



## Challenges

The Dana Center recommends that implementation of mathematics pathways is most effective when efforts are coordinated across institutions while still allowing for local decision making on how the pathways are operationalized. Monitoring depth of implementation of reforms under these conditions is a daunting task, especially when there is not a statewide policy mandate or significant funding for institutions. Collecting information about implementation practices is a further complexity.

The Texas Success Center (TSC)<sup>3</sup> has addressed these challenges related to implementation by highlighting exemplary practices among colleges and motivating continuous improvement. TSC supports TACC colleges in a variety of ways including evaluating, supporting, and scaling ongoing efforts to improve student success rates.

## Solutions

During the second year of implementing the Dana Center Mathematics Pathways (DCMP) model in Texas, Charles A. Dana Center researchers noted concerns about supporting and documenting local innovations and the challenges in evaluating the progress of individual colleges. To address these challenges, in 2015, the Dana Center collaborated with the Texas Success Center to design and circulate a survey to record institutional progress toward implementation of each of the four DCMP principles:<sup>4</sup>

1. All students, regardless of college readiness, enter directly into mathematics pathways.
2. Students complete their first college-level mathematics requirement in their first year of college.
3. Strategies to support students as learners are integrated into courses and are aligned across the institution.
4. Instruction incorporates evidence-based curriculum and pedagogy.

All of TACC's member districts were invited to complete the Texas Success Center Mathematics Pathways Survey.<sup>5</sup> Respondents chose to complete the survey only or, to be considered for distinguished recognition for

their implementation efforts, submit supporting documentation on their progress. Independent reviewers familiar with the core DCMP principles<sup>6</sup> reviewed the submissions.



Professor Uri Treisman addresses attendees of the Texas Pathways Institute.

The survey provided valuable high-level information about progress at the colleges. Based on the data, the TSC identified institutions with exemplary practices and recognized one institution for its work in each of the four principle areas. The Overall Exemplar Award was bestowed on one college that demonstrated exceptional efforts to enact all four DCMP principles. The colleges representing the Math Pathways Exemplars were recognized at the Texas Pathways Institute, a large gathering of faculty, staff, and administrators from the institutions participating in Texas Pathways.<sup>7</sup>

The survey continues to be administered on an annual basis and collected its highest response rates in 2018. TSC Director Kristi Short noted that these surveys present a high-level overview of what is occurring at the colleges, how well these institutions are supporting all students to complete college-level math, and how far along they are in their reform efforts.

The TSC has refined the survey over time, with significant revisions made in 2018. The survey was streamlined with more multiple-choice questions and was migrated to an online platform that can quickly tabulate the

quantitative data, allowing reviewers to have more time analyzing responses to the open-ended questions and reviewing supporting documentation. Colleges can now obtain a PDF of the entire survey in order to gather data and prepare supporting documentation before logging into the online questionnaire.

The Dana Center uses the survey data for a variety of purposes, one of which is to combine the results with student success data to further inform recommendations for effective practices.

Jennifer Dorsey, a research and evaluation analyst at the Dana Center, has been involved in developing and refining the surveys. Dorsey emphasized the importance of balancing what researchers want to know and creating a tool that was not overly burdensome for respondents to complete. She also observed how combining the data over several years has produced a nuanced “big picture” of what is occurring in institutions across the state.

## Results

Both Short and Dorsey have noted that the usefulness of survey questions to guide institutions’ self-assessments of their programs and the public recognition of exemplary colleges have provided a valuable tool to assess progress and encourage continuous improvement at individual colleges. Dorsey stated, “A lot of times, there aren’t opportunities for positive reflection in this work. And colleges don’t get that pat on the back. People really enjoy the awards and praise in front of their peers.”

Paris Junior College was selected for the 2018 Overall Exemplar Award.<sup>8</sup> Receiving awards in each of the four principles areas were Grayson College, San Jacinto College, McLennan Community College, and College of the Mainland. Faculty, staff, and administrators from each institution were recognized at the 2018 Texas Pathways Institute held in Dallas in November.

In her acceptance speech, Paris Junior College President Pamela Anglin said, “We believe the implementation of the four Mathematics Pathways Guiding Principles have been a significant part of our increase in our graduation rate from 19 percent in 2013 to 32 percent in 2017.” She continued, “Receiving the Exemplar Award means a lot to us. Personally, I am thrilled that our faculty and support services staff are being acknowledged for their work and their determination and persistence to improve student success.”

College of the Mainland was recognized for its work specifically related to Principle 4 (instruction incorporates evidence-based curriculum and pedagogy). Mainland President Warren Nichols described a year with “some growing pains and a fair amount of stress” as the college implemented the co-requisite model at full scale. Nichols praised the work of math chairs, faculty, and advisers in revamping scheduling, ensuring students were on the correct pathways, and participating in a “crash course to understand co-requisite principles.” The monumental effort paid off. The college reported that College Algebra success rates increased from 17 percent to 44 percent in the 2017–18 academic year and 4 percent to 40 percent in Quantitative Reasoning and Elementary Statistics courses.<sup>9</sup>



Pamela Anglin (center) accepts the TACC Overall Exemplar Award at the 2018 Texas Pathways Institute.

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## Next Steps

Short shared that the survey questions and format likely will continue to be refined. The TSC is already using the data in new ways—for example, combining the information with student success data to create summary “one-pagers,” which colleges can use to highlight their reform efforts and to showcase the positive impact on student success. Dr. Martha Ellis, the Dana Center’s Director of Higher Education Strategy, Policy and Services, also saw opportunities for using the data to plan targeted professional learning, identify exemplar and effective practices to share with other institutions, connect people in different roles, and refine implementation tools.

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## Endnotes

<sup>1</sup> <https://www.icut.org/foundation/initiatives/texas-pathways/>

<sup>2</sup> Texas Higher Education Coordinating Board. (n.d.) *Developmental education accountability measures data*. Retrieved from <http://www.txhighereddata.org/reports/performance/deved/>

<sup>3</sup> <https://tacc.org/tsc>

<sup>4</sup> Charles A. Dana Center. (2015). *Third-year report*. Retrieved from <https://dcmathpathways.org/sites/default/files/2016-08/Third-Year%20Report%2C%20December%202015.pdf>

<sup>5</sup> <http://dcmathpathways.org/resources/texas-success-center-2018-mathematics-pathways-survey>

<sup>6</sup> <https://dcmathpathways.org/dcmp/dcmp-model>

<sup>7</sup> <https://tea.texas.gov/pathways/>

<sup>8</sup> <https://www.utdanacenter.org/blog/texas-community-colleges-receive-major-recognition-math-instruction>

<sup>9</sup> College of the Mainland. (2018, November 29). *News release*. Retrieved from <http://www.guidrynews.com/story.aspx?id=1000093979>

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## Contact Information and Supporting Documents

The 2018 TSC Mathematics Pathways Survey is available at <http://dcmathpathways.org/sites/default/files/resources/2019-02/2018%20Texas%20Success%20Center%20Mathematics%20Pathways%20Survey.pdf>

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Colleagues discuss a presentation at the 2018 Texas Pathways Institute.

## About the Dana Center

The Charles A. Dana Center develops and scales mathematics and science education innovations to support educators, administrators, and policy makers in creating seamless transitions throughout the K–16 system for all students, especially those who have historically been underserved. We focus in particular on strategies for improving student engagement, motivation, persistence, and achievement.

The Center was founded in 1991 at The University of Texas at Austin. Our staff members have expertise in leadership, literacy, research, program evaluation, mathematics and science education, policy and systemic reform, and services to high-need populations.

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