

Becoming Agents of Change in STEM

The Center for Urban Education's STEM Toolkit



The Center for Urban Education

*Pathways to STEM Bachelor's and Graduate Degrees for Hispanic Students
and the Role of Hispanic-Serving Institutions*

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Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

The Center for Urban Education's STEM Toolkit: Tools for Increasing Latino and Latina STEM Baccalaureates

http://cue.usc.edu/equity_model/stem_focus.html

It is time to envision equity—equal access and equal success—in science, technology, engineering and math (STEM) fields for the rapidly growing Latina and Latino student population. Unless colleges and universities are able to successfully enroll and graduate Latina and Latino STEM majors the country will face a shortage of skilled STEM labor.

The Center for Urban Education's STEM Toolkit, featuring tools created from the Center for Urban Education's three year, NSF funded study *Pathways to STEM Bachelor's and Graduate Degrees for Hispanic Students and the Role of Hispanic-Serving Institutions*, develops competencies that facilitate Latina and Latino student success in STEM, by helping both campus teams and individuals understand the issues facing Latina and Latino STEM students.

The Tools

CUE's STEM Toolkit features tools that help teams and individuals reflect on how their own actions and behaviors, as well as institutional practices and resources, affect Latina and Latino students' success. By first defining institutional agents, the toolkit helps people understand who an institutional agent is and introduces the idea of the institutional agent as the basis for student success. The tools include:

Institutional Agents in Action: this activity tool features vignettes of real practitioners acting as institutional agents and guides readers through an interpretation of their attitudes and actions.

Self Assessment Inventories: these activity tools feature self and team assessments for practitioners that help them think critically about their actions and attitudes.

Hiring STEM Faculty: this tool includes supplemental interview questions and a tool to analyze hiring processes.

Institutional Agents

Individuals who occupy high-status positions within their institution or organization and who know how to access high-value resources, navigate complex systems and take effective action, have the potential to be institutional agents.

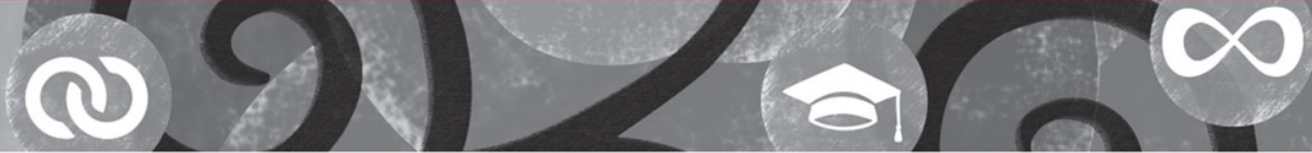
They possess human, cultural and social capital.

It is only when these individuals use their capital to transmit high-value resources—opportunities, privileges and services—to underserved students that they become institutional agents. Because every potential institutional agent possesses different resources the actions they take to use those resources on behalf of their students will be different. Potential agents might not be aware of how they can use their resources to aid students if they occupy a position not normally associated with direct student support.

Institutional Agents: Who Are They?

CUE's STEM Toolkit contains eight profiles of institutional agents, four of which are included here. Each of these individuals has a different position, possesses different human, cultural and social capital, and takes different actions to provide resources to Latina and Latino students.

- Institutional agents are best practitioners—they work within the culture of their institution to develop and implement changes appropriate to their campus.
- An institutional agent will play different roles in different situations and settings. There are some institutional agent roles they may not perform at all.
- These profiles are based on real people with real strengths and shortcomings.
- Within each profile there is room to celebrate the individual's accomplishments as well as consider areas for growth.



The Institutional Agents

Brian Breslaw is an engineering professor who works to provide Latina and Latino STEM students with additional resources and academic support.

Sarah Gardner is a program administrator of federally funded STEM programs. She uses her knowledge of university systems and her personal networks on behalf of students.

Raymond Huerta is the director of a STEM program working with K-12 and 2-year institutions to create a clear pipeline for STEM students to the university. Though he doesn't work directly with collegiate STEM students his actions allow them to access resources they would not otherwise have.

Armando Gomez is the dean of several STEM departments. He involves his campus leadership and faculty, as well as campus leadership and faculty from the local 2-year institution, in creating clear transfer access for STEM students.

Institutional Agents at two-year institutions (available online)

Manuel Diaz is a bio-chemistry professor committed to Latina and Latino students. He uses his knowledge of the STEM community to teach students about the social reality of STEM professions.

Maria Mendoza is an academic counselor. Maria recruits Latina and Latino students for STEM programs and advises a STEM club.

Ana Navarro is an assistant director of admissions and financial aid. She takes on more duties than her job entails in order to provide extensive information to the Latina and Latino community on financial aid.

Luis Martinez is a chemistry professor and the associate dean of diversity initiatives on his campus. Luis writes grants and leads science field trips that expose students—and their families, whom he also invites on the trips—to the different kinds of science.

Obtain an article by Professor Ricardo Stanton-Salazar describing the roles of institutional agents at http://cue.usc.edu/tools/stem/the_study.html



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Brian Breslaw: Exercising Leadership

Dr. Brian Breslaw is an engineering professor at a college in a large urban area. He's a force to be reckoned with within his department, one of the most recognizable professors on campus, and the faculty advisor to multiple programs and societies, including several geared towards Latina and Latino students.

"This is real math, real engineering," he tells his class. "Engineering is about solving problems. You see something, you think, I know how to fix that, or, I know how to build something to make that work."

The students in his introductory engineering class, where the basics of all main branches of the discipline are covered, follow along with him as he takes them through several real world example projects, outlining the kinds of engineering that were used.

"What about this," he asks, showing the class a picture of an offshore wind turbine. "This is magic; look at it. You have the mechanical aspect of building it, the complication of locating it offshore, the electrical engineering of actually drawing electricity from the rotation of the blades.

"This," he stabs his finger towards the image, "is engineering. This is what you can learn to create. This is the work of real engineers, who work for a company, or the government. I am going to teach you this real world engineering, then you go on, to the university, and learn the theory."

The class listens intently, knowing each thing Brian says is important. When the students discuss him and his classes, which they do, they always say the same thing. "You'll learn a lot, but he's strict." Brian's



syllabus is infamous—it states: “Attendance is mandatory. Lateness is not accepted. If you are in a coma have someone drag you in.”

Brian is constantly working to improve his programs and to make sure his students succeed. He believes in a practical rather than theoretical approach and has advocated for the hiring of teachers with real world experience rather than research or theory backgrounds. He’s an aggressive person, but those efforts show results, in the form of grants and research awards—over one million dollars worth.

He considers the title engineer a label that trumps all other labels, including ethnic or cultural ones.

Marie, a Latina student in her mid-forties, knocks on Brian’s office door.

“Professor Breslaw, can I talk to you?”

Brian turns away from the tests he’s grading, carefully tucking them into a drawer before smiling at Marie.

“Please, please, sit, Marie” he says, motioning to one of his ragged, mis-matched visitor chairs. “How are you? What are you taking?”

“I’m taking Mechanical II and Physics.”

“Such good classes. I bet you’re enjoying them, find them challenging.”

Marie smiles, “I am.” Professor Breslaw was the first teacher to help her understand that “challenging” work was a good thing and that she was capable of high levels of academic success.

“Good, do you have an idea for a project?” Brian says enthusiastically. “You should work in MACES. You get lab experience, and, if you’re good, you can be a lab manager after two semesters.”

Brian’s referring to the Mexican-American Center for Engineering Students (MACES), which is one of the programs he oversees. The lab—a cross between a metalwork shop and Dr. Frankenstein’s house—contains equipment purchased with grant money or donated by Brian’s contacts in engineering firms. MACES students conduct experiments and create engineering prototypes and models under the supervision of paid lab managers—second year students. Brian su-

pervises the lab and each year takes the students with the best projects to professional and academic conferences.

“No, I... I think I’m going to switch my major,” Marie says quietly.

“Why?” Brian demands, leaning forward on his desk. Marie is one of his best students. He enjoys working with students who are older, or who have served in the military, because he feels they’re better students. His motivation as an academic is to awaken students to their own potential, and he considers Marie, a nontraditional student who at first had no interest in engineering, a success.



Marie struggled in his class last semester, but quickly became one of his most promising students after he called her into his office several times. With one-on-one attention she quickly advanced to being one of the top performing students in the class.

“It’s hard on my family,” Marie tells him. “I have so much homework; it cuts into my time with them. My husband works, too. I barely see him.”

Brian looks vaguely uncomfortable at the mention of her personal life. “Your husband will understand. You’re going to be an engineer.”

She shakes her head, “I don’t know. After this I still have at least three, if not four, years left if I stay in engineering. I’m not sure I can do that to my family.”

Brian fumbles in his desk and pulls out a business card, “Uh...go see her. She’s the counselor for the engineering students. You can talk to her about those personal things. I don’t give personal advice.”

Marie looks startled, but accepts the counselor’s card. “I don’t want to risk my family over this.”

“They’ll adapt. At least that is what I think. Go to the counselor; ask her, she will tell you exactly what to do. But don’t quit, and don’t change majors.”

Brian sees untapped potential in his Latina and Latino students. Though he is not Latino, he recognizes the disparity between the Latina and Latino population of his city and the number of Latina and Latino engineers. On both a practical and intellectual level he objects to this ineq-

uity, and, in order to correct this, maintains higher expectations for his Latina and Latino students than for other students, while also providing additional support to them through centers and programs such as MACES.

Brian is not shy about demanding that support and resources be allocated to the programs he oversees and is always working on new ideas projects.

Brian walks in to the dean of science and engineering's office. Dean April Poole suppresses a groan and turns away from her computer, past experience having taught her that it's safest to give Brian her full attention.

"Brian, how are you?" Dean Poole says, motioning to a chair Brian has already taken a seat in.

"I have an idea for a new program, a new grant."

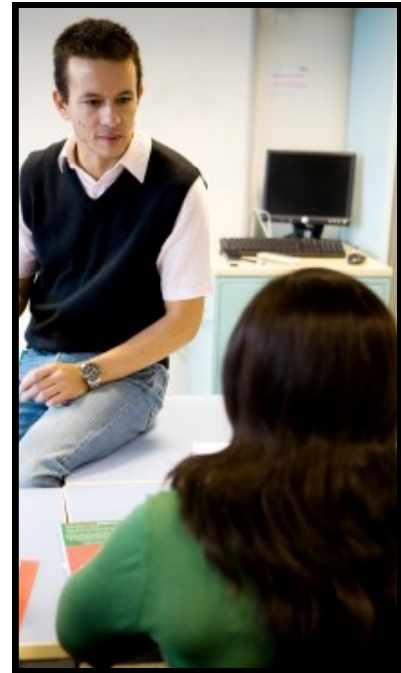
Dean Poole folds her hands on top of her desk. "You know I appreciate your efforts, but, as I stated previously, we are at capacity, both financially and staff-wise, as far as non-class activities go."

Brian pushes to his feet and begins pacing back and forth across the office. "I want to partner with the medical school at the university to introduce our Hispanic engineers to biomedical engineering. I talked to a colleague at a bio-med research firm. Do you know how many Hispanic engineers are on staff there? None."

"That is troubling," Dean Poole agrees, "but we don't have contacts at the medical school and our students are already exposed to a wide variety of different engineering specialties, besides that's graduate level study."

"They need to see these things now, while they're here, learning the real work of engineering. We'll get money for lectures, lab funding. We'll have teams of students develop projects."

Dean Poole stands and crosses her arms. "Brian, this is a great idea but, even for you, this is going to be too much work."



Activity

After you read Brian's profile, think about the ways he utilizes his role in the institution to support and advocate for Latina and Latino STEM students.

Use the chart on the next page to check off the Institutional Agent characteristics he possesses and actions he takes. Once you've done that answer the questions (this can be done in a group setting.)

* * *

Once you've completed the reflection questions, use the Academic Analysis to further your understanding of his Institutional Agent actions.



Institutional Agent Checklist

Direct Support	
Resource Agent ◇ provides or utilizes personal and positional resources to students	Networking Coach ◇ teaches students how to <i>network</i> with key institutional agents ◇ models appropriate <i>networking</i> behavior ◇ develops relationships with important and influential people
Advocate ◇ promotes and protects “their” students	Advisor ◇ promotes and guides effective decision making ◇ helps students gather information ◇ assesses problems and possible solutions in a collaborative manner
Knowledge Agent ◇ accesses or provides knowledge pertinent to <i>navigating</i> the system ◇ knows the system	
Integrative Support	
Integrative Agent ◇ coordinates students’ integration and participation in networks and professional venues (professional associations, department, school, etc.)	Cultural Guide ◇ guides students through new social situations in a particular cultural sphere ◇ teaches students to identify and interact with key people in a particular cultural sphere
System Developer	
Program Developer ◇ develops program that embeds students in a system of agents, resources, and opportunities	Political Advocate ◇ joins political action groups that advocates for social policies and institutional resources that would benefit targeted groups of students
Lobbyist ◇ lobbies for organizational resources to be directed toward recruiting and supporting	
System Linkage & Networking Support	
Recruiter ◇ actively recruits students into program, department, etc.	Bridging Agent ◇ introduces students to institutional agents ◇ has a strong social network ◇ knows what key players do
Institutional Broker ◇ negotiates introductions and agreements between two or more parties ◇ knows what resources are available and who controls or possesses them	Coordinator ◇ assesses student’s needs ◇ identifies resources to address need ◇ provides or accesses institutional resources on behalf of students ◇ ensures students utilizes resources effectively



Reflective Questions

Answer the following questions and think about the ways Brian embodies the characteristics of an Institutional Agent. In what ways does he use his position as a faculty member to empower Latinas and Latinos to succeed in higher education and the STEM fields? Reflect on your own role in your institution and the ways you support Latinas and Latinos in the STEM fields.

1. What actions does Brian take to support his Latina and Latino STEM students?
2. What important information does Brian have about the educational system that he shares with Marie?
3. In what way does Brian's approach towards academic advising impact his students?
4. In what ways are Brian's actions and attitudes representative of the STEM culture? Have you encountered similar attitudes?
5. How would you have handled the situation with Marie? What would you have done differently?
6. What tactics and resources does Brian utilize to gather support for special programs for Latinas and Latinos in STEM?
7. What challenges does Brian encounter as he develops special programs for his Latina and Latino STEM students?
8. What could Brian do to become a more effective Institutional Agent for Latina and Latino students in STEM fields?

Academic Analysis

Once you've completed the reflection questions, use the Academic Analysis to further your understanding of Brian's Institutional Agent actions.

One characteristic of an institutional agent is having the *ideological motivation* to reach out to Latina and Latino students. Professor Diaz's actions to support underrepresented minority students perusing research careers is an ideologically motivated example of institutional agent actions. In addition, he brings a *shared identity and shared experiences* to his work with Latina and Latino students in biology. He expresses *solidarity* with Latina and Latino students and identifies with their personal and educational experiences, which he feels is important when it comes to *mentoring* Latina and Latino students.

Professor Diaz is featured as an institutional agent because he possesses characteristics, and demonstrates behaviors, typical of a *bridging agent*, *cultural guide* and an *advocate*. As a bridging agent, Professor Diaz prioritizes mentorship and provides *knowledge of resources and navigational tools* to his Latina and Latino students. He promotes *collaborative learning* and *peer-mentorship* amongst his students. Also, Professor Diaz is *intentional* in his actions and acts as a cultural guide as he encourages his students to conduct research, present at academic conferences and *network* with students and professors at other institutions. In addition, Professor Diaz *advocates* on behalf of Latina and Latino students through his service work and promotes the interests of Latina and Latino students within his department and the university.

Sarah Gardner: Navigating the System

A worried young woman knocks on Sarah Gardner's door.

"Ms. Gardner? Can I come in?"

Sarah looks up and, despite the fact that this young woman graduated a year ago, recognizes her.

"Of course, come on in Sylvia. How are you?"

This is not an unusual event for Sarah. For the students that know her—or know of her—it's common knowledge that there is no one more willing to helping students solve their problems. Sylvia has come looking for assistance with the state-wide loan assumption program for graduates who are now teaching math or science. She applied for the program, but has been denied. No one will tell her why.

Sarah cheerfully investigates, even going so far as to ask the university chancellor's office if they have a direct contact number.

"They had her name spelled wrong. That was it, the whole problem," Sarah says as she sends off one last email to the former student. "I never send a student away without at least pointing them in the right direction. And I always say, 'If you don't get the answer you were looking for come back and see me.'"

Sarah is a campus director of two major federally funded programs for underrepresented minority STEM students at a large state university. Thirty-five percent of the undergraduates are Latino—2,800 of them in Fall 2007. That percentage drops a little in most STEM majors: chemistry is 27%



Latino/a, biology 30%, computer science 28%. Math is a bit higher, with 40% of the undergraduate majors being Latino/a.

Sarah serves a small group of underrepresented minority students through the programs she administers. In total she works with twenty-four or twenty-five students a year. Sarah has students meet with her every semester so she can discuss their academic process and listen to their concerns.

Jennifer is one of only nine students in a prestigious program for Latina and Latino students that provides her with tuition and funding for extracurricular lab-based research. When Sarah and Jennifer met at the beginning of the spring semester Sarah talked with Jennifer about science research summer camps. When Jennifer didn't apply for any of the summer programs Sarah called Jennifer into her office.



“Jennifer, come on in. How are you?” Sarah says, motioning to a chair.

“I’m fine, Ms. Gardner. Thank you.” Jennifer says as she takes a seat, gaze on the floor, her book bag hugged to her chest.

“I wanted to talk to you about the summer research programs. Did you get my emails?”

“Yea,” Jennifer mumbles.

“Why didn’t you apply?” Sarah asks. Jennifer shrugs, still looking at the carpet. When they discussed summer opportunities during their meeting earlier in the semester Jennifer had been very excited. Her current indifference worries Sarah.

“Do you still want to be a biologist? Still want to go to graduate school?”

“I do,” Jennifer blurts out, looking up briefly. She tucks her feet under the chair and toys with the strap of her book bag. Jennifer’s behavior convinces Sarah that lack of interest isn’t the problem here.



“I think you know that one of these would be a great experience for you,” Sarah says gently. Jennifer doesn’t respond. “I feel strongly that this would be good for your career.”

“I know,” Jennifer repeats, “but I’m so tired this semester. I have a lot going on in all my classes and the thought of spending my whole summer at camp when I could get a job and make some money instead…” Jennifer trails off, shaking her head.

“I know it’s daunting, and you have a heavy class load, but camp is not going to be like classes you would have here. Do you know Javier? He’s in your program also.”

“He’s in my o-chem class.”

“He went to camp last year. Why don’t we give him a call and you can chat with him, ask him what it was like. If you still think it will be overwhelming after you talk to him we could look at other non-camp options for the summer.”

“Actually I asked him about it, before, when you’d first told me.” Jennifer said.

“And what did he say?”

Jennifer leans back in her chair, less tense than when she walked in. “He just said it was really fun and that they learned a lot, and that you did science all day and then did fun stuff at night.”

Sarah smiles at Jennifer, “That sounds better than working, and it would definitely be better for your future.”

Jennifer’s face is creased with misery, “I really messed up, didn’t I? It’s too late to apply.”

“Maybe it’s not,” Sarah tells her. “If you’re willing to do the work.”

While Jennifer is in the other room, looking at the program websites, Sarah is in her office doing the same. Jennifer comes back an hour later, holding applications to two programs. She’s smiling.

“Tell me about these,” Sarah says.

“The first one is about medicine—research medicine. In my O-chem class we talked about research medicine.”





Jennifer excitedly recites the program activities while Sarah nods encouragingly. It's great to see Jennifer once again enthusiastic about this learning opportunity. Jennifer decides to apply for both programs, though she prefers the research medicine camp, located in San Diego. Sitting in Sarah's office she completes applications for both programs.

Sarah picks up her phone and calls the San Diego program's director. Sarah met the program's director at a national conference several years ago, and remembers his interest in recruiting more Latinas. He agrees to let Jennifer attend, despite the lapsed deadline.

"I can go?" Jennifer asks when the phone call is over.

"You can go. They're emailing you the paperwork. When you get it why don't you bring it in? We'll fill it out together."

"Thank you," Jennifer says, checking the clock on the office wall and standing. "I have class at two."

"Have a good class," Sarah says, smiling despite the fact that she just created a mountain of paperwork for herself.

"Okay," Jennifer agrees, standing. On the threshold she pauses and looks back. "Thanks Ms. Gardner."



Activity

After you read Sarah's profile, think about the ways she utilizes her role in the institution to support and advocate for Latina and Latino STEM students.

Use the chart on the next page to check off the Institutional Agent characteristics she possesses and actions she takes. Once you've done that answer the questions (this can be done in a group setting.)

* * *

Once you've completed the reflection questions use the Academic Analysis to further your understanding of her Institutional Agent actions.



Institutional Agent Checklist

Direct Support	
<p>Resource Agent</p> <ul style="list-style-type: none"> ◇ provides or utilizes personal and positional resources to students 	<p>Networking Coach</p> <ul style="list-style-type: none"> ◇ teaches students how to <i>network</i> with key institutional agents ◇ models appropriate <i>networking</i> behavior ◇ develops relationships with important and influential people
<p>Advocate</p> <ul style="list-style-type: none"> ◇ promotes and protects “their” students 	
<p>Knowledge Agent</p> <ul style="list-style-type: none"> ◇ accesses or provides knowledge pertinent to <i>navigating</i> the system ◇ knows the system 	<p>Advisor</p> <ul style="list-style-type: none"> ◇ promotes and guides effective decision making ◇ helps students gather information ◇ assesses problems and possible solutions in a collaborative manner
Integrative Support	
<p>Integrative Agent</p> <ul style="list-style-type: none"> ◇ coordinates students’ integration and participation in networks and professional venues (professional associations, department, school, etc.) 	<p>Cultural Guide</p> <ul style="list-style-type: none"> ◇ guides students through new social situations in a particular cultural sphere ◇ teaches students to identify and interact with key people in a particular cultural sphere
System Developer	
<p>Program Developer</p> <ul style="list-style-type: none"> ◇ develops program that embeds students in a system of agents, resources, and opportunities 	<p>Political Advocate</p> <ul style="list-style-type: none"> ◇ joins political action groups that advocates for social policies and institutional resources that would benefit targeted groups of students
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System Linkage & Networking Support	
<p>Recruiter</p> <ul style="list-style-type: none"> ◇ actively recruits students into program, department, etc. 	<p>Bridging Agent</p> <ul style="list-style-type: none"> ◇ introduces students to institutional agents ◇ has a strong social network ◇ knows what key players do
<p>Institutional Broker</p> <ul style="list-style-type: none"> ◇ negotiates introductions and agreements between two or more parties ◇ knows what resources are available and who controls or possesses them 	<p>Coordinator</p> <ul style="list-style-type: none"> ◇ assesses student’s needs ◇ identifies resources to address need ◇ provides or accesses institutional resources on behalf of students ◇ ensures students utilizes resources effectively



Reflective Questions

Answer the following questions and think about the ways Sarah embodies the characteristics of an Institutional Agent. In what ways does she use her role as a program administrator to empower Latinas and Latinos to succeed in higher education and the STEM fields? Reflect on your own role in your institution and the ways you support Latinas and Latinos in the STEM fields.

1. What knowledge does Sarah have about what it takes to be successful in college and the future?
2. What important information does Sarah have about the educational system that she shares with Jennifer?
3. How does Sarah respond to Jennifer's hesitations about participating in the summer academic program and encourage her to attend?
4. In what ways does Sarah intervene on behalf of Jennifer?
5. What authority does Sarah have to act on behalf of Jennifer and other Latina and Latino STEM students?
6. What could Sarah do to become a more effective *knowledge agent* for Latina and Latino students in STEM fields?
7. In what ways do you act as an institutional agent for Latina and Latino STEM students in your institution? What could you do to be a more effective institutional agent?

Academic Analysis

Once you've completed the reflection questions use the Academic Analysis to further your understanding of Sarah's Institutional Agent actions.

Sarah Gardner, campus director of a university-based STEM program for underrepresented minority students, demonstrated characteristics of an institutional agent for the Latina and Latino students she works with at her university. Sarah took on the role of a *Knowledge Agent* when she provided her students, Sylvia and Jennifer, with valuable information that would help them navigate the educational system and make decisions that would positively impact their education. A Knowledge Agent is someone who has the knowledge and resources necessary to successfully navigate educational systems and shares that knowledge and resources with their students. Sarah not only provided Jennifer with valuable information about the academic summer program, she also helped Jennifer understand how participating in this program would help her reach her goal of becoming a scientist.

Sarah took on the role of an *Advisor* to Jennifer when she persuaded her to participate in an academic summer program despite her fatigue and desire to get a job and make money during the summer. An advisor provides students with evaluation, advice, and guidance within the educational system. Sarah helped Jennifer gather information about the appropriate summer programs and discussed with her the benefits and challenges of her participation in these programs. When Jennifer began to have second thoughts about participating in the summer program, Sarah knew that she might regret this decision in the future. Sarah's guidance and direction helped Jennifer to make a decision, while difficult at the moment that would ultimately impact her academic career and future. In many situations, the advisor helps a student consider their options carefully and look beyond their present situation to work toward future goals.

Sarah also took on the role of *Advocate* for Jennifer when she directly contacted the summer program director to negotiate Jennifer's involvement in the program despite the lapsed deadline. An advocate intervenes on behalf of a student in order to promote their interests and rights within the educational system. Sarah helped Jennifer navigate the educational system by advocating on her behalf and directing her to a program that would positively impact her future academic aspirations and opportunities. Sarah's role as an advocate was crucial because Jennifer was not fully aware of how not participating in this summer program would impact her in the future. Despite Jennifer's initial hesitations, by the end of the meeting, she seemed reinvigorated about her involvement in the summer program and her future as a scientist. Jennifer benefited from Sarah's knowledge, advice, and advocacy.

Raymond Huerta: Overcoming Resistance

Dr. Raymond Huerta is the director of the Computer Science Academic Preparation (CSAP) program at a major urban university. CSAP, though hosted at community colleges, provides intensive math and electrical engineering classes to middle-school children, preparing them for computer science majors in college. It empowers students to be successful from an early age. The three summer-long program is aimed at sixth, seventh and eighth graders, and hinges on good relationships—Raymond’s relationships—with both community colleges and universities to ensure these students put the preparation to use and enter college.

“An algorithm is what?” Raymond paces between rows of seats in the classroom at a community college.

His students watch him pace, their feet dangling above the linoleum floor. Raymond, whose background is in electrical engineering and computer science, is teaching an advanced concept—algorithms—to a classroom of seventh graders.

“Yes, you,” he says, pointing to the brave soul who raises her hand. “What is an algorithm?”

“It’s instructions.”

“Yes, well done. But it’s not just one instruction, it’s many instructions.” Raymond picks up a piece of chalk and starts drawing on the board. “Let’s look at an example. Here we have a lamp. The lamp doesn’t work. That’s our first point. Now, what do we ask ourselves?”

“Is it turned on?” one student asks.

“Is it plugged in?” another contributes.

“Good, good. Keep going.”

As a program administrator Raymond isn’t usually in the classroom, but he’s filling in today for one of the high school teachers who normally teach the class. He is dedicated to recruiting underrepresented minority students into computer science at the university level. As a Latino he empathizes with the struggles of underrepresented minority students and is confident that given the correct resources and encouragement they can succeed.

The CSAP program he oversees was limited to two middle schools and his university when he started five years ago. Since then, he's expanded the program. He developed a strong relationship with community colleges in his area and worked to ensure a clear transfer plan from the community colleges to his university as part of the overall CSAP project. Many other 4-year and community colleges across the state now host CSAP programs.

Raymond pulls into the crowded parking lot of a middle school a few hours away. He parks and exits the car, confidently throwing his jacket over his shoulder and heading for the administration building.

"Good morning," he says to the school receptionist. "I'm here to meet with Principal Rivera and Superintendent Gordon."

"Right through there," the secretary says, motioning to a battered door with a dull plaque reading Principal Rivera.

Raymond knocks, opens the door. The two people waiting within stand. Introductions are made, hands shaken. They take a seat around a small table.

"Principal Rivera, Superintendent Gordon, thank you for agreeing to meet with me," he says.

"We were excited to get your call," Superintendent Beth Gordon says, smiling. Raymond has spoken with her on the phone several times. Principal Rivera nods, but with a distinct lack of enthusiasm. "We are very interested in starting the CSAP program in our district," she continues.

"That's good to hear," Raymond says. "Did you have a chance to review the administrative requirements of the program?"

"We did, thank you, Dr. Huerta. I'm not saying the program isn't good, but how much work will it be for me and my teachers? We're understaffed as it is," Principal Rivera says. When Superintendent Gordon looks at him the principal shrugs. "I'm sorry Beth, but I can't bring something like this onto the campus if it's going to pull too many resources."

Raymond nods, now understanding why Principal Rivera seemed so unenthusiastic. He's confronted negative attitudes before. "I'm sure you're both aware of the inequity that exists in computer science for underrepresented students. Your student population is heavily Latina and Latino—you have a duty to expose your students to the knowledge and skills that will allow them to enter the sciences in college."

“Our kids are so young; there are other things we need to focus on.” Principal Rivera counters.

“This age is the perfect time to get them started,” Raymond says with a smile. “I’ve successfully started this program on middle school campuses in several other districts. While I understand your concern I want you to think about something. Ninety-nine percent of students who attend one summer of the program go to college. Of those who go, 83% graduate from college. Half of those kids will enter a technical or science related major, when nationally only 30% of students do.”

“I’ve heard these numbers and they’re great, but what do I have to do? Where should I cut in order to get the money for this?” the principal argues.

“There’s state and national funding for this. What I’m going to do—once you decide to embrace this opportunity—is go to your community college, City CC, correct?”

They nod, and Raymond smiles. He knows he’s got them now. “I already have a relationship with them. The program will take place on their campus, not here, so you don’t have to worry about opening up facilities. When students who complete CSAP here graduate from high school they’ll be eligible for state funds when they attend City CC. Once they’re at City CC they’ll be guided to through the transfer academic track which leads them right to me.” Raymond has just laid out a perfect clear path for students from middle school right through to a four-year college.

Principal Rivera leans back in his chair, chin on his chest. “I can’t deny my kids that kind of opportunity.”

“Let’s set up a time, before winter break, for me to come and make a presentation.” Raymond says, smiling. “I’m going to bring a former CSAP student with me. She’s now a graduate student in comp-sci and already has a job offer.”

“I think our students would really like to hear that,” Superintendent Gordon says.

“I’d strongly recommend inviting parents to attend the assembly. If the parents know this program exists and what its benefits are they’ll support and encourage their kids. After the assembly I want you to walk any of the kids who are interested over to the computer lab and have them fill out the application online.”

“We can pass out paper applications in class,” Principal Rivera offers.

“No. I want to get their applications while they’re still excited about it.”

Raymond leaves that day with Superintendent Gordon’s assurance that her district will be starting the CSAP program, beginning with that middle school. On the return drive he calls the president of City Community College and advises him the program

will be expanding.

“How many students from that campus?” the community college president asks. The expansion of the program will bring in additional state funds for his campus.

“I’m hoping for 100,” Raymond tells him.

“That would be great, but it’s a lot to ask for.”

“Not when compared to what we should be doing.”

Raymond is known by, and knows, all the major players in the surrounding K-12 districts and community and state colleges. He also maintains relationships with state officials and lawmakers to ensure that public funding isn’t lost.

“I’ll send a packet over to the middle school. That’s the third new site this month, how many more are you going to add?” Lindsey, Raymond’s office assistant, asks.

“The goal is seven this year, so our total number of sites is thirty. I still have four more schools to reach that goal. We have to get to the kids when they’re young, get them interested in science. We have students from all over the state and the first summer there’s a gap. Kids from economically advantaged and affluent areas are ahead of the others, but by the third summer they’re all equal.”

Lindsey sighs quietly. It isn’t the first time she’s heard this. “I know. It’s just a lot of work.”

“You’re doing a great job,” Raymond says with a smile.

“What else do you need?” Lindsey asks.

“We need to get ready to send out the follow up questionnaire.” Every year Raymond collects data from all the students who have participated in CSAP. “Also, we should meet to go over the materials for my meeting next week with the State Education Council.”

“You mean the materials on expanding the program to four summers? I have most of that done.”

“Let’s have it complete by tomorrow afternoon please.”

Raymond’s goals are regularly reset to ensure that he is pushing for greater access for minority students. Currently he wants to add an additional year to the program, expanding it to four summers. He carries a heavy load, particularly with regard to funding. No single entity funds the



entirety of the program and so he works hard to maintain relationships with multiple funders so that if any one funding source were lost the program could continue.

Activity

After you read Raymond's profile, think about the ways he utilizes his role in the institution to support and advocate for Latina and Latino STEM students.

Use the chart on the next page to check off the Institutional Agent characteristics he possesses and actions he takes. Once you've done that answer the questions (this can be done in a group setting.)

* * *

Once you've completed the reflection questions, use the Academic Analysis to further your understanding of his Institutional Agent actions.



Institutional Agent Checklist

Direct Support	
<p>Resource Agent</p> <ul style="list-style-type: none"> ◇ provides or utilizes personal and positional resources to students 	<p>Networking Coach</p> <ul style="list-style-type: none"> ◇ teaches students how to <i>network</i> with key institutional agents ◇ models appropriate <i>networking</i> behavior ◇ develops relationships with important and influential people
<p>Advocate</p> <ul style="list-style-type: none"> ◇ promotes and protects “their” students 	
<p>Knowledge Agent</p> <ul style="list-style-type: none"> ◇ accesses or provides knowledge pertinent to <i>navigating</i> the system ◇ knows the system 	<p>Advisor</p> <ul style="list-style-type: none"> ◇ promotes and guides effective decision making ◇ helps students gather information ◇ assesses problems and possible solutions in a collaborative manner
Integrative Support	
<p>Integrative Agent</p> <ul style="list-style-type: none"> ◇ coordinates students’ integration and participation in networks and professional venues (professional associations, department, school, etc.) 	<p>Cultural Guide</p> <ul style="list-style-type: none"> ◇ guides students through new social situations in a particular cultural sphere ◇ teaches students to identify and interact with key people in a particular cultural sphere
System Developer	
<p>Program Developer</p> <ul style="list-style-type: none"> ◇ develops program that embeds students in a system of agents, resources, and opportunities 	<p>Political Advocate</p> <ul style="list-style-type: none"> ◇ joins political action groups that advocates for social policies and institutional resources that would benefit targeted groups of students
<p>Lobbyist</p> <ul style="list-style-type: none"> ◇ lobbies for organizational resources to be directed toward recruiting and supporting 	
System Linkage & Networking Support	
<p>Recruiter</p> <ul style="list-style-type: none"> ◇ actively recruits students into program, department, etc. 	<p>Bridging Agent</p> <ul style="list-style-type: none"> ◇ introduces students to institutional agents ◇ has a strong social network ◇ knows what key players do
<p>Institutional Broker</p> <ul style="list-style-type: none"> ◇ negotiates introductions and agreements between two or more parties ◇ knows what resources are available and who controls or possesses them 	<p>Coordinator</p> <ul style="list-style-type: none"> ◇ assesses student’s needs ◇ identifies resources to address need ◇ provides or accesses institutional resources on behalf of students ◇ ensures students utilizes resources effectively



Reflective Questions

Answer the following questions and think about the ways Raymond embodies the characteristics of an Institutional Agent. In what ways does he use his role as a director of a university-based computer science program to empower Latinas and Latinos to succeed in higher education and the STEM fields? Reflect on your own role in your institution and the ways you support Latinas and Latinos in the STEM fields.

1. What enables Raymond to negotiate agreements between key stakeholders as he seeks to expand the CSAP program?
2. What type of knowledge does Raymond possess that enables him to navigate the local school system and neighboring colleges?
3. How does Raymond rely upon his professional networks in order to access resources on behalf of Latina/o students?
4. In what ways do you act as a Networking Coach and/or Institutional Broker for Latina/o STEM students in your university. What could you do to be a more effective knowledge agent?



Academic Analysis

Once you've completed the reflection questions, use the Academic Analysis to further your understanding of Raymond's Institutional Agent actions.

One characteristic of an institutional agent is the ability to provide the *knowledge and skills* necessary in order to *successfully navigate* the educational system. Dr. Huerta has extensive knowledge regarding the local school system as he was born and raised in the area and attended some of the same schools he is currently working with as part of his various collaborations through CSAP.

His *personal experience* with scientific concepts at a young age and its influence on his decision to further pursue higher education motivates him to expose students at an early age to mathematical and scientific concepts. He recognizes that this knowledge will serve them as they continue to navigate higher education.

In addition, Dr. Huerta's knowledge of the local school system and industry throughout the region and state provide him with the *professional networks* needed in order to *access resources* on behalf of Latina/o students. Dr. Huerta's knowledge of local resources places him in a unique position to function as an institutional broker as he *negotiates agreements* with schools, community colleges, and universities in order to establish an accessible transfer pathway for Latina/o students.

Armando Gomez: Exercising Leadership

“Dean Welling? This is Armando Gomez, from State Valley University. I’m the incoming dean of science and engineering. How are you doing today?”

“Dean Gomez. This is a surprise,” Dean Welling of Green River Community College, the local feeder community college to Armando’s university, replies coolly. “How can I help you?”

Though he’s surprised by the dean’s tone he doesn’t show it. “Well, I wanted to talk to you about transfer rates.”

“Oh,” Dean Welling says, surprise clear in her voice. “Did you have a question?”

“May I be frank?”

“Please.”

“Why are the transfer rates so low?” he asks bluntly.

Armando has been a dean at State Valley University, a large state university, for less than a year. He’s far from inexperienced, having come from another Hispanic Serving Institution. One of the first things he did at State Valley University was to analyze incoming STEM majors, both freshman coming out of high school and community college transfers. When he discovered that the transfer numbers from their local community college were low—80 students out of 20,000 at the community college—he decided to find out why.

Dean Welling let out a startled laugh, “Well, that was certainly frank.”

“I hope you understand that I mention this because I want to change it, not to disparage you or your faculty,” Armando says.

“I understand completely, and I’m delighted to hear that you’re dissatisfied with the current numbers. We were left with the impression that State Valley didn’t care if the Green River CC students transferred.”

“Dean Welling, I’d like to assure you that we do care,” Armando tells the other dean.

“Please, call me Kathy.”



Over several subsequent phone calls and visits Armando is able to establish a collaborative relationship with Green River Community College, mostly by showing that he genuinely wants to create a relationship that allows Green River Community College students to successfully transfer to State Valley University. His motives are not solely altruistic, they're also practical. His goal is to increase the number of students, particularly Latina and Latino students, he graduates from STEM majors. He needs students from Green River Community College to transfer into his STEM majors and successfully graduate in order to bring that number up.

“You have to understand,” Armando tells his provost as they head into a breakfast meeting, “these students are going to community college first. If they go to Green River CC, get their AA, but can't transfer here, we've effectively stopped them from getting their BA.”

“So what do we need to do?” the provost asks.

“What we're about to do,” Armando replies, opening the door to the boardroom. The deans and chairs of the major STEM departments from the university and college are meeting this morning. Armando stands near the door and greets each person as they enter, inviting them to get some breakfast and take a seat.

Once everyone has eaten Armando starts the meeting.

“Ladies and gentlemen, thank you so much for getting up early. I know we all spend too much time in meetings as it is. Whatever relationship our schools had in the past is exactly that: in the past. What we want to do today is create a smooth path for students—particularly our Latina and Latino students, who are underrepresented in science, technology, engineering and math—which leads them from high school to community college to university.”

Armando takes his seat and the discussion begins. Several individuals say that a lack of preparation is the problem, blaming the students. Armando does his best to redirect the conversation. This meeting isn't about assigning blame; it's about identifying problems and creating solutions.

“A major problem we see is that students transfer with plenty of credits, but they aren't the right credits,” the assistant dean of admission of the university says. “What ends up happening is that they then need three or four years here, on top of the two or three they already spent at Green River CC. At that point they've run out of financial aid and often they're leaving because they can't afford school anymore. We're misinform-

ing our students and not creating policies that help them choose courses.”

“Another problem is that students just don’t know what the sciences are,” Kathy, Armando’s equivalent at Valley Community College, says. “Ask them the difference between physics and calculus and they might not know. That’s something we can change.”

“I have to say that I find this sudden good-will alarming,” the Green River Community College chair of mathematics says. He’s leaning away from the table, arms crossed. “We don’t want our STEM students transferring out after a year. That’s not good for the students, or for our program.”

“I assure you,” Armando says, “that’s not what we want either. We’ll make it very clear that we expect students to transfer AA in hand. I want the students to transfer in as juniors and graduate two years later.”

As the meeting continues Armando jots notes. By the time the meeting ends he has a list of people he wants to meet with, or who should meet with each other, as well as notes on several information packets he’d like to compile.

Armando arranges or hosts meetings between departments, meets directly with various faculty and administrators, and motivates his faculty to create relationships with their counterparts at the community college. Over the next several months the faculty members from each of the colleges meet and agree on a coordinated curriculum that lists the courses to be completed at the community college and the courses at the four year college. Armando sets a goal of doubling their Latina and Latino transfer population in five years.

He turns his attention to providing information to the Latina and Latino community, enlisting his faculty to help him draft materials that explain what the different science and engineering majors are, how they’re different, and what jobs are available in each. He plans to make it available to every high school and community college student, but doesn’t have the financial resources to produce that volume of material.

“What we need here is education,” Armando tells another dean over lunch. “They need to know what they can do with a science degree.”

“Is your Latina and Latino enrollment up after all the work you did with Green River CC?” the other dean asks. Armando’s work has inspired him to look into increasing his departments’ relationships with the community college.



Armando sighs. He's quiet for a moment, looking at his hands, which rest on the table. "I don't really know. The data is hard to get. When I started here I had to dig to find out what the transfer numbers were. It's hard to get current data."

"Access to large-scale data is a problem, especially in terms of data disaggregated by race and ethnicity."

Armando's collaborative efforts, as Dean of Science and Engineering, resulted in a strong relationship between State Valley University and Green River Community College. Additionally, his actions raised awareness on his campus of the need to focus on Latina and Latino students and their success.

Activity

After you read Armando's profile, think about the ways he utilizes his role in the institution to support and advocate for Latina and Latino STEM students.

Use the chart on the next page to check off the Institutional Agent characteristics he possesses and actions he takes. Once you've done that answer the questions (this can be done in a group setting.)

* * *

Once you've completed the reflection questions, use the Academic Analysis to further your understanding of his Institutional Agent actions.



Institutional Agent Checklist

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Reflective Questions

Answer the following questions and think about the ways Armando embodies the characteristics of an Institutional Agent. In what ways does he use his role as a Dean and as a STEM educator at a university to empower Latinas and Latinos to succeed in higher education and the STEM fields? Reflect on your own role in your institution and the ways you support Latinas and Latinos in the STEM fields.

1. Where does Armando's commitment to increasing opportunities for Latina and Latino STEM students originate from?
2. What specific knowledge does Armando have about Latinas and Latinos in STEM fields?
3. In what ways does Armando move beyond the role of a bridging agent into an institutional broker for Latina and Latino STEM students?
4. What institutional connections and resources does Armando use to support Latina and Latino STEM students and how does he utilize his networks and resources on behalf of Latina and Latino STEM students?
5. What additional resources and networks can Armando draw upon to increase his support of Latina and Latino STEM students at his institution?
6. In what ways do you act as a bridging agent and/or institutional broker for Latina and Latino STEM students in your institution? What could you do to be a more effective bridging or institutional broker?

Academic Analysis

Once you've completed the reflection questions, use the Academic Analysis to further your understanding of Armando's Institutional Agent actions.

As dean of a science and engineering department at a four-year university, Armando Gomez displays characteristics of an institutional agent for underrepresented Latina and Latino students through his efforts to build collaborative relationships between administrators and faculty at the local community college and his own university. Dean Gomez believes that in order to support the local Latina and Latino students, it is necessary to develop a strong, collaborative relationship with the local community college and work together to facilitate the successful transfer of Latina and Latino students into STEM programs at the four-year university. Dean Gomez's determined efforts to build productive relationships in order to promote the advancement of Latina and Latino STEM students in the local community are reflective of the actions and commitment level of a bridging agent and an institutional broker. A bridging agent acts as a bridge between individuals and key institutional agents who are often gate-keepers in educational institutions. A bridging agent must have well developed social connections and knowledge about how these resources will benefit individuals, particularly students. Dean Gomez acts as a bridge between the needs of underrepresented students and important influential actors who impact their educational opportunities. He initiates and hosts meetings with faculty and administrators from different departments at his university and encourages them to learn about each other and their programs, and work with faculty and administrators from their local community college to discuss articulation agreements to support transfer students into the university.

An institutional broker is an extension of a bridging agent and has thorough knowledge about resources within the relevant context (i.e. community college, four-year university, and the local community) available to support students. An institutional broker is an extension of a bridging agent when he/she takes an active role in negotiating agreements between key players and accessing resources on behalf of students and their educational needs. Dean Gomez does not hesitate to contact influential leaders like the Dean from the local community college to discuss ways to work together to support Latina and Latino students transfer to a four-year college. Dean Gomez's determined efforts to draw the support of his fellow deans and administrators reflect his ability to utilize his resources and contacts in order to advocate for the needs of Latina and Latino students and bring them into the STEM fields.



Self Assessment Inventories

Instructions:

The following Self Assessment Inventories can be used individually or as a group in a team building or professional development setting. They are designed to be printed separately from this packet.

Institutional Agent Self Assessment Inventory

This SAI (Self Assessment Inventory) helps the practitioner understand their own Institutional Agent characteristics and actions. It should be used only after completing some of the earlier activities.

STEM Faculty

This SAI helps STEM faculty engage in a reflective process on their role as a faculty member and (potential) institutional agent for Latina/o students in science, technology, engineering and math (STEM) fields.

Team Self Assessment Inventory

This SAI focuses on departmental and campus efforts to support Latina and Latino STEM students, and is most effective when used in a group setting.

Leader Self Assessment Inventory

This tool is designed for use by four-year campus/institutional leaders who are in positions of authority and power, such as deans and department chairs. These are individuals who can model values and communicate priorities through their actions and words. What they evaluate, set priorities and create incentives for, effects student success.



The Center for Urban Education's STEM Toolkit

Institutional Agent Self Assessment Inventory

Am I an Institutional Agent?

Self assessment for individuals, focusing on Institutional Agent roles and actions.



STEM TOOLKIT

Tools for Increasing Latino and Latina STEM Baccalaureates

http://cue.usc.edu/equity_model/stem_focus.html



The Center for Urban Education's STEM Toolkit

STEM Faculty Self Assessment Inventory

Are Latina/o Students Welcome in STEM?

Self assessment for STEM faculty, focusing on the culture and practices of STEM departments



STEM TOOLKIT

Tools for Increasing Latino and Latina STEM Baccalaureates

http://cue.usc.edu/equity_model/stem_focus.html

The following self-assessment instrument is designed to assist you as you engage in a reflective process on your role as a faculty member and (potential) institutional agent for Latina/o students in science, technology, engineering and math (STEM) fields.

Involvement at the individual level:

- How are you involved with Latina/o students in STEM fields?
- How did you get involved with Latina/o students in STEM fields?
- What motivates you to be involved with Latina/o students in STEM fields?
- Given the past six months, can you think of five students who you have helped in particular ways?
 - Are any of these students Latina/o?
 - Transfer students?
- How many of your students (advisees, students enrolled in your class, etc.) are community college transfer students?
 - If you don't know, why don't you know?
 - How can you obtain this information?
- Do you have a research laboratory or research project that provides research opportunities for students?
 - If so, are any of your students Latina/o?
 - How do students find out about these opportunities?
 - What barriers exist for students interested in these opportunities?
 - What steps, if any, have been taken in order to address concerns?
- Do special programs that provide research and professional development opportunities to Latina/o students in STEM exist on your campus?
 - What is your relationship to these programs?
 - How are these programs established?
 - How can you get involved?
- Do you invite students to participate in publishing opportunities?
 - If so, are any of the students Latina/o?
 - How do students find out about these opportunities?
- Have you ever taken any students with you to academic and/or professional conferences in your field?
 - If so, are any of the students Latina/o?

- How do students find out about these opportunities?
- Do you encourage your students to go to graduate school?
- For those students that apply to graduate school, how do you assist them with the process?
- How many of your students have attended or are currently attending graduate school?
- Do you consider yourself a good mentor?
 - If no, why not? What would you need to become a better mentor?
 - If yes, what makes you a good mentor? Do you share this knowledge with your colleagues? If yes, how so? If no, why not?

Involvement at the Institutional level:

- Based on your knowledge of the academic culture at this institution, what would a Latina/o student in STEM need to know in order to succeed?
 - Consider both academic and navigational skills needed.
 - How do these students learn what they need to know?
- Can you identify any barriers that may hinder high-achieving, Latina/o students from pursuing STEM fields at your institution?
 - What steps, if any, have been taken in order to address concerns?
- If your institution wanted to increase the participation of Latina/o students in STEM fields, what would need to be done?
- Who on this campus is an advocate for Latina/o students?
 - What is your relationship to them?
- In the effort to increase Latina/o participation in STEM, who are the people on this campus that can make things happen?
 - What is your relationship to them?



The Center for Urban Education's STEM Toolkit

Team

Self Assessment Inventory

How is My Team Serving Latina and Latino STEM Students?

Self assessment for departments and campuses, focusing on their impact on Latina and Latino STEM students.



STEM TOOLKIT

Tools for Increasing Latino and Latina STEM Baccalaureates

http://cue.usc.edu/equity_model/stem_focus.html



The Center for Urban Education's STEM Toolkit

Leaders

Self Assessment Inventory

How is My Team Serving Latina and Latino STEM Students?

Self assessment for departments and campuses, focusing on their impact on Latina and Latino STEM students.



STEM TOOLKIT

Tools for Increasing Latino and Latina STEM Baccalaureates

http://cue.usc.edu/equity_model/stem_focus.html



The Center for Urban Education's STEM Toolkit

STEM Faculty Hiring Practices

Use the following tools to aid in identifying and analyzing how STEM faculty are hired, and how hiring practices and policy could be adjusted to better identify individuals who will act as institutional agents for Latina and Latino students.



STEM TOOLKIT

Tools for Increasing Latino and Latina STEM Baccalaureates

http://cue.usc.edu/equity_model/stem_focus.html



Supplemental Interview Questions for STEM Faculty

The following questions are intended to supplement questions posed at a job candidate's interview for a *STEM faculty position at a Hispanic-serving Institution*. The questions are designed to emphasize the unique skills and motivation a candidate should possess (or seek to develop) in order to successfully instruct and mentor Latina/o students in STEM fields. A successful candidate will be able to provide specific examples in their previous work with Latina/o students.

Briefly describe your previous roles or experiences (committee, classroom, etc.) as they relate to Latina/o students in STEM fields.

How are you involved with Latina/o students in STEM fields?

How did you get involved?

What motivates you to be involved with Latina/o students in STEM fields?

Given your past experiences, can you talk about three students who you have helped in particular ways?

Are any of these students Latina/o? Transfer students? STEM majors?

Describe the steps that you took to help these students.

Based on your knowledge of the academic culture of STEM fields, what would a Latina/o transfer student in STEM need to know in order to succeed?

How would you help students learn what they need to know?

STEM Departmental Hiring Practices for Faculty

How do you identify (potential) institutional agents in an applicant pool?

Amongst the search committee, discuss priorities. How do you agree on the importance of hiring (potential) institutional agents? What's the value in hiring (potential) institutional agents? Consider: What would minority applicants need to know?

Analyze Current Practices

Collect Data:

- Number of Faculty
- Tenure-track vs. Adjunct
- Disaggregated by Gender
- Disaggregated by Race/Ethnicity

Typical Pathway for Faculty Searches

Job Application

- Marketing Strategies
 - How is the call written?
 - Who is the call sent to?
 - How is this list developed? (Develop list of resources: SACNAS, SHPE, MAES, etc.)
 - Is this the same process for every search?
 - Are applicants targeted? If so, what is the process?

Interview

- How is criteria developed to identify who is asked to interview?
- At the interview, are there opportunities to connect with URM faculty and students?
- How do you assess a candidate's commitment to teaching and mentorship of Latina/o students in STEM?
- How is this expectation communicated?
- What do you know about our students? Latinas/os in STEM?



Offer Extended

How is the offer determined?

“Low-balling” candidates – how does this play out for minority and female applicants who are less likely to ask for more?

What is typically asked for in a negotiation process? How is this info presented to minority candidates?

Offer Accepted – Shift the focus from recruitment to retention

Do you assign new faculty a senior faculty mentor?

Are they assigned a reasonable load of responsibilities? Avoid “cultural taxation”



**CUE's STEM Toolkit:
Tools for Increasing Latino and Latina STEM Baccalaureates**

http://cue.usc.edu/equity_model/stem_focus.html

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The Center for Urban Education (CUE) leads socially conscious research and develops tools needed for institutions of higher education to produce equity in student outcomes.