STEM TRANSFER PARTNERSHIP SERIES

Learning from Students: How Teams Rethink Their STEM Transfer Process Through Student Input

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Student input is an essential element in institutional transformation for student success but the process of cultivating student input involves creative rethinking of data collection strategies. This data note documents the collaborative work of community college and university partnerships to collect student input and translate that data into improvements in the STEM transfer pathway. We find that these partnerships are developing contextually responsive, multifaceted strategies for incorporating student input that prioritize student engagement and clarifying information systems.

One of the key commitments of CCRI's Stem Transfer Partnership (STP) program is to transform STEM transfer pathways and improve outcomes for students from low-income backgrounds using student input. Teams of two-year and four-year college and university partnerships have been working together to improve the STEM transfer process based on student data and what they learn from student feedback. Since the inception of the program, CCRI has been providing technical support and collecting data on how each team approaches the process of learning from students. What has emerged from these data, across the first 18 months of the partnership work, are some valuable insights into how different teams define student input, how they go about operationalizing and collecting student experiences and preferences, and how they make sense of that data. Each team has developed a distinctive plan for collecting student input, tailoring the plan to the specific contexts, disciplines, and goals of that partnership. This data note will describe not only the strategies for student input that resulted but, most importantly, the evolution of thinking about what constitutes student input, what forms of input are most needed, and insights from learning from students.

PROGRAM BACKGROUND AND DATA SOURCES

The data for this analysis are drawn from the first year and a half of the STP program, a three-year initiative to foster effective STEM pathways between four-year and two-year institutions for students from low-income backgrounds. Nine teams consisting of one two-year college and one four-year university have been engaged in a process of advancing their partnership and implementing research-informed changes in student engagement and transfer processes in STEM fields. In support of this work, they have participated in monthly coaching sessions with CCRI coaches and three semi-annual convenings that bring together the full community of practice. This report examines data from each step of the program, beginning with initial application submitted by participants and including responses from six surveys, researcher observations in coaching sessions and convenings, and interviews with team leaders.

DEFINING STUDENT INPUT

In order to develop a plan for getting student input, STP participants had to answer foundational questions about how to define, operationalize, and make meaning of student input. As scholars and practitioners in disciplines that emphasize quantitative methods and large data sets, many participants initially wrestled with the question of how to conceptualize student input that was sometimes informal, often qualitative and drawn from small populations. A common query from participants at the first convening, which took place just months into the program, was how to draw conclusions based on data from such small populations of students. In one of the earliest coaching sessions, a two-year college faculty participant commented, "The problem is that there are very few [students from low-income backgrounds] in the degree program. That's the problem we want to solve, right? Only how do we interpret data with such a small n?" One of the key motivations for the STP initiative is to address the underrepresentation of low-income students in the STEM transfer pathway, which sets the conditions for small numbers of students in the target population. In order to support expanded access, some teams had to think outside the box of large, formal data sets and develop plans for student input based on multiple forms of data.

Particularly in the first six months of the grant, participants had to think creatively about what constituted student input and what types of input would be most helpful in their interventions. What sort of input should they seek and what student populations should they focus their attention on? At the same time, many participants had a wealth of experiential knowledge from working with students in their role as faculty, advisors, and in student support programs. Drawing from this experience each team had a sense of where students encountered challenges in STEM degree pathways and the transfer process but had difficulty turning this informal knowledge into meaningful student input that could be used to inform systematic change efforts. Learning to use that experiential knowledge as a starting point for inviting more direct student input and engagement was a valuable lesson to many teams. Reflecting back on the evolution of her team's thinking about student input, one participant commented, "I didn't really think about the informal feedback that we're collecting from our students all the time and our interactions as a part of the student feedback until listening to the other teams." Through engagement across the community of practice, these dedicated practitioners learned to use this informal feedback as the starting point to help inform and direct their efforts.

Another important conceptual distinction that emerged across the teams' participation was the difference between data about students and input from students. While thinking through the challenges of small population size, many teams mentioned past institutional efforts to learn about the student experience through campus-wide surveys or data from institutional research offices. On the one hand, several teams were able to use such feedback or data as a starting point to help understand course-taking patterns or enrollment trends. However, for many teams much of that existing data was dated or lacking STEM specific insights. One participant who worked in advising commented in a coaching session, "We have access to that survey but a lot of it doesn't align with what we hear from students." In some cases, institutional data was a helpful starting point. Drawing on data from the office of institutional research, one partnership identified a number of barriers to transfer in specific STEM fields. From this broad-based data, it was clear that the associates degree was not generally a successful pathway to STEM transfer and baccalaureate completion. What they could not tell from this data was why students were choosing their degree paths. The institutional data prompted the team to seek answers from students. Through conversations with students they learned that students did not have a clear understanding of the difference between degree pathways. By recognizing the limitations of data about students and using that data as a starting point for gathering input from students, the team was able to develop student-centered and student-informed interventions.

STRATEGIES FOR STUDENT INPUT

Perhaps because this conceptual unpacking was a necessary preliminary step, STP teams developed plans for getting student input that were creative and multi-faceted, incorporating both informal and formal feedback. The majority of teams used survey methods to learn more about student experiences but none of them relied exclusively on survey data. When teams did survey students, they often linked the survey to student engagement events. For example, one engineering-focused team hosted several events where students from the two-year institution had opportunities to attend a talk, solder hearts, and build rockets with engineering students and faculty from the four-year institution. The same team hosted a rocket launch event, at the four-year institution, where students also had a chance to meet advanced students and learn about their culminating projects. These kinds of events gave STP team members a variety of opportunities to gather informal student feedback through conversation and observation but also to administer exit surveys that generated more structured feedback about the events and about transfer intent and STEM interest and identity. Recognizing that they were not going to get a detailed understanding of the student experience through anonymous, broad-based surveys, partnership teams took a multifaceted approach to gathering student input, combining student engagement with data collection. The data also provided information for process improvement for the joint activities.

Many teams conducted interviews and focus groups with students, sometimes in addition to survey and informal data collection. In planning and developing these qualitative data collection efforts, team members had to carefully think through distinctions between different student populations. One team started off with focus groups with students who had successfully transferred from the two-year institution to the four-year institution, but quickly realized the importance of seeking input from other students, ones who did not transfer or who left the STEM degree pathway after a few classes. A team member commented at the third convening,

> I want to know what's happening to the ones who don't [transfer]. And so how do we actually capture those? Because they're the ones who are disappearing, but we're not actually hearing why that didn't work for them. So how do we engage those students so we know what's happening?

To this, several other participants from different teams began to brainstorm creative forms of outreach including local employers, other student support programs, or asking student participants, "Do you have friends who didn't transfer? How can we contact them?" As a result of the collaborative community, many teams developed student input collection strategies that were characterized by multiple methodologies, creative student engagement, and attention to multiple student groups.

INSIGHTS FROM STUDENT INPUT

The STP program is currently on-going and participant teams are still engaged in collecting and interpreting student input. However, STP teams have already derived key insights from student input gathered so far and responded to that data with evolving strategies to support students in the STEM transfer process. Some of the feedback from students aligned with what team members anticipated. For example, most teams heard a lot from students about the importance of making one on one connections with faculty. Looking closely at this input, several teams learned that many students who had successfully transferred from a two-year to a four-year institution credited their interactions with faculty, even when those faculty were not in their major academic department. Other lessons were more specific to the particular context of the college or degree program, such as identifying particular classes that were barriers to STEM participation, misalignment of two-year and four-year academic calendar as a significant transfer barrier, or the need to offer more scheduling options for required courses. The teams also gained some insights from students that surprised them. For example, several teams who had conducted focus groups or interviews with students remarked

on how much students relied on accurate information on institutional websites and how much emphasis students placed on easily navigable websites. In a roundtable at the most recent convening, a participant commented, "I really thought we'd hear more about getting information from peers or advisors or even social media but they really had a lot to say about the website and how difficult it was to navigate. So, they definitely are getting information there, or trying to." Many teams were surprised at what students knew and didn't know about transfer and STEM degree paths and how students went about getting information to inform their course-taking and transfer plans.

A few teams learned that students were making course-taking and major choice decisions based on misinformation. One team commented that many students in focus groups were working toward the wrong degree requirements and had no clear source of information to help them avoid such pitfalls. In a coaching session, a participant mentioned that many students didn't know the difference between an Associates of Arts Direct Transfer Agreement (AA DTA) and an Associates in Science-Transfer (AST) degree to which another member of the team replied with some chagrin, "I have to admit, neither did I before we started this work." One of the key lessons of student input and a major component of each team's partnership development is learning about how information is distributed and how small changes in information sharing can make big changes in the student experience.

CONCLUSION

Postsecondary institutions of all types are seeking ways to elicit and incorporate student input, as catalysts for change as well as means of student engagement (Matthews & Dollinger, 2023). Though research consistently affirms the value of student input on institutional change efforts (Resch, 2023), the challenges and strategies for collecting student input and how student input on the transfer process is collected are less studied. This brief provides important insight into that process by examining how practitioners go about conceptualizing student input, developing a plan to collect it, and responding to what they learn. What the data show is that participants have designed new strategies for student input, focusing on student engagement in combination with data collection efforts. For each team in the STP initiative, the process for gaining student input has been iterative, beginning with informal as well as research-driven knowledge, and evolving as student data indicates new directions. At each college and university in the program, participants have found that students are eager to share their perspective and contribute to the change process.

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STEM TRANSFER PARTNERSHIP DATA NOTES

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Read CCRI's additional publications on Transfer Partnership research at, https://www.washington.edu/ccri/research/transfer/

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About the University of Washington's Community College Research Initiatives
The CCRI team conducts research and development to generate actionable knowledge to advance equity in the field of higher education. CCRI — a program of Undergraduate Academic Affairs — focuses on studying the experiences of underserved student groups that use community colleges as their entry point to higher education and the role that institutions play in equitable student educational and employment outcomes. Their goal is to leverage this research to effect change in postsecondary education at all levels. To learn more about CCRI, visit https://www.washington.edu/ccri/, follow on LinkedIn, https://www.linkedin.com/company/ccri-uw/.

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Ascendium Education Group is a 501(c)(3) nonprofit organization committed to helping people reach the education and career goals that matter to them. Ascendium invests in initiatives designed to increase the number of students from low-income backgrounds who complete postsecondary degrees, certificates and workforce training programs, with an emphasis on first-generation students, incarcerated adults, rural community members, students of color and veterans. Ascendium's work identifies, validates and expands best practices to promote large-scale change at the institutional, system and state levels, with the intention of elevating opportunity for all. For more information, visit https://www.ascendiumphilanthropy.org.

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