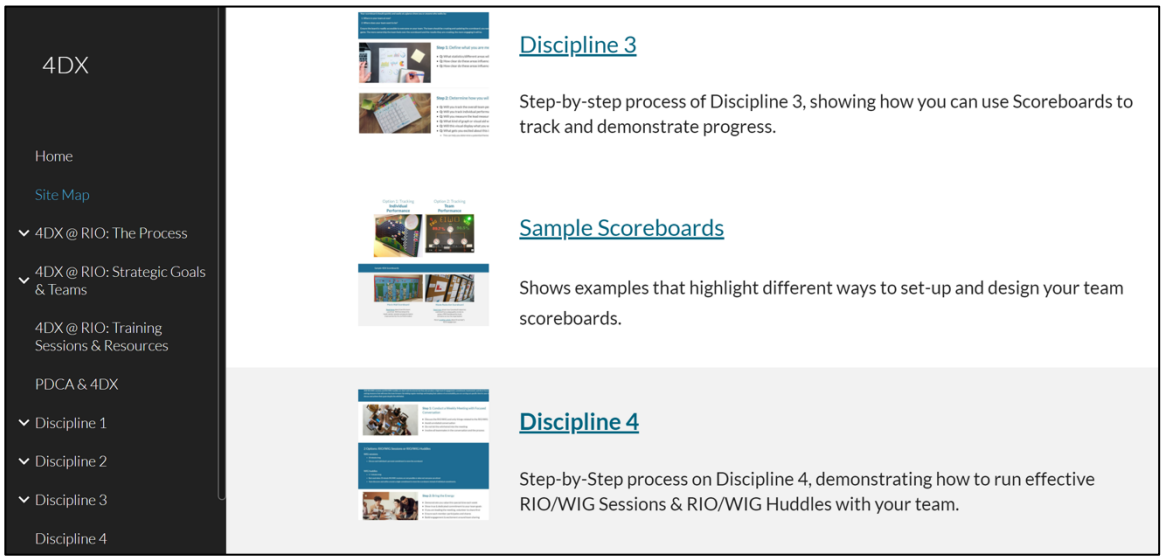
Discipline 2 presents the step-by-step process for how the team will determine their Lead Measures which will lead to goal accomplishment. The Discipline 2 link is followed by a link that provides greater clarity between lead and lag measures.

Figure 16. Discipline 2 Webpage



Discipline 3 shares the step-by-step process to use Scoreboards to track and demonstrate progress, followed by sample scorecards that highlight how teams can design their scorecards. Discipline 4 shares the step-by-step process to run effective team WIG sessions and team huddles.

Figure 17. Discipline 3 & 4 Webpage



After the Discipline components, the Site Map links to everyday examples of using Lead and Lag measures, industry examples, education examples, and examples from RSC. The last linked example takes visitors through all four disciplines as implemented by a particular department at RSC. It shares the specific steps taken, decisions made, and the reasons behind each choice. The Site Map then links to Key Terms, which shares clarification of key terms that are associated with the 4DX framework, followed by access to Guiding Questions. The Guiding Questions link shares helpful questions for teams to ask to ensure alignment with the requisite processes as well as questions that evaluate the accountability sessions. The Ground Rules link explains the ground rules and processes integral to implementing the 4DX model successfully. The last two items on the Site Map are the Frequently Asked Questions and a recognition of the RSC "4DX Champions."

This website serves as a model for any institution choosing to engage with this framework. All design elements, layout, materials, and content were designed by RSC. The following six pages share screen shots of the RSC 4DX website developed specifically to support the cycle of goal setting, measuring, reporting out, and iterating. The screen shots show the Home Page and the Site Map [See https://sites.google.com/view/rio4dx for the full website].

Figure 18. RSC Website Developed to Support Implementation of the 4DX Framework – Home Page

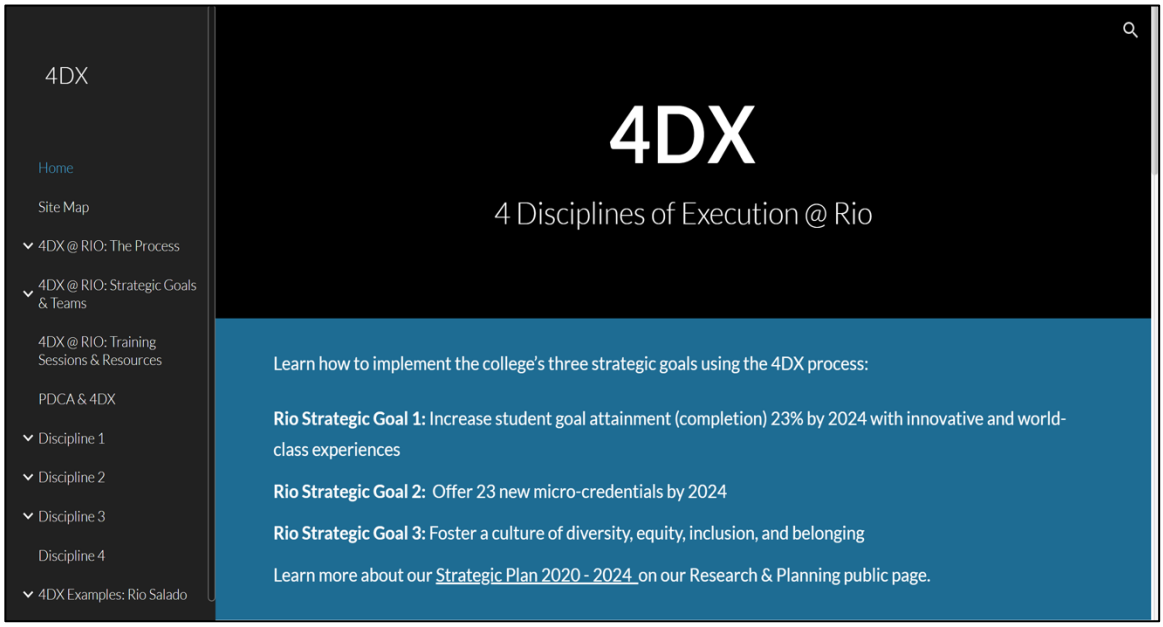


Figure 19. RSC Website Developed to Support Implementation of the 4DX Framework – Disciplines 1, 2, 3, & 4

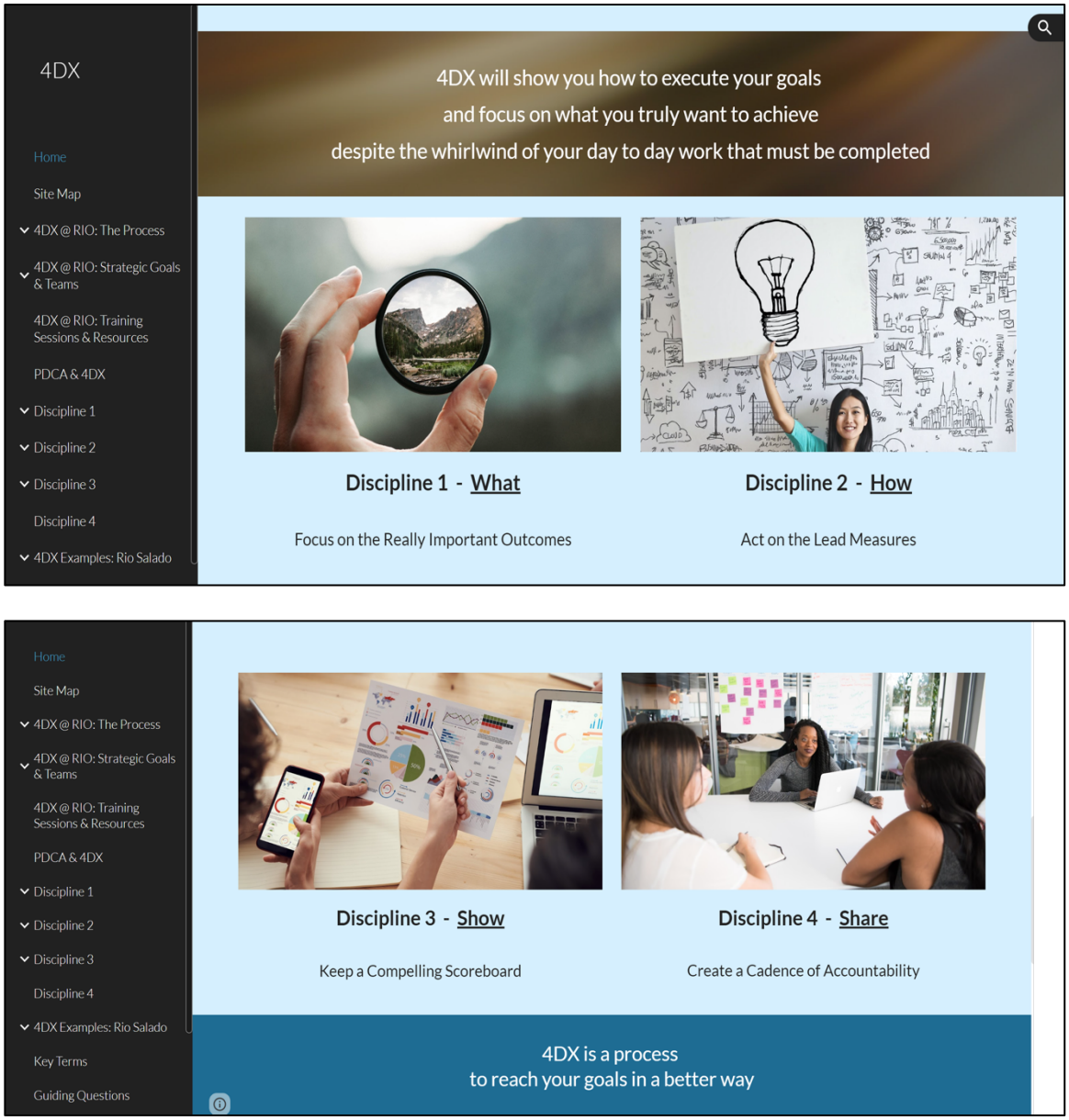


Figure 20. RSC Website Developed to Support Implementation of the 4DX Framework – Disciplines 1, 2, 3, & 4, Explained

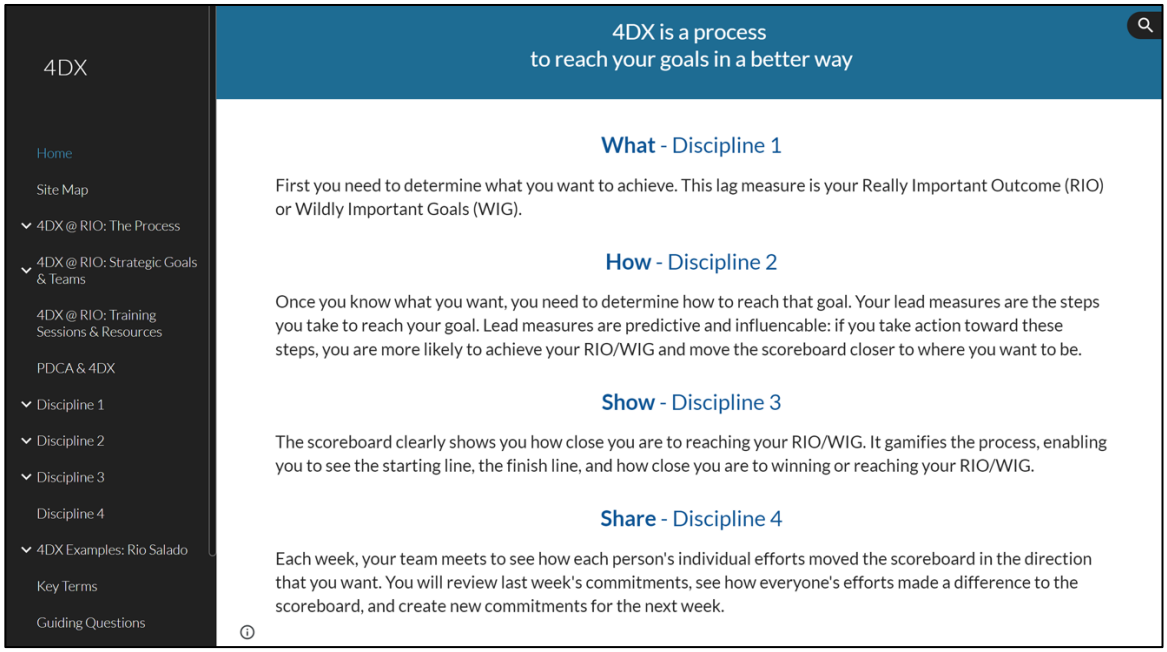
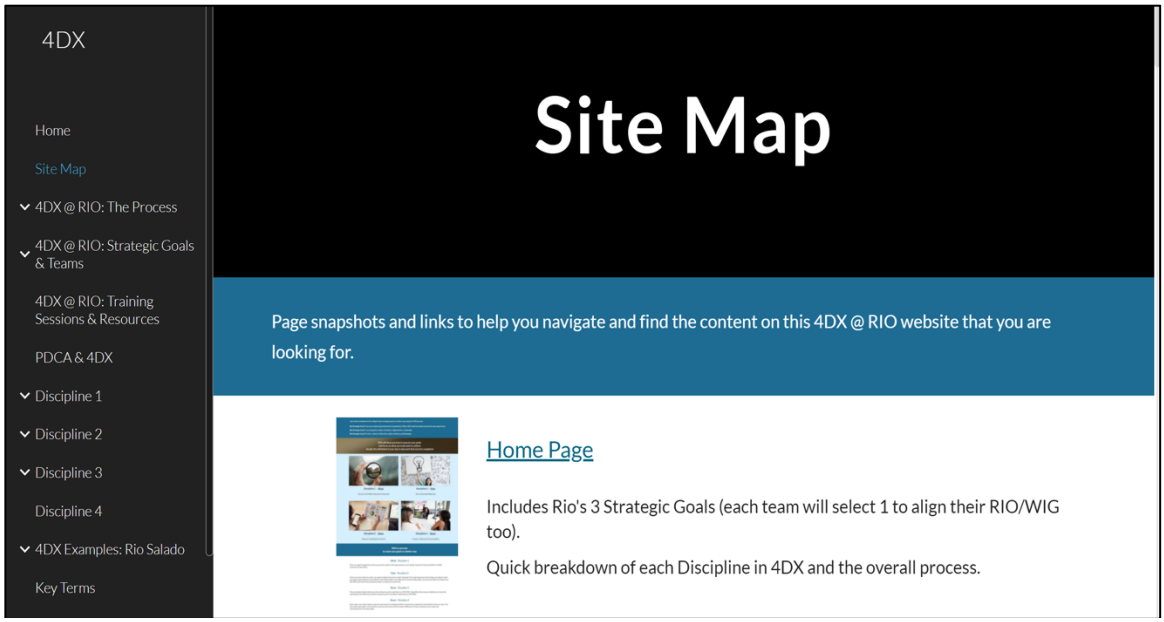


Figure 21. RSC Website Developed to Support Implementation of the 4DX Framework – Site Map



4DX

Home

Site Map

4DX @ RIO: The Process

4DX @ RIO: Strategic Goals & Teams

4DX @ RIO: Training Sessions & Resources

PDCA & 4DX

Discipline 1

Discipline 2

Discipline 3

Discipline 4

4DX Examples: Rio Salado

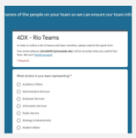
Key Terms

Guiding Questions

4DX @ RIO: **The Process**

Breakdown of the RSC 4DX plan, including required steps and due dates.

Features links to forms to submit teams, WIGS, scoreboards, etc.



4DX @ RIO: **Submitting Team Members List**

Form to submit the names of the people on your RSC 4DX team.

4DX @ RIO: **Submitting Team Goals**

Form to submit the WIG/RIO/Team Goals of your RSC 4DX team.

4DX @ RIO: **Training Sessions & Resources**

Features video recordings and PowerPoint of the Discipline Training sessions hosted at Rio Salado College by Dr. Aaron Coe & Christin Franco.

4DX

Home

Site Map

4DX @ RIO: The Process

4DX @ RIO: Strategic Goals & Teams

4DX @ RIO: Training Sessions & Resources

PDCA & 4DX

Discipline 1

Discipline 2

Discipline 3

Discipline 4

4DX Examples: Rio Salado

Key Terms

Guiding Questions

Ground Rules

Discipline 1

Step-by-step process of Discipline 1, helping your team to determine what your team's WIG/RIO/Ultimate goal is.

Defining Your RIO/WIG

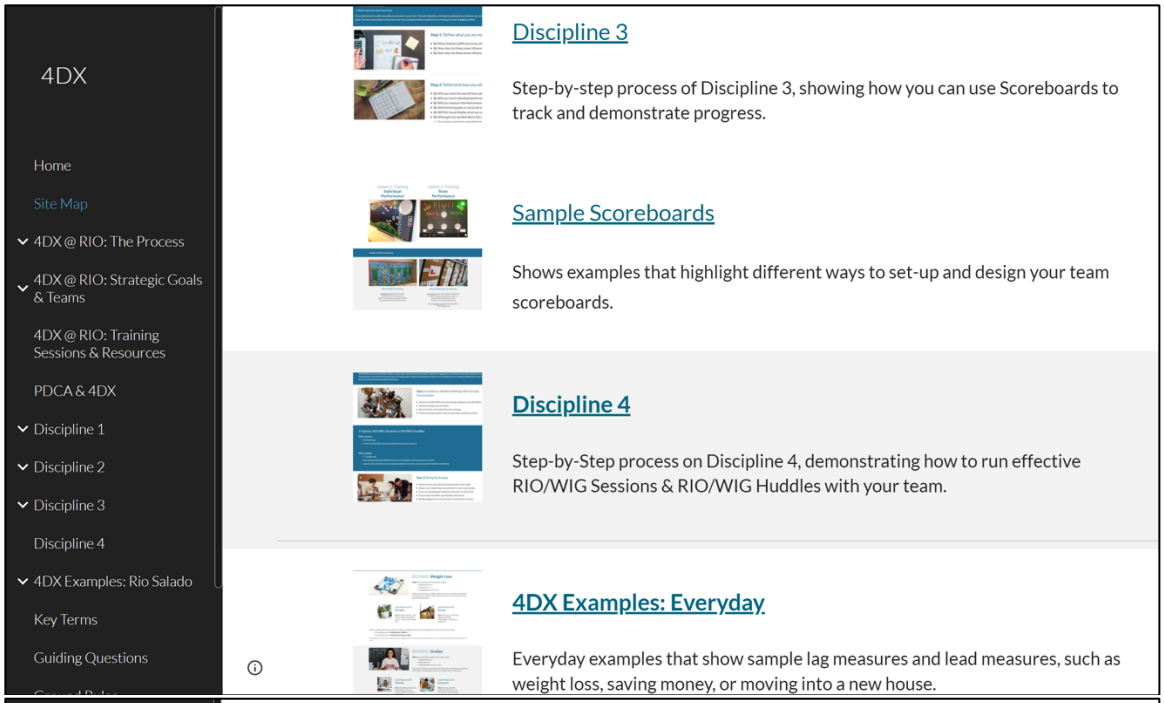
Explanation of the whirlwind
The formula for creating your WIG/RIO
Ways to measure - Key Performance Indicators (KPIs) for different industries.

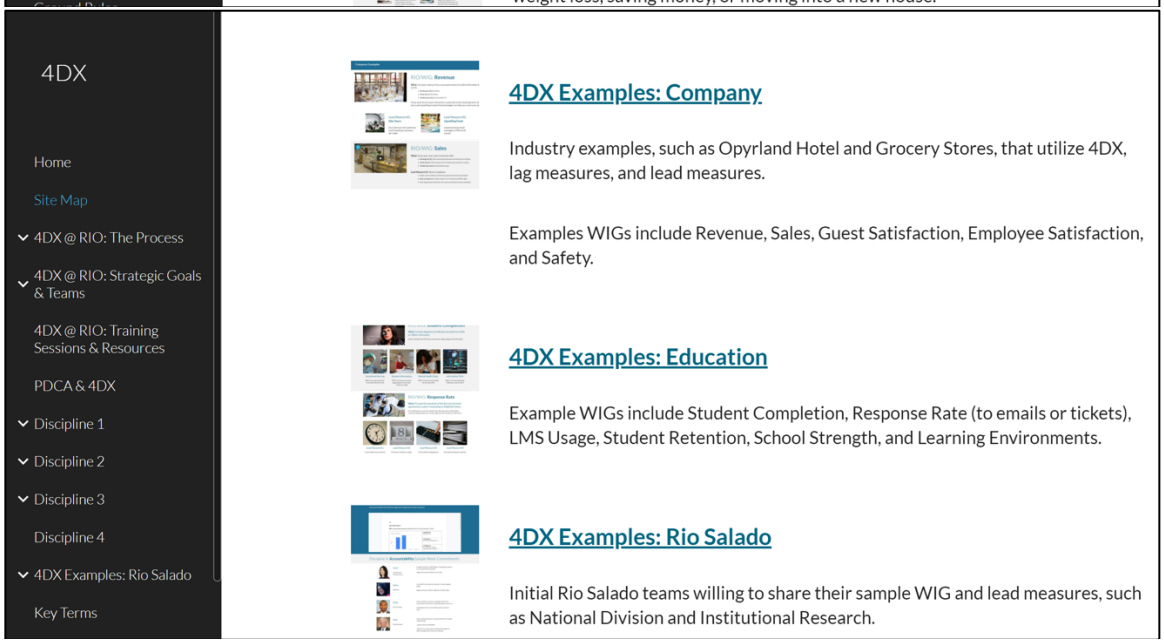
Discipline 2

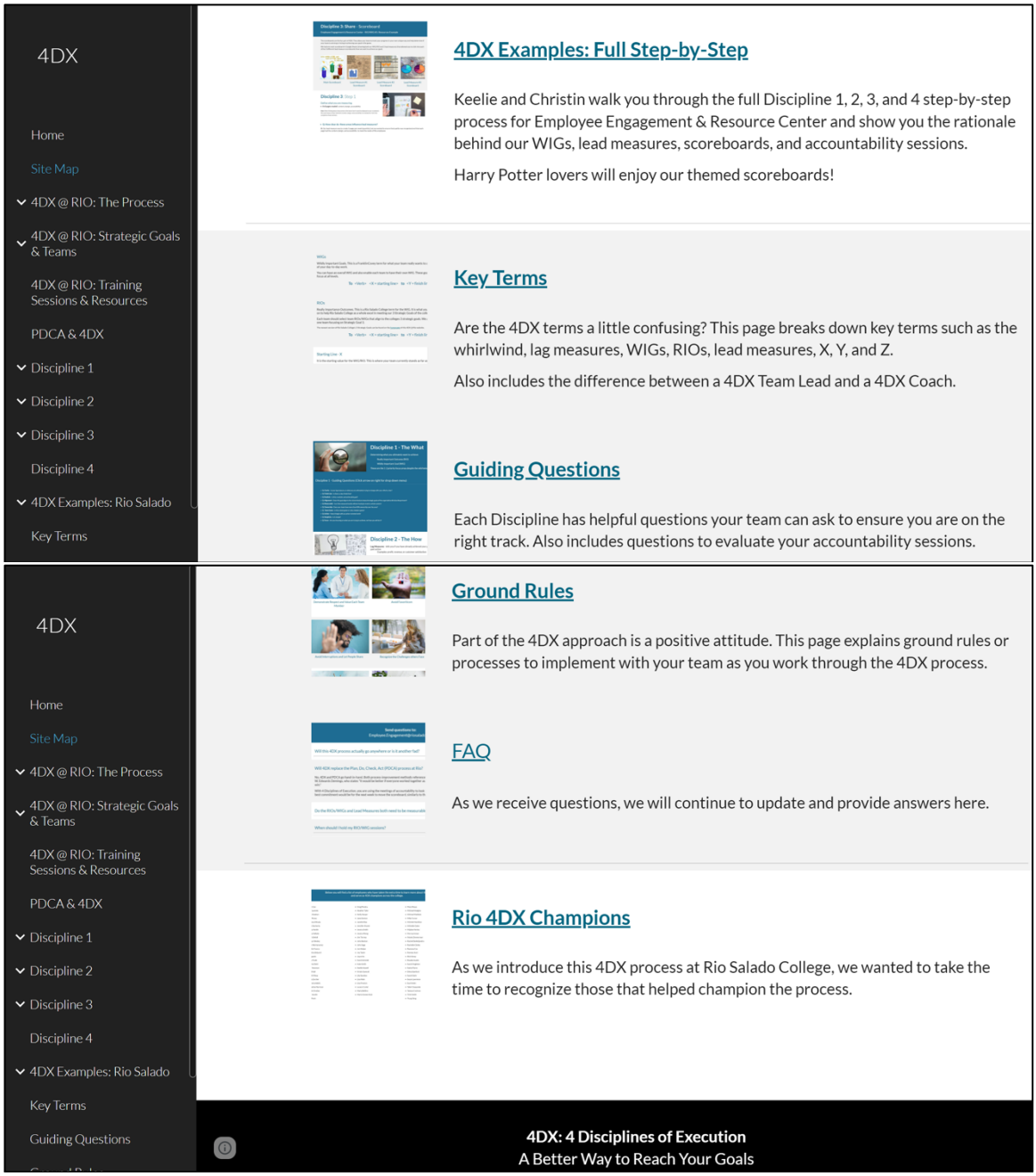
Step-by-step process of Discipline 2, helping your team determine how you are going to accomplish your team's goals using Lead Measures.

Lead vs. Lag Measures

Breakdown of how lead measures are different than lag measures.


4DX
Home
Site Map
4DX @ RIO: The Process
4DX @ RIO: Strategic Goals & Teams
4DX @ RIO: Training Sessions & Resources
PDCA & 4DX
Discipline 1
Discipline 2
Discipline 3
Discipline 4
4DX Examples: Rio Salado
Key Terms
Guiding Questions
Discipline 3
Step-by-step process of Discipline 3, showing how you can use Scoreboards to track and demonstrate progress.
Sample Scoreboards
Shows examples that highlight different ways to set-up and design your team scoreboards.
Discipline 4
Step-by-Step process on Discipline 4, demonstrating how to run effective RIO/WIG Sessions & RIO/WIG Huddles with your team.
4DX Examples: Everyday
Everyday examples that show sample lag measures and lead measures, such as weight loss, saving money, or moving into a new house.


4DX
Home
Site Map
4DX @ RIO: The Process
4DX @ RIO: Strategic Goals & Teams
4DX @ RIO: Training Sessions & Resources
PDCA & 4DX
Discipline 1
Discipline 2
Discipline 3
Discipline 4
4DX Examples: Rio Salado
Key Terms
4DX Examples: Company
Industry examples, such as Opyrland Hotel and Grocery Stores, that utilize 4DX, lag measures, and lead measures.
Examples WIGs include Revenue, Sales, Guest Satisfaction, Employee Satisfaction, and Safety.
4DX Examples: Education
Example WIGs include Student Completion, Response Rate (to emails or tickets), LMS Usage, Student Retention, School Strength, and Learning Environments.
4DX Examples: Rio Salado
Initial Rio Salado teams willing to share their sample WIG and lead measures, such as National Division and Institutional Research.



SUMMARY

Chapter Four of this product dissertation presented a brief summary of traditional institutional effectiveness metrics as measured at the national level (mostly focused on the singular GR metric), discussed related concerns, and then introduced a new institutional metric being piloted at RSC. This chapter summarized the concerns with the GR metric and the GR

metric as defined by IPEDS as the primary national effectiveness metric that is relied upon for research purposes and for public consumption. One population of students not considered in any of the institutional effectiveness metrics found is the non-credential-seeking student population that was introduced in this chapter. The product that was detailed herein was designed to create a new effectiveness metric that involves capturing the non-credential-seeking student population intent/goal, measuring that goal to completion (or not), and creating data reports and dashboards regarding this student population. Finally, the chapter described how the College implemented a framework to empower actionable data assessment cycles. Chapter Five provides a summary and discussion of the work shared in the product, future iterations of the work, future research questions and concluding remarks regarding the importance of this work.

CHAPTER FIVE: DISCUSSION, IMPLICATIONS, AND FUTURE RESEARCH

INTRODUCTION

Community colleges are a uniquely American institution that, for over a century, have stood for access to education, workforce development, and serving the most underserved populations in our country. According to the AACC Fact Sheet (2022), currently 1,043 community college institutions across the country awarded over 1,000,000 degrees and certificates in 2019–20. Community colleges are powerful models for creating social and economic mobility pathways for all students, including the most underserved in our nation. Understanding the effectiveness of an institution is extremely important to national, state, and local conversations regarding opportunity, access, funding, and the well-being of communities. However, as this dissertation has presented in Chapters One, Two, and Three, measuring institutional effectiveness at community colleges is a much more opaque endeavor than it may first appear.

Bahr (2013a) states, "If community colleges had only one fundamental focus, then measuring institutional performance would be a comparatively simple proposition" (p. 434). This statement from Bahr succinctly captures the fundamental need for the work shared in this dissertation. Chapters One and Two outline the complexities of measuring institutional effectiveness at community colleges due to the body of learners who attend for extremely diverse reasons and the multiple missions of community colleges to provide access to all, address workforce development, foster transfer students, provide adult basic education, and offer

community education. Chapters One and Two overview the current state of institutional metrics, noting that IPEDS remains the nationally accepted data system from which researchers, and the public alike, draw key data points. Chapters One, Two, and Three provide key information regarding the limitations of IPEDS and the GR metric, specifically for RSC, but also for all community colleges. Although national data systems have been developed that provide for greater inclusivity of the students that attend community colleges (i.e., the VFA), none of the current systems measure institutional effectiveness in relation to the non-credential-seeking student population. The product described in Chapters Three and Four is a first iteration of RSC capturing non-credential-seeking students' intent/goal, quantifying it in terms of courses to complete, and then measuring student completion of that intention.

PRODUCT OVERVIEW AND DISCUSSION

This product dissertation presents an argument for the need for greater institutional effectiveness metrics, beyond the standard and most commonly used GR metric. Note, the author fully supports measuring student completion through graduation rates, for those students who come to community college with the intention to achieve a degree or certificate. This author supports the GR metric being used as one marker of institutional effectiveness, but with the insistence of understanding that it is a limited measure of the student population and therefore results in a limited/distorted view of institutional effectiveness when considered as the sole marker for effectiveness.

The focus of this product dissertation has been to ask which students have not been included in that standard measure and to propose a new institutional effectiveness metric to include the non-credential-seeking student population. To the question of which students have been left out, it turns out that student population is a very large at RSC, amounting to

approximately 73% of students, and according to Bahr (2010), it was the largest incoming cohort of new students across 105 California community colleges.

This dissertation presents the argument that creating mechanisms to measure the non-credential-seeking student population is key for community colleges to create a more complete performance portfolio. As states increasingly attempt to link funding to student outcomes, this work becomes integrally important to community colleges being able to continue delivering on their multiple missions. As Booth (2014) discussed, and was noted by Harbor and Day (2009), the risks of having graduation be the singular measure of institutional effectiveness, courses and programs that fill a skills-gap for current workers become endangered as resources and focus may be solely on the GR. By utilizing such a restrictive measure, a large population of students that use the community college in very different ways than transfer and degree seeking students do without an affordable access to coursework that meets their personal goals may very well be left out completely.

In response, RSC undertook the daunting task of creating an instrument that could capture a non-credential-seeking student's intention for attending RSC and the associated number of courses the student intended to complete. The College then implemented that instrument, the Student Intent Survey, through the LMS, and created tracking reports, analyses, and dashboards that conveyed relevant information to the internal community for continuous improvement purposes, resource allocation purposes, and growing a more holistic understanding of the students RSC serves. As the College implemented this new measurement, RSC concurrently adopted the 4DX framework to create actionable goals for better serving and increasing completion of students. It may be important for the reader to note that RSC refers to

our new metric as *completion* of intention or goal rather than as *non-completion success* as referred to in the literature.

Chapter Two highlighted that many students come to the community college for purposes other than obtaining a degree or certificate, perhaps to "try out" college, for purposes of learning skills that will lead to job promotion or to obtaining a new job, personal interest, life-long learning, or to accumulate credits to transfer to a four-year institution. Regardless of the reasons (discussed in the future research section), this product provides the instruments and reasoning to be able to define and then measure completion of this student population. Interestingly, longitudinal studies conducted on the non-credential-seeking student population found incredibly high completion rates of 89% (Adelman, 1998, as cited by Dellow & Romano, 2002, p. 9) and close to 100% completion (Bahr, 2013a).

One significant difference between this product and the prior studies completed is that this product attempts to gather student intent and track to completion in real time. The other two studies cited were retrospective longitudinal studies. The advantage of the retrospective longitudinal studies is the ability for pattern identification from thousands of student records over multi-year studies. Additionally, the researcher of the most recent study (Bahr, 2019) was able to correlate earnings with student patterns of course taking. The advantages to the work contained in this product, is the access to real-time information that can empower an institution to adjust according to student needs or to provide targeted supports toward identified populations. The work of Adelman (1998) and Bahr (2019) is of critically important to understanding the need for further effectiveness and outcome metrics, and the work of this product dissertation provides for short-term, institutional/student specific data. This work has the potential, with further study and refinements, to significantly impact the conversations regarding community college impact and

effectiveness, funding discussions, and the ability to recognize all students served by the institution.

DELIMITATIONS AND LIMITATIONS OF THIS PRODUCT

Delimitations

The delimitations in this study included:

- The students were only online students at RSC.
- The Student Intent Survey was comprised of only one question, in efforts to reduce potential barriers; this format, therefore, limits the information collected.
- Students could have changed their intention or goals while they were taking courses, and this initial study does not provide the instruments to capture or track that change in intent.

These delimitations were selected to create a manageable project that could inform the future work of the College as well as the sector at large. By focusing on a single institution, the author was able to work within the College community to develop and implement the instruments and measures as a proof of concept. Additionally, RSC has a large student population that supports having significant data points from which to conduct analyses. The one-question Student Intent Survey was determined to be important for the first iteration to minimalize any negative impact (perceived barriers) to students entering their first courses. Asking students to validate their reason for attending was also determined to be important not only for accurate data collection and analyses, but also to be able to reach out and provide appropriate advisement if a student had either selected the incorrect choice for reason for attending or had changed their mind since completing the admissions application. The third delimitation was the choice not to implement the Student Intent Survey beyond the first course students enrolled in. This choice was decided to minimize potential barrier risks as well as to

allow the institution the time to review and analyze the information gathered and use that to inform next decisions.

Limitations

The limitations in this study include the potential that students may not declare their intent honestly for reasons, which may include choosing to access financial aid or for purposes of maneuvering around the RSC block calendaring system. Additional limitations result largely from this work being the first iterations of measuring student intention/goal to completion and therefore provides great opportunity for future iterations (discussed in the next section).

The first two limitations reflect the interconnection of attending college and accessing federal financial aid. In the first scenario, students who do not intend to complete a degree may choose to declare a program of study, signaling that they are a degree-seeking student and thereby making them eligible to receive federal financial aid. It is reasonable to consider a student may declare a major to access these resources for the duration of their studies, even if their plan is to complete only a few courses. Proposed federal legislation may impact this practice to some degree, as it would enable student access to federal financial aid for short-term programs. If this legislation is enacted, institutions will have much greater flexibility to cluster coursework into short-term certificates (micro-credentials) and strategically offer these clusters of micro-credentials based on the identified needs of this non-credential-seeking student population. However, to accomplish this shift effectively, there will need to be greater understanding, both globally and institution specific, of this student population and their goals for attending. Both the work of longitudinal studies such as Bahr's work (2010–19) and the data capture and analyses at individual institutions (what this product presents) will be integral to informing strategic use of resources to support the non-credential-seeking student population.

The second scenario of limitations related to federal financial aid may cause the data to skew in the opposite direction of the first scenario, where students may appear to be non-credential seeking but are in fact seeking a credential. Because of the unique weekly start date model that RSC offers, RSC created a unique block calendar system to meet the requirements for Title IV funding. The block calendar system allows a student to begin a course within an eight-week block, and then finish within a 16-week timeframe from that specific student's start date. The limitation within this structure is that students have the option of completing their courses within shorter time frames (4-week, 8-week, and 14-week options) and often want to begin their next course or set of courses prior to the end of the 16-week block. If they are declared as credential-seeking, they are prohibited from starting their coursework until the next block date (in effect, it acts like a rolling semester system for the students). This system is how RSC meets the federal guidelines for providing access to federal financial aid. Students who do not need or want to access federal financial aid may choose to enroll as non-credential-seeking students and complete courses according to their own timelines. The result of this limitation is that these students may appear to be non-credential seeking and yet may actually be seeking a credential. The current collection and tracking tools implemented in this product will empower RSC to review data longitudinally and determine if this is happening, and if so, to what extent. Also noteworthy, given current data results, is that the large majority of students complete their goal/intention within two semesters, indicating that the potential population of students in this category may be small.

The limitation of this work being completed at only one institution leads to another consideration: the process to determine the size of the non-credential-seeking student population at other community colleges. RSC presents a large student population falling into this broad

category (students attending for personal interest, for job skills, for completing limited coursework while working to complete a credential at a different institution, etc.), and therefore provides strength of population size for developing the proof-of-concept instruments; however, it remains to be investigated as to how large this population is across the country. As has been noted in this dissertation, Bahr (2010) found this population to be nearly one-third of all new to college students across 105 California community colleges, indicating it could be a sizeable population nationwide that has not been included in any institutional effectiveness metrics. Also notable is that Bahr's study included only new-to-college students, and that focus may mask the size of the population in terms of students who are returning to an institution, but for the same reasons as identified in the non-credential seeking population (upskilling, reskilling, personal interest, etc.). Certainly, this is an area for continued study.

Replicability of the Product

The instruments shared in this product are replicable by community colleges that have capacity for this work within their institutional research departments, collaboration across academic and student affairs' divisions, and support from executive leadership. The question for replicability for other institutions begins with the question, "Where in the student enrollment should the Student Intent Survey be administered?" The author of this dissertation welcomes further discussion with other institutions about how best to manage implementation, but based on initial experience with this work, recommends that the Student Intent Survey be administered separately from the admissions application for the reasons cited here. The admissions application typically has the risk of feeling overwhelming to new students and may not be the optimal space to capture accurate intention as students are often focused on completing the application as quickly as possible and may not be familiar with the language used on the application. Given the

current familiarity of students and institutions with using an LMS, especially resulting from the effects of the Covid-19 pandemic, it is the author's suggestion that institutions consider embedding a Student Intent Survey within the institution's LMS as a required item to complete prior to beginning courses. The Student Intent Survey shared in this product was intentionally designed to be simple and not cause an additional barrier to enrollment, and therefore lends to replicability at other institutions.

Additionally, this author suggests that, if an institution is considering piloting these tools, they consider piloting all elements within the product. Although each institution would refine the elements to meet their specific needs, the risk of not adopting all elements is twofold: not having enough information to inspire continued investigation of the data and understanding of the non-credential-seeking student population, and the risk of not having mechanisms to loop the data into actionable assessment cycles across the institution (i.e., Element VI). The benefit of replicating these tools will be cross-institutional learning that will likely result in iterative improvements in the model as well as a larger repertoire of literature on the importance of serving this student population, their outcomes, and the importance of funding institutions appropriately to continue this service.

RSC Future Iterations

RSC plans to continue this work and refine and expand the implementation tools for analyses. Planned future iterations include creating a survey mechanism to better understand the reasons students are attending, beyond confirming their initial choice on the admissions application. This revision will be important to conduct deeper analyses of how to support these students and how to construct institutional effectiveness metrics by which the institution can hold itself accountable. As part of constructing this instrument, qualitative research will be conducted

with this population to better understand their goals for attending and how they are making use of the institution.

RSC began qualitative interviews with students during the Spring 2021 and Fall 2021 semesters, but the work was focused on the out-of-state population only (as that is where the success coaches that had been hired were focused). The information collected was rich and provided insight to patterns and proves the value-add of this approach. For example, one pattern was the large number of students who were taking classes for pre-nursing study. This pattern revealed a national need for clustered courses that directly supported students being able to enter nursing programs at a home institution. The result of this pattern identification was the creation of a new certificate and associate degree program providing students with the needed coursework that they can complete online and transfer fully into their institution of choice (the certificate and degree program are being launched Fall 2022).

In future iterations of this work, RSC also plans to implement the Student Intent Survey more than one time to capture potential changes in goals. The details of how and when to implement will be informed through the qualitative data collected from students. Additionally, RSC will begin to conduct longitudinal studies on student performance to inform the creation of more appropriate institutional effectiveness metrics. One final area that RSC will need to address is a deeper dive into the non-credential student population in terms of understanding the drop-in students versus the experimental students (as defined by Bahr, 2013a).

FUTURE RESEARCH

As noted by Bahr (2013b) there is a "distressingly small" amount of qualitative research that has been conducted on community college students (p. 148). Hence, one area for future research is qualitative in nature to increase understanding of how different types of students use

the community college and how to better define these sub populations so that more accurate classifications of students' needs, and outcomes can be identified and measured for effectiveness. Qualitative studies will inform college practitioners as to how best to support this student population and optimal points in time and ways to contact students. Additionally, further research on effective ways community colleges can disaggregate the non-credential student population is fundamentally important to building improved and expanded metrics. This will empower further replication of Bahr and Booth's (2012) study in which they compared pre and post salaries for the non-credential (drop-in/skills builders) students and found that different subgroups of students, correlated with course clusters, were improving their standard of living outside of the completion framework. This future research is closely connected with further research to be conducted on refining the student and college classifications Bahr (2013b) has initially defined.

This dissertation has shed light on the initial research questions of how a community college can measure non-credential-seeking student completion, the significance of measuring non-credential-seeking student populations, and how measuring this completion has impacted decision making at RSC. However, this dissertation did not cover the scope of how including the non-credential-seeking student population might impact overall institutional effectiveness metrics. As this work evolves, research into what an optimal community college performance portfolio contains, what types of expanded metrics are included, will be integral to effectiveness conversations.

CONCLUSION

Community colleges have long served as the proprietors of providing access to social mobility for the most vulnerable and most underserved in our country. They have long carried

the important role of serving as a national model for addressing social equity, working towards social, civic, and economic justice and well-being. At the same time, heightened national interest in degree achievement has led to increased interest and scrutiny of community colleges, with growing demands for accountability. This dissertation has highlighted that the multiple and multifaceted missions of community colleges compound the complexity of implementing an accurate and complete performance accountability system (Bahr, 2013a). For community colleges to successfully fulfill their multiple missions of access, equity, and economic generators, they need adequate funding—and adequate funding is tied to performance metrics. There is great opportunity in this moment for higher education leaders to help shape and define a more complete accountability portfolio while remaining focused on meeting students' needs.

REFERENCES

Achieving the Dream. (2008). Test drive: *Six states pilot better ways to measure and compare community college performance.* http://www.achievingthedream.org/_pdfs/_publicpolicy/testdriveXS.pdf.

Adelman, C. (1999). *Answers in the tool box: Academic intensity, attendance patterns and bachelor's degree attainment.* U.S. Department of Education.

Adelman, C. (2004). *Principal indicators of student academic histories in postsecondary education, 1972–2000*. U.S. Department of Education, Institute of Education Sciences.

Advisory Committee on Student Financial Assistance. (2013). *Measure twice: The impact on graduation rates of serving Pell grant recipients. A Policy Bulletin for HEA Reauthorization.* https://files.eric.ed.gov/fulltext/ED553380.pdf

Alexander, F. E. (2000). The changing face of accountability: Monitoring and assessing institutional performance in higher education. *Journal of Higher Education*, *71*(4), 411–431.

Alfred, R., Shults, C., & Seybert, J. (2007). *Core indicators of effectiveness for community colleges*. Community College Press.

Aliyeva, A., Cody, C.A., & Low, K. (2018). *The history and origins of survey items for the integrated postsecondary education data system (2016–17 update).* (Research No. NPEC 2018-023). U.S. Department of Education. http://nces.ed.gov/pubsearch

American Association of Community Colleges. (2022). *Fast facts*. https://www.aacc.nche.edu/research-trends/fast-facts/

American Association of Community Colleges. (2021, December 2). *DataPoints: Enrollment by race/ethnicity.* https://www.aacc.nche.edu/2021/12/02/datapoints-enrollment-by-race-ethnicity/

American Association of Community Colleges. (2019). *Driving success. VFA summary report: leading indicators of success and student outcomes for community colleges* [Summary]. https://vfa.aacc.nche.edu/Documents/VFA_Summary_Report_2019.pdf

American Association of Community Colleges. (2019). *Voluntary framework of accountability.* https://www.aacc.nche.edu/programs/voluntary-framework-accountability/

Ashford, E. (2017, October 12). IPEDS improved but needs better data. *Community College Daily*. http://www.ccdaily.com/2017/10/ipeds-improved-needs-better-data/

Astin, A. W. (2006). Making sense out of degree completion rates. *Journal of College Student Retention*, *7*(1–2), 5–17.

Astin, A. W., & Oseguera, L. (2005). *Degree attainment rates at American colleges and universities* (Rev. ed.). Higher Education Research Institute, UCLA.

Bahr, P. R. (2010a). The bird's eye view of community colleges: A behavioral typology of first-time students based on cluster analytic classification. *Research in Higher Education*, *51*, 724–749. doi:10.1007/s11162-010-9180-5

Bahr, P. R. (2011). A typology of students' use of the community college. *New Directions for Institutional Research 2011*, (S1), 33–48. https://doi.org/10.1002/ir.415

Bahr, P. R. (2013a). Classifying community colleges based on students' patterns of use. *Research in Higher Education*, *54*(4), 433–460. https://doi.org/10.1007/s11162-012-9272-5

Bahr, P. R. (2013b). The deconstructive approach to understanding community college students' pathways and outcomes. *Community College Review*, *41*(2), 137–153. https://doi.org/10.1177/0091552113486341

Bahr, P. R. (2019). The labor market returns to a community college education for non-completing students. *The Journal of Higher Education*, *90*(2), 210–243. https://doi.org/10.1080/00221546.2018.1486656

Bahr, P. R., & Booth, K. (2012). *What's completion got to do with it? Using course-taking behavior to understand community college success*. Research and Planning Group for California Community Colleges. http://www.learningworksca. org/whats-completion-got-to-do-with-it-using-course-taking-behavior-to-understand-com munity-college-success/

Bailey, T., Calcagno, J. C., Jenkins, D., Leinbach,T., & Kienzi, G. (2006). Is student-right-to-know all you should know? An analysis of community college graduation rates. *Research in Higher Education*, *47*(5), 491–519.

Bailey, T., Jenkins, D., & Leinbach, T. (2005). *Community college research center brief, no. 28: Graduation rates, student goals, and measuring community college effectiveness*. Community College Research Center, Teachers College, Columbia University.

Bailey, T., & Xu, D. (2012, September). *Input-adjusted graduation rates and college accountability: What is known from twenty years of research?* Community College Research Center. http://www.hcmstrategists.com/contextforsuccess/papers/LIT_REVIEW.pdf

Barnett, R., & Bjarnason, S. (1999). *The reform of higher education*. In D. Teather (Ed.), Higher education in a post-binary era: National reforms and institutional responses. Jessica Kingsley.

Boerner, H. (2015). On their terms: In the drive for accountability, community college leaders define their own measures of success. *Community College Journal*, *85*(4), 18–20.

Booth, K. (2014). The ones that got away: Why completing a college degree is not the only way to succeed. *LearningWorks*. http://www.learningworksca.org/ the-one-that-got-away-why-completing-a-college-degree-is-not-the-only-way-to-succeed/

Clotfelter, C. T., Ladd, H. F., Muschkin, C. G., & Vigdor, J. L. (2013). Success in community college: Do institutions differ? *Research in Higher Education*, *54*(7), 805–824. https://doi.org/10.1007/s11162-013-9295-6

Cohen, A., & Brawer, F. (2003). *The American community college* (4th ed.). Jossey-Bass.

Community College Research Center. (n.d.). *Community College FAQs*. https://ccrc.tc.columbia.edu/community-college-faqs.html

Cunha, J. M. & Miller, T. (2014). Measuring value-added in higher education: Possibilities and limitations in the use of administrative data. *Economics of Education Review*, *42*, 64–77. https://doi.org/10.1016/j.econedurev.2014.06.001

Dellow, D. A., & Romano, R. M. (2002). Editor's choice: Measuring outcomes: Is the first-time, full-time cohort appropriate for the community college? *Community College Review*, *30*(2), 42–54. https://doi.org/10.1177/009155210203000203

Dougherty, K. J., Hare, R., & Natow, R. S. (2009). *Performance accountability systems for community colleges: Lessons for the voluntary framework of accountability for community colleges*. http://ccrc.tc.columbia.edu/media/k2/ attachments/performance-accountability-systems.pdf

Economist, The. (1997, October 4–10). *A survey of universities: The knowledge*, pp. 4–8.

EMSI. (2019, March). *The economic value of Rio Salado College. Fact sheet*. https://ep.riosalado.edu/

Ewell, P. T. (2011). Accountability and institutional effectiveness in the community college. *New Directions for Community Colleges*, *2011*(153), 23–36. https://doi.org/10.1002/cc.434

Ewell P. T., & Jones, D. P. (1994). Pointing the way: Indicators as policy tools in higher education. In S. Rupert (Ed.), *Charting higher education accountability: A sourcebook on state-level performance indicators* (pp. 1-16). Education Commission of the States.

Ferris State University. (n.d.a). *Dissertation options*. https://www.ferris.edu/administration/ academicaffairs/extendedinternational/ ccleadership/program/dissertation.htm

Ferris State University. (n.d.b). *Chapter by chapter: Quality markers and instructions*. https://ferris.instructure.com/courses/209/pages/handouts-and-dissertation-materials?module_item_id=506517

Fischer, K. (2006, June 23). Standards inadequate for 2-year colleges. *Chronicle of Higher Education*, *52*(42), A26–A26.

FranklinCovey (n.d.). *The 4 disciplines of execution*. https://www.franklincovey.com/the-4-disciplines/

Gellman-Danley, B. (2016). Community colleges deserve new narrative and improved metrics. *Community College Week*, *28*(18), 11–12.

Harbour, C. P., & Day, M. (2009). Negotiating the community college institutional accountability environment: A Deweyan perspective. *New Directions for Community Colleges*, *2009*(148), 5–15. https://doi.org/10.1002/cc.382

Hillman, N. (2016). Why performance-based college funding doesn't work. *The Century Foundation*. https://tcf.org/content/report/why-performance-based-college-funding-doesnt-work/

Hillman, N. W., Tandberg, D. A., & Fryar, A. H. (2015). Evaluating the impacts of "new" performance funding in higher education. *Educational Evaluation and Policy Analysis*, *37*(4), 501–519.

Horn, A. S., Horner, O., G., & Lee, G. (2019). Measuring the effectiveness of two-year colleges: A comparison of raw and value-added performance indicators. *Studies in Higher Education*, *44*(1), 151–169. https://doi.org/ 10.1080/03075079.2017.1349741

Horn, A. S., and Lee, G. (2016). The reliability and validity of using regression residuals to measure institutional effectiveness in promoting degree completion. *Research in Higher Education*, *57*(4), 469–496. https://doi.org/10.1007/s11162-015-9394-7

Humphreys, D. (2012). What's wrong with the completion agenda—And what we can do about it. *Liberal Education*, *98*(1), 8–17.

Joch, A. (2014). A question of accountability: Looking beyond federal mandates for metrics that accurately benchmark community college success. *Community College Journal*, *84*(5), 54–58. (EJ1092435) ERIC.

Kane, T. J., Orszag, P. R., and Gunter, D. L. (2003). State fiscal constraints and higher education spending: The role of Medicaid and the business cycle. [Discussion paper]. Brookings Institution.

Kane, T. J., & Rouse, C. E. (1995). Labor-market returns to community college degrees, diplomas, and certificates. *Journal of Labor Economics*, *32*(1), 95–121.

Kelly, P., & Whitfield, C. (2014). Postsecondary education's most popular and prickly metric. *Change: The Magazine of Higher Learning*, *46*(4), 56–58. https://doi.org/10.1080/00091383.2014.925767

Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *The Journal of School Health*, *74*(7), 262–273. https://doi.org/10.1111/j.1746-1561.2004.tb08283.x

Ladd, H. F., & Loeb, S. (2019). The challenges of measuring school quality: Implications for educational equity. In D. Allen & R. Reich (Eds.), *Education, Justice and Democracy* (pp. 19-42). University of Chicago Press. https://doi.org/10.7208/9780226012933-003

Marcotte, D. E., Bailey, T., Borkoski, C., & Kienzl, G. S. (2005). The returns of a community college education: Evidence from the national education longitudinal survey. *Educational Evaluation and Policy Analysis*, *27*(2), 157–175. https://doi.org/10.3102/01623737027002157

Merisotis, J. P., & Shedd, J. M. (2003). Using IPEDS to develop a classification system for two-year postsecondary institutions. *New Directions for Community Colleges*, *2003*(122), 47–61.

Miller, E. S. & Shedd, J. M. (2019). The history and evolution of IPEDS. *New Directions for Institutional Research*, *2019*(181), 47–58. https://doi.org/10.1002/ir.20297

Miller, N. B. (2014). Nontraditional student graduation rate benchmarks. *The Journal of Continuing Higher Education*, *62*(3), 141–151. https://doi.org/10.1080/07377363.2014.953437

Moosai, S., Walker, D. A., & Floyd, D. L. (2011). Using student and institutional characteristics to predict graduation rates at community colleges: New developments in performance measures and institutional effectiveness. *Community College Journal of Research and Practice*, *35*(10), 802–816. https://doi.org/10.1080/10668926.2010.520245

Mullin, C. M. (2012, February). *Why access matters: The community college student body* (Policy Brief 2012-01PBL). American Association of Community Colleges.

National Center for Education Statistics (n.d.). *Undergraduate enrollment*. https://nces.ed.gov/programs/coe/indicator/cha

National Center for Education Statistics (n.d.). *Characteristics of postsecondary students*. https://nces.ed.gov/programs/coe/indicator/csb?tid=74

National Center for Education Statistics (n.d.). *Integrated Postsecondary Education Data System: IPEDS survey components*. https://nces.ed.gov/ipeds/use-the-data/survey-components/9/graduation-rates

Ortagus, J. C., Kelchen, R., Rosinger, K., & Voorhees, N. (2020). Performance-based funding in American higher education: A systematic synthesis of the intended and unintended consequences. *Educational Evaluation and Policy Analysis*, *42*(4), 520–550. https://doi.org/10.3102/0162373720953128

Rio Salado College. (2021). Internal RSC report: unpublished.

Rio Salado College. (2020–2021). *Fact sheet: Who we are 2020–2021*. https://www.riosalado.edu/sites/default/files/docs/research-and-planning/6836-2020-2021-fact-sheet_0.pdf

Rio Salado College. (2017). *General education program review*. https://www.riosalado.edu/sites/default/files/inline/file/9299-gen-ed-program-review-final-9-6-17.pdf

Rio Salado College. (2011). *General education program review report.* https://www.riosalado.edu/about/teaching-and-learning/assessment-student-learning/program-review

Rio Salado College. (n.d.a). *Student business services*. https://www.riosalado.edu/students/student-business-services/tuition-and-fees

Rio Salado College. (n.d.b). *Strategic plan 2020-2024. Research and planning.* https://www.riosalado.edu/sites/default/files/inline/file/9159-strad-strategicplan2020-24-br-0321-online.pdf

Shapiro, D., Dundar, A., Wakhungu, P. K., Yuan, X., Nathan, A., & Hwang, Y. (2016, December). *Completing college: A national view of student attainment rates – Fall 2010 cohort* (Signature Report No. 12). National Student Clearinghouse Research Center.

Umbricht, M. R., Fernandez, F., & Ortagus, J. C. (2017). An examination of the (un)intended consequences of performance funding in higher education. *Educational Policy*, *31*(5), 643–673. https://doi.org/10.1177/0895904815614398

U.S. White House. (2009). *Investing in education: The American graduation initiative*. https://obamawhitehouse.archives.gov/blog/2009/07/14/investing-education-american-graduation-initiative

Wang, W. (2004). UCLA community college review: Community education in the community college. *Community College Review*, *32*(3), 43–56. https://doi.org/10.1177/009155210403200304

Whissemore, T. (2012). Voluntary framework of accountability metrics released. *Community College Journal*, *82*(4), 8.