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2024 SHPE-LDC U.S. Latinos in Engineering and Tech Report™

The 2024 SHPE-LDC U.S. Latinos in Engineering and Tech Report

ABOUT SHPE: LEADING HISPANICS IN STEM

SHPE is the largest association in the United States for Hispanics in science, technology, engineering, and math (STEM). They meet each of their student and professional members where they are—offering effective training, mentorship, and programming for their vibrant community to create a world where Hispanics are highly valued and influential as leading innovators, scientists, mathematicians, and engineers. Their mission is to change lives by empowering the Hispanic community to reach its full potential and impact the world through STEM awareness, access, support, and development.

ABOUT THE LATINO DONOR COLLABORATIVE (LDC)

The LDC is a non-profit and non-partisan organization that produces original economic research on the Latino/Hispanic community in the United States. Our data are used by decision-makers and resource allocators to promote growth in the new mainstream American economy. Together with our partners at top U.S. research centers, we produce fact-based data to identify opportunities.

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A Letter from the LDC

Ana Valdez

We are proud to present the *2024 SHPE-LDC U.S. Latinos in Engineering and Tech Report*™, which marks another pivotal step in understanding and empowering Latino talent in engineering and technology fields across the nation.

Latino participation in these sectors is not just a testament to the strength and potential within our communities; it is essential to securing the nation's position in an increasingly competitive global landscape. This year's report reveals progress and potential, highlighting the growing presence of Latinos in STEM education and the workforce. Given that Latinos make up over 25% of America's youth and now represent 15.8% of undergraduate engineering students, their contributions are poised to fill significant gaps in the engineering workforce. The report's data project that the United States will need 11.8 million STEM professionals by 2033. Engaging Latino youth and equipping them with resources is crucial to meeting this demand.

Our partnership with SHPE has been instrumental in providing these insights. SHPE's initiatives, from scholarships and mentorship to the groundbreaking Virtual STEM Labs program, continue to have a measurable impact, supporting an impressive graduation rate of 87.7% among its members—well above the national average. The 2024 report underscores SHPE's role in fostering an environment where Latino students and professionals can thrive and make invaluable contributions to engineering and tech.

This report is a call to action. We encourage academic institutions, employers, and policymakers to capitalize on the strengths of Latino talent and provide the resources necessary to foster their success. Together, we can fuel innovation, drive economic growth, and ensure that the United States remains a leader in STEM. We are excited about the future impact of this report and look forward to a continued partnership to drive change.

Sincerely,

Ana Valdez,
President and CEO
The Latino Donor Collaborative

A Letter From SHPE

Suzanna Valdez Wolfe

Dayna L. Martínez

SHPE (Society of Hispanic Professional Engineers) is proud to present the *2024 SHPE-LDC U.S. Latinos in Engineering and Tech Report*™, a comprehensive exploration of the vital role that Latino students and professionals play in shaping the future of the engineering and technology sectors.

Our mission at SHPE is to empower the Hispanic community to reach its full potential and to create an environment where Latinos are not only well-represented but also celebrated as innovators in STEM fields. This report highlights the remarkable progress made by Latino students over the past decade, showing their increasing enrollment and graduation rates in engineering disciplines, as well as their critical contributions to the workforce.

Latinos are among the fastest-growing demographic groups in the United States, expected to increase from 19 percent to around 26 percent by 2060,[1] and their potential to drive economic growth and technological advancement cannot be overstated. With projected labor shortages in STEM fields and a growing demand for skilled workers, we must harness the talents and aspirations of our youth. This report provides valuable insights into the challenges they face—such as financial barriers, mental health concerns, and a lack of role models—and emphasizes the importance of family support and mentorship in overcoming these obstacles.

We are committed to fostering an environment where Latino students feel inspired, supported, and equipped to pursue successful careers in engineering and technology. Together with partners like the Latino Donor Collaborative, we will continue our efforts to improve educational resources and advocate for connections that create pathways to success for Hispanics.

We invite you to explore the findings presented in this report. We hope that it will serve not only as an informative resource but also as a catalyst for action among educators, employers, policymakers, and community leaders dedicated to propelling our Latino community forward.

Thank you to the LDC for their continued partnership in creating and distributing this important research and their devotion to uplifting the Hispanic community. A special note of gratitude to Dr. Kimberly Douglas for leading the effort to champion this critical research report. And thank you to our survey respondents, readers, and other supporters for your commitment to empowering the next generation of Hispanic engineers and technologists.

Sincerely,

Suzanna Valdez Wolfe, CEO, SHPE

Dr. Dayna L. Martínez, Senior Director, Research & Impact, SHPE

Executive Summary

THE 2024 SHPE-LDC U.S. LATINOS IN ENGINEERING AND TECH REPORT HIGHLIGHTS THE TRANSFORMATIVE POTENTIAL OF LATINO YOUTH IN SHAPING THE FUTURE U.S. WORKFORCE, PARTICULARLY IN HIGH-SKILL FIELDS LIKE ENGINEERING AND TECHNOLOGY.

As of 2023, Latinos constitute 25% of the U.S. population under 18, presenting a significant demographic advantage for driving economic growth. Educational advancements among Latino youth are evident, with 22% of U.S. Latinos aged 25–34 now holding a bachelor's degree or higher, signaling their readiness to engage in high-skill sectors.

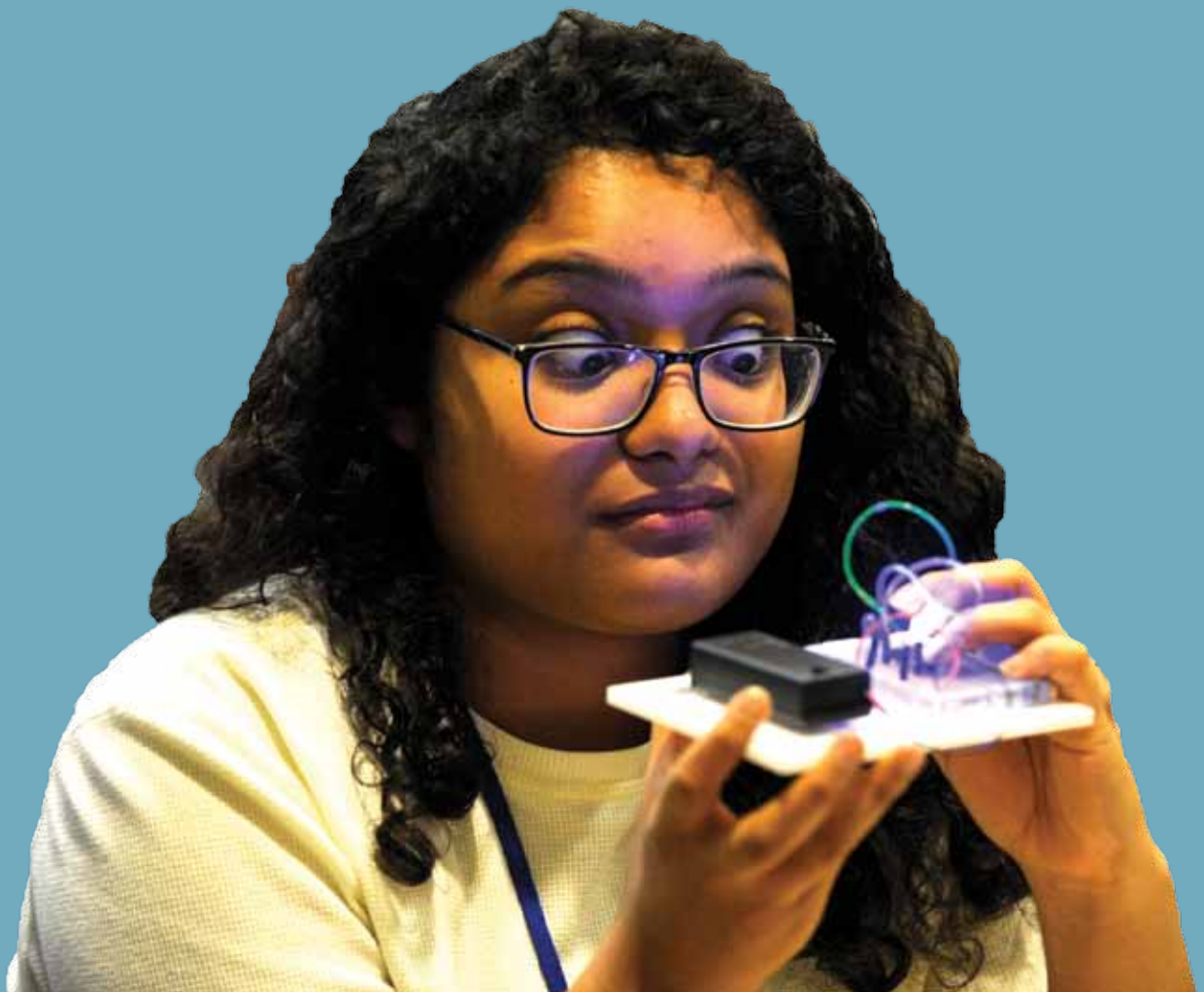
The report reveals substantial increases in Latino enrollment in engineering programs, reporting a 38.6% growth from 2012 to 2022, alongside a 56.7% rise in engineering degrees awarded. Despite these gains, challenges persist, with financial insecurity and insufficient support systems hindering broader representation in the workforce.

Key findings emphasize the importance of targeted initiatives, such as SHPE's Virtual STEM Labs and Equipando Padres, which aim to empower young Latinos through early STEM exposure, parental involvement, and role modeling. These programs have proven effective in fostering interest and confidence in STEM careers, underscoring the need for continued investment in educational resources and mentorship.

As the U.S. faces a projected need for 11.8 million STEM jobs by 2033, Latino youth are uniquely positioned to bridge workforce gaps and contribute significantly to innovation and economic vitality. To fully realize this potential, collaboration among industry, academia, government, and community stakeholders is essential. By uniting efforts, we can ensure that Latino students and professionals are equipped with the tools, support, and opportunities necessary to succeed in engineering and technology, ultimately advancing the nation's competitiveness in a rapidly evolving global landscape.

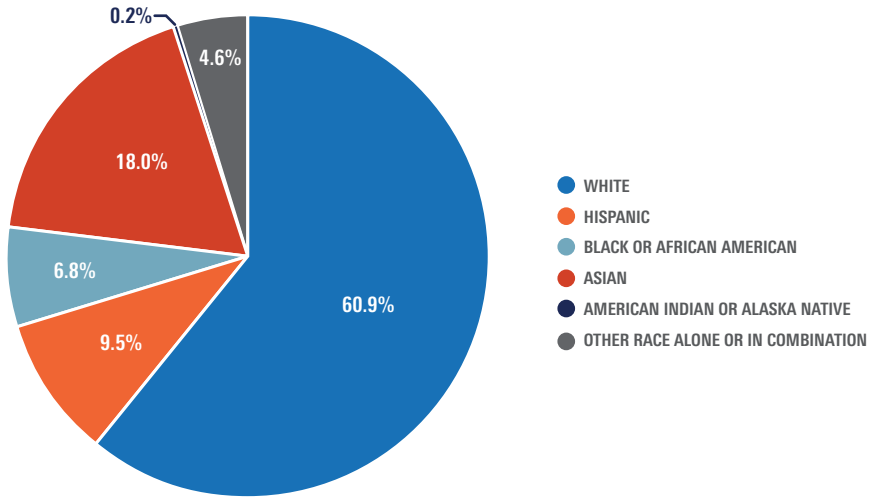
U.S. Latino Youth: A Key to the Future of Engineering and Tech

THE LATINO YOUTH POPULATION STANDS AT THE FOREFRONT OF SHAPING THE FUTURE OF THE U.S. WORKFORCE. AS OF 2023, LATINOS MADE UP 25% OF THE U.S. POPULATION UNDER 18,[2] CREATING A SUBSTANTIAL DEMOGRAPHIC THAT WILL DRIVE THE NATION'S ECONOMIC MOMENTUM. THIS YOUNGER GENERATION BRINGS SIGNIFICANT STRENGTH WITH EDUCATIONAL ACHIEVEMENTS AND INCREASING WORKFORCE PARTICIPATION, HIGHLIGHTING THEIR IMPORTANCE TO THE U.S. ECONOMY.



One of the most important indicators of this upward trajectory is increased participation in higher education. In 2022, 22% of U.S. Latinos aged 25–34 held a bachelor's degree or higher, compared to only 16% of those aged 50 and older.[3] This shift reflects the growing educational attainment of Latino youth and signals their readiness to meet the demands of high-skill sectors, including engineering and technology. The growth in Latino participation in engineering, for example, is particularly noteworthy. Latinos now make up 9.5% of the science and engineering workforce, with younger Latinos increasingly pursuing these technical fields.[4]

Figure 1. Science and Engineering Workforce Composition



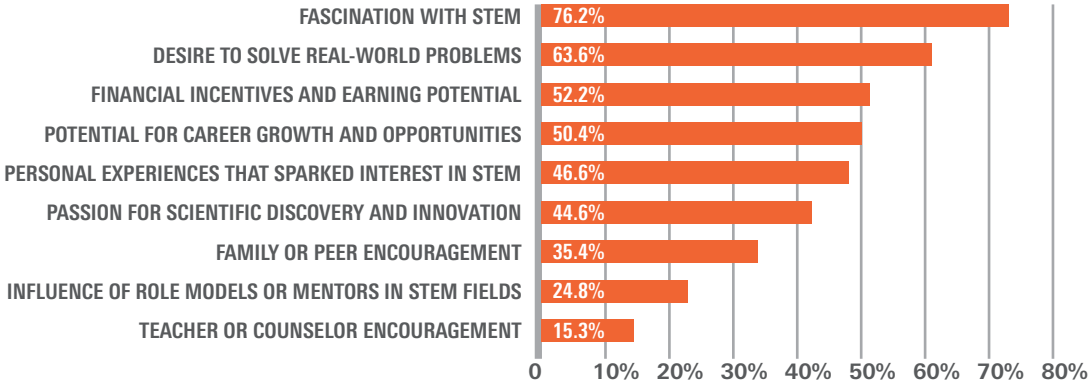
The growing role of Latinos in the workforce is even more evident when looking at broader labor force trends. Over the past decade, Latinos have accounted for 80% of the net growth in the U.S labor force. By 2030, they are projected to account for 78% of all net new workers, a testament to the important role they will play in meeting the country's workforce needs. Looking further ahead, by 2033, Latinos will account for 22% of all U.S. workers, solidifying their role as an essential segment of the nation's workforce.[5] This significant growth presents an opportunity to address the nation's increasing demand for skilled workers in sectors such as science, technology, engineering, and mathematics (STEM). **With the STEM industry projected to need 11.8 million jobs by 2033, Latino youth are poised to fill a critical portion of these roles.**[6]

Furthermore, Latino youth demonstrate strong adaptability and engagement with emerging technologies. For instance, 54% of Latino youth use AI to gather information, compared to 41% of White youth. In creative domains, 39% of Latino youth use AI to create pictures and images, far surpassing the 24% of their White peers, and 27% utilize AI to make music, a stark contrast to the 7% of White youth. Additionally, 24% of Latino youth are applying AI for job-related functions, significantly higher than the 10% among White youth.[7]

This active use of AI signals not only engagement with the technology but also early skill development, laying the foundation for these young Latinos to transition from users to developers of AI-driven solutions. This trajectory of use, coupled with development, aligns personal affinity with future professional roles in AI and tech, positioning Latino youth to drive progress in technology fields.

In SHPE's 2024 Needs Assessment, an annual survey sent to current and past members (44,394 invitations sent), respondents revealed compelling motivations driving their pursuit of careers in engineering and technology. A significant majority (76.2%) expressed a genuine fascination with engineering and technology, driven by curiosity about innovation and a desire to contribute to technological advancements. This interest often begins early in life, with many drawn to STEM by the excitement of working with cutting-edge technologies and creating solutions to complex challenges.

Figure 2. STEM Motivation



Respondents were asked, "What motivated you to pursue a STEM degree/career?" Data reflect responses across all groups with a sample size of 2,119.

Moreover, 63.6% of respondents are motivated by the opportunity to solve real-world problems through engineering and technology, aligning with the values of community and service emphasized in Latino culture. For many, financial incentives and earning potential (52.2%) add to the appeal, as does the promise of continued career growth and diverse opportunities (50.5%) in these dynamic fields. Personal experiences (46.6%) also play a role, with exposure to technology or role models often sparking an enduring interest in STEM.

Latino youth are also driven by entrepreneurial ambitions, with 62% of those aged 12–34 expressing a desire to own a business.[3] This entrepreneurial spirit, combined with their increasing presence in engineering and technology fields, presents a unique opportunity to address workforce shortages while fostering innovation and growth. Latino representation in technical roles grew significantly, from 341,789 in 2018 to 542,417 in 2022, highlighting this potential. Notably, Latino participation in AI technical roles outpaced broader U.S. workforce trends, increasing by an impressive 58.7% during this period.[8]

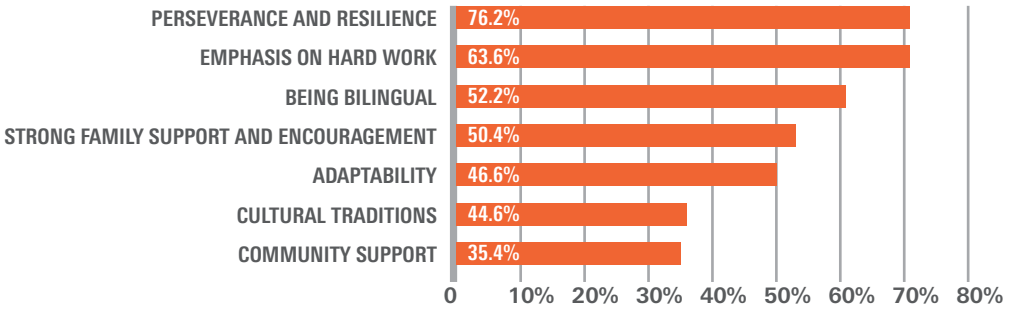
WITH APPROXIMATELY 18.3 MILLION LATINOS UNDER 18, LATINO YOUTH ARE NOT ONLY A VITAL PART OF THE U.S. POPULATION BUT ALSO REPRESENT A SIGNIFICANT OPPORTUNITY FOR THE COUNTRY TO MEET ITS FUTURE WORKFORCE NEEDS, PARTICULARLY IN ENGINEERING AND TECH. THEIR EDUCATIONAL ACHIEVEMENTS, ENTREPRENEURIAL SPIRIT, AND STRONG INTEREST IN TECHNICAL FIELDS MAKE THEM KEY TO FILLING LABOR FORCE GAPS IN HIGH-DEMAND SECTORS. AS THE UNITED STATES FACES THE CHALLENGE OF FILLING MILLIONS OF STEM JOBS IN THE COMING YEARS, LATINO YOUTH ARE PREPARED TO STEP UP AND PLAY A CRITICAL ROLE IN ENSURING THE COUNTRY'S CONTINUED ECONOMIC SUCCESS.

What Our Latino Students and Professionals Bring to the Table

WHILE THE FUTURE OF THE U.S. WORKFORCE IS UNDENIABLY TIED TO THE CONTRIBUTIONS OF LATINO YOUTH, IT IS EQUALLY IMPORTANT TO RECOGNIZE THE ROLE OF LATINO STUDENTS AND PROFESSIONALS WHO ARE ALREADY MAKING SIGNIFICANT STRIDES IN ENGINEERING AND TECHNOLOGY.

Latino students and professionals are uniquely equipped to drive the growth of engineering and technology fields in the United States through a combination of cultural attributes, educational achievement, and professional resilience. Survey data from the SHPE highlight several key attributes that define this group: hard work, perseverance, bilingualism, and strong family support. These characteristics, deeply rooted in Latino culture, provide a solid foundation for success in both academic and professional settings.

Figure 3. Strongest Aspect of Latino/Hispanic Heritage



Respondents were asked, "What attributes of your Latino/Hispanic heritage positively support your STEM studies/career?"
Data reflect responses across all groups with a sample size of 2,103.

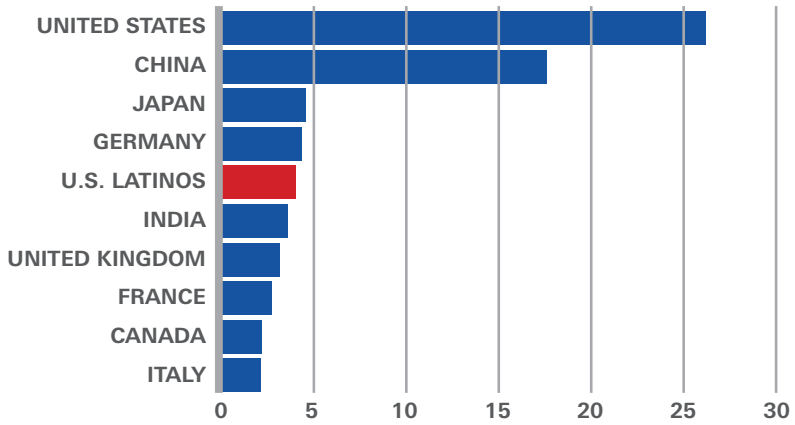
In addition, 63.6% of respondents cited hard work as a critical factor contributing to their achievements, while 76.2% emphasized perseverance and resilience as demonstrated by their educational progress. Latino students have steadily increased their presence in higher education and in high-demand fields such as engineering and technology. Furthermore, 52.2% of Latino students and professionals noted that being bilingual is an asset, particularly in global industries where cultural and linguistic fluency are vital skills.

Strong family support also plays a pivotal role in their success, with 50.4% of respondents citing it as a key factor. Nearly half of the respondents cited adaptability as a key strength, a trait that, along with the rapid advancement of Latinos in technical fields, underscores their resilience and ability to thrive in evolving industries.

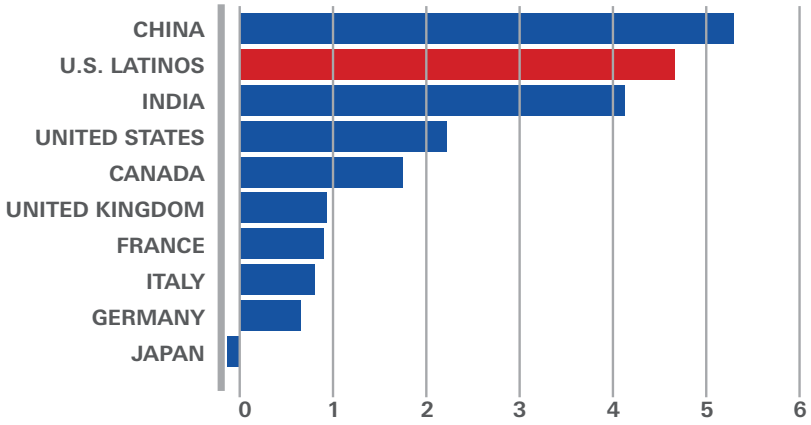
According to the *2024 Official LDC U.S. Latino GDP Report*™, the Latino GDP reached $3.6 trillion in 2022, growing at an annual rate of 4.6%, making Latinos the second-fastest-growing economy in the world if considered a standalone nation. This makes Latinos the fifth-largest economy in the world –projected to surpass Japan in 2024 and Germany in 2027– to become the fourth-largest economy in the world at $5.7 trillion by 2029.[5] These data highlight the economic impact of Latinos.

The Latino labor force is growing rapidly, with 725,000 new Latino workers added in 2022, while the working-age non-Latino population declined by 673,000. This growth is projected to continue, with Latinos becoming a younger demographic compared to non-Latinos. By 2030, Latinos will have twice as many 20-year-olds as 70-year-olds, while non-Latinos will have an equal number of 20-year-olds and 70-year-olds. Additionally, Latino labor force participation in 2022 was nearly six percentage points higher than that of non-Latinos.[5]

Figure 4. U.S. Latino GDP on the World Stage



A. The world's leading economies in 2022 compared to the U.S. Latino GDP as estimated from expenditures made"by and behalf" of members of this demographic. Figure corresponds to trillions of current U.S. dollars.



B. Real, annualized percent GDP growth among the world's leading economies between 2017 and 2022 compared to the growth in the U.S. Latino GDP as measured from expenditures made "by and on behalf" of members of this demographic. Figure correponds to chained growth rates.

Sources: World Bank; U.S. Department of Commerce, Census Bureau, American Community Survey; and U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey.

AS LATINOS CONTINUE TO EXCEL IN ENGINEERING AND TECHNOLOGY, THEIR CONTRIBUTIONS ARE NOT ONLY RESHAPING THE LABOR MARKET BUT ALSO PROVIDING THE U.S. ECONOMY WITH THE DIVERSE SKILLS NEEDED TO REMAIN GLOBALLY COMPETITIVE. THEIR CULTURAL ATTRIBUTES—BILINGUALISM, PERSEVERANCE, AND ADAPTABILITY—COUPLED WITH THEIR GROWING ECONOMIC INFLUENCE, POSITION THEM AS A KEY FORCE IN MEETING THE DEMANDS OF THE ENGINEERING AND TECH INDUSTRIES AND THE BROADER U.S. WORKFORCE.

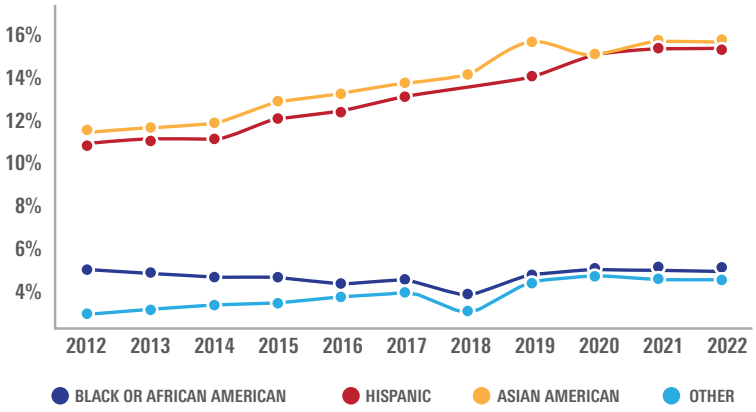
U.S. Latinos: A Positive Trend in Engineering and Tech Degrees (2012–2022)

THIS SECTION PROVIDES AN IN-DEPTH ANALYSIS OF ENGINEERING ENROLLMENT AND DEGREES AWARDED TO LATINOS FROM 2012 TO 2022. IT EXAMINES THE TRENDS IN ENROLLMENT RATES, COMPARES THEM TO THOSE OF OTHER ETHNIC GROUPS, AND DISCUSSES THEIR IMPLICATIONS. THIS ANALYSIS OFFERS INSIGHTS INTO THE PROGRESS THAT HAS BEEN MADE AND THE CHALLENGES THAT REMAIN IN INCREASING LATINO REPRESENTATION IN UNDERGRADUATE ENGINEERING PROGRAMS.

A. Trends in Engineering College Degrees

- Latinos have experienced the largest increase in undergraduate engineering enrollment rates over the past decade, outpacing all other ethnic groups.
- Latino enrollment in undergraduate engineering programs increased from **11.4%** in 2012 to **15.8%** in 2022, reflecting a **38.6%** increase over the decade.
- During the pandemic years (2020–2022), enrollment remained stable at around **15%**, likely due to the impact of COVID-19 on higher education.
- Undergraduate engineering degrees awarded to Latinos increased by **56.7%** from 2012 to 2022, marking the largest positive change among unique racial and ethnic groups.
- Despite these positive changes, Latinos remain underrepresented in the workforce, and closing the gap will require a focus on boosting support systems to sustain growth.

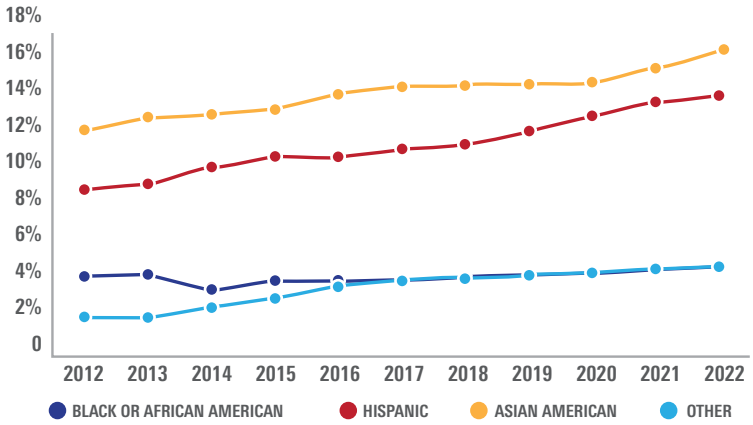
Figure 5. Percentage of Enrollment in Engineering Bachelor's Degrees by Race/Ethnicity (Excluding White)



Race/Ethnicity Group	Change (2012–2022)
Black or African American	-1.8%
Hispanic	38.6%
Asian American	35.3%
White	-16.2%
Other*	47.1%

Due to a potential discrepancy with Hispanic data for 2018, we excluded that year from the chart.
* 'Other' category includes all race/ethnicity groups that are not explicitly listed. Data Source: ASEE by the numbers.

Figure 6. Percentage of Engineering Bachelor's Degrees Awarded by Race/Ethnicity (Excluding White)



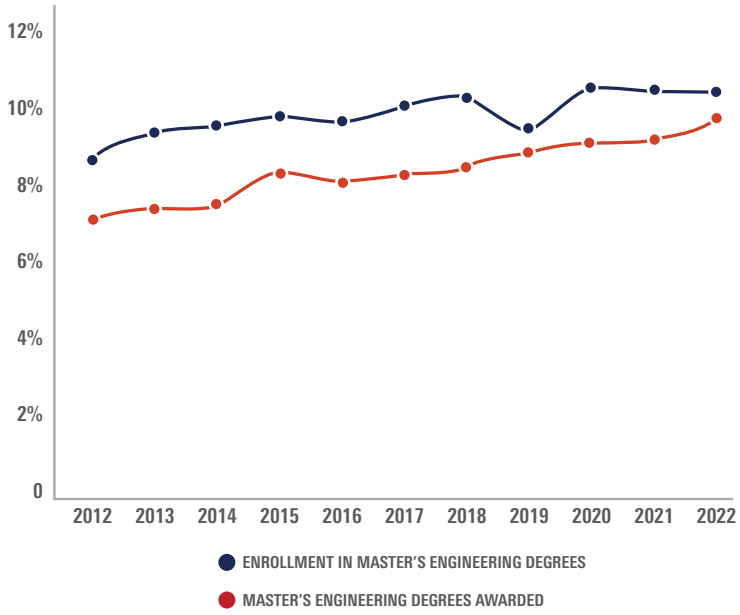
Race/Ethnicity Group	Change (2012–2022)
Black or African American	14.3%
Hispanic	56.7%
Asian American	36.1%
White	-15.3%
Other	140.0%

B. Trends in Engineering Master's and Doctoral Degrees

Master's Degrees

- Over the past decade, Latinos have experienced a 37% increase in the number of master's engineering degrees awarded.
- Latinos continue to have the highest growth rate among unique racial and ethnic groups.
- The percentage of master's degrees awarded to Latinos has remained relatively stable, at around **9%** from 2019 to 2022, with no significant increase over this period.
- The number of master's degree enrollment for Hispanics over the last decade has increased by **20.2%**, with figures fluctuating between **8.9%** and **10.7%**.

Figure 7. Percentage of Hispanic Enrollment and Degrees Awarded in Master's Engineering Degrees

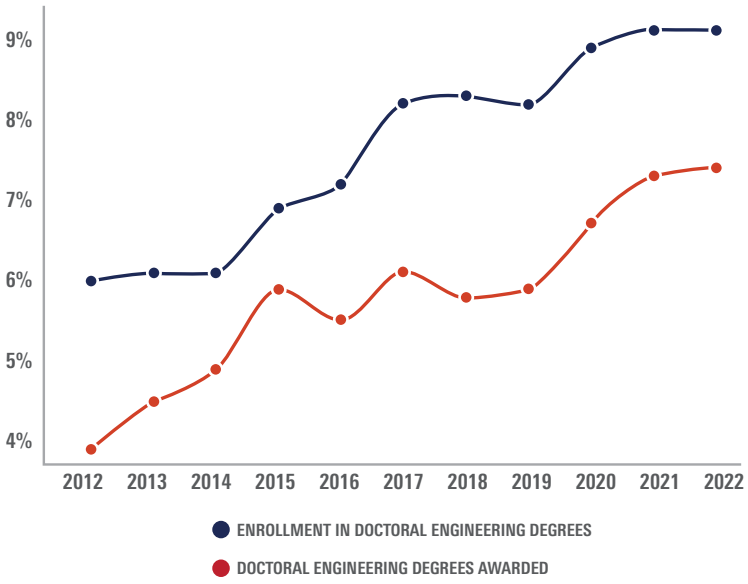


	Enrollment	Degrees Awarded
Race/Ethnicity Group	Change (2012–2022)	Change (2012–2022)
Black or African American	-15.1%	4.3%
Hispanic	20.2%	37.0%
Asian American	33.3%	23.4%
White	-17.3%	-12.2%
Other	64.3%	100.0%

While there appears to be a significant dip between 2018, 2019, and 2020, there are only slight fluctuations in the numbers. 2018 is 10.5%, 2019 is 9.7%, and 2020 is 10.8%. This appears to be a normal level of fluctuation not caused by any discrepancies in the data.

Doctoral Engineering Degrees

- Doctoral enrollment increased by **50%** from 2012 to 2022. Hispanic Ph.D. enrollment has remained stable at around **9%** over the past few years (2020–2022).
- Doctorates awarded to Latinos grew by an impressive **85.4%** from 2012 to 2022, the highest among ethnic groups after multiracial students.
- This growth rate surpasses the **78.6%** increase reported for master's and undergraduate degrees in the previous decade (2011–2021).



	Enrollment	Degrees Awarded
Race/Ethnicity Group	Change (2012–2022)	Change (2012–2022)
Black or African American	16.7%	2.4%
Hispanic	50.0%	85.4%
Asian American	10.4%	9.2%
White	-7.7%	-3.9%
Other	79.2%	152.9%

Figure 8. Percentage of Hispanic Enrollment and Degrees Awarded in Engineering Doctorates

The past decade has seen significant progress in Latino representation at the bachelor's, master's, and doctoral levels in engineering. These gains underscore the growing contribution of Latino talent to the engineering and technology fields, with notable advancements at each educational level. The increasing number of Latino graduates provides a solid foundation for future growth and impact within the STEM workforce.

Sustained efforts to expand access to research, mentorship, and advanced study opportunities will prepare even more Latino students to excel in high-skill fields. The resilience and drive demonstrated by Latino students reflect a powerful potential for innovation and excellence, strengthening the U.S. engineering landscape to meet complex challenges and advancing our capacity for transformative solutions.

SHPE's Goal Statement

WITH STEM JOBS PROJECTED TO REACH 11.8 MILLION BY 2033, THE URGENCY TO FILL THESE ROLES IS CLEAR. THE ABILITY TO MAINTAIN U.S. ECONOMIC COMPETITIVENESS HINGES ON DEVELOPING A DIVERSE AND QUALIFIED WORKFORCE CAPABLE OF DRIVING ADVANCEMENTS IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS. ADDRESSING THIS NEED IS ESSENTIAL FOR FOSTERING LONG-TERM ECONOMIC GROWTH AND INNOVATION.

Hispanic youth are essential to closing this gap by pursuing engineering careers, taking advantage of mentorships, and actively engaging in opportunities to increase their representation in technology fields. As the largest association of Latino engineering and tech students, SHPE's primary goal is to expedite the achievement of parity in engineering degrees and workforce representation for Hispanic students, as described in our previous report.[9] Although parity in undergraduate enrollment is projected for 2035, recent trends suggest slower progress, potentially delaying parity in engineering degrees until 2060 or beyond. Accelerated efforts are essential to breaking down barriers and expanding opportunities in engineering education, making it possible to achieve this goal sooner.

Achieving parity in engineering degrees awarded to Hispanic students by 2040 will require decisive action across multiple sectors:

Schools and K-12 Education
Strengthen early STEM education by offering mentorship and tailored curricula to inspire Hispanic students.

Higher Education
Increase outreach, scholarships, and recruitment efforts to ensure equitable access for Hispanic students pursuing engineering degrees.

Government
Provide funding for engineering and tech education education and enact policies to create pathways for Hispanic students in engineering.

Industry
Develop internships, apprenticeships, and inclusive workplace cultures to support Hispanic talent.

Academic and Professional Organizations
Advocate for diversity and provide networking, mentorship, and research to support Hispanic student retention.

SHPE's vision goes beyond numbers and projections. By continually expanding efforts across K-12 and higher education, strengthening partnerships with government and industry, and engaging academic and professional organizations, SHPE is working to build a future where Hispanic students enroll in engineering programs and graduate with the confidence and skills needed for impactful careers. Through these efforts, SHPE is committed to helping Hispanic students thrive in STEM, contribute their unique talents and perspectives to the engineering and technology workforce, and drive the U.S. economy forward.

How Will We Get There?

LATINO STUDENTS ARE ESSENTIAL TO THE FUTURE OF THE U.S. WORKFORCE, PARTICULARLY IN STEM FIELDS. WITH THEIR INCREASING PRESENCE IN HIGHER EDUCATION AND THE WORKFORCE, PARTICULARLY IN ENGINEERING, LATINOS HAVE DEMONSTRATED IMPRESSIVE GROWTH RATES IN GRADUATION AND PARTICIPATION ACROSS ALL LEVELS OF EDUCATION. THIS TREND SIGNALS NOT ONLY AN INCREASE IN NUMBERS BUT ALSO A POWERFUL OPPORTUNITY FOR COMPANIES AND DECISION-MAKERS TO HARNESS THIS EMERGING TALENT TO ADVANCE THE U.S. WORKFORCE IN HIGH-SKILL FIELDS.

With approximately 22,000 students and professionals in its membership, SHPE is instrumental in supporting Latino students through diverse programs and scholarships, helping them achieve an impressive 87.7% graduation rate—far surpassing the national engineering graduation rate of approximately 50% across all racial/ethnic groups. This success is driven by SHPE's targeted efforts to foster family involvement, provide role models, and engage K-12 students early to build a solid foundation for STEM success.

Through a blend of pilot programs, measurable results, and continuous engagement, SHPE is constructing pathways that ensure Latino students have the support and resources needed for long-term achievement.

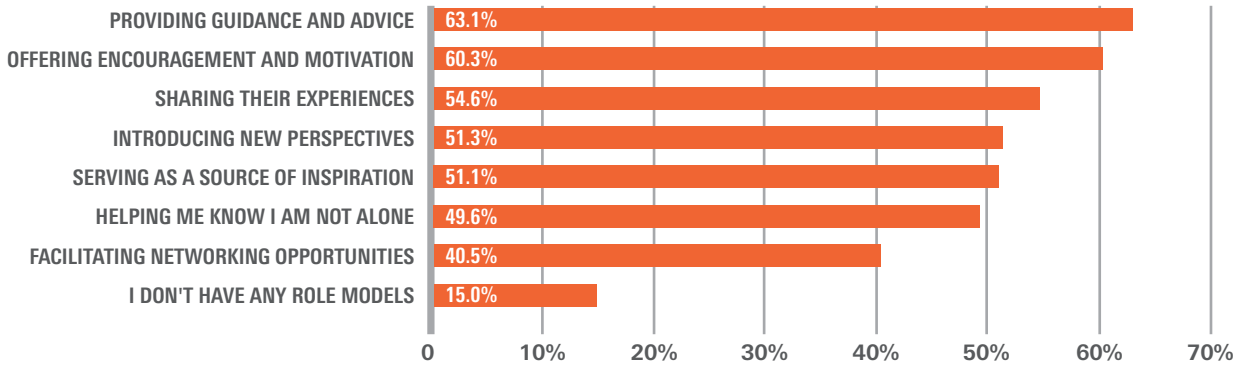
By joining forces, stakeholders can empower the next generation of engineers and technologists and create an environment that taps into the immense potential of Latino talent—contributions that are essential to sustaining and advancing the U.S. workforce in these dynamic fields.

1. Role Models

The presence of role models in engineering and technology is particularly vital for Latino students, many of whom are first-generation college attendees—comprising 50% of all SHPE members—who seek relatable examples of success in STEM fields. Role models from similar backgrounds provide inspiration and reinforce the potential for success, helping Latino students envision and pursue their own STEM career paths. SHPE-LDC's 2023 report found that 72.3% of Latinos in STEM consider it fairly or very important to have role models pursuing STEM careers. This is supported by research from the American Society for Engineering Education (ASEE), which found that engineering students with mentoring relationships achieved retention rates of nearly 80%. Similarly, the National Girls Collaborative Project revealed that 93% of girls who were exposed to female role models in STEM felt inspired to pursue careers in these fields, underscoring the powerful impact of mentorship and relatable examples of success.

SHPE is helping to meet this need within the Latino community; on average, 60% of respondents felt that SHPE provided them with these essential role models. Through its targeted programs, SHPE is fostering a network of inspiration and support that encourages Latino students to pursue and thrive in STEM careers.

Figure 9. Role Models' Contribution to Growth



Note. Respondents were asked, "How have role models contributed to your growth"
Data reflect responses across all groups with a sample size of 1,003.

To further illustrate the impact of role models within SHPE, 63.1% of survey respondents emphasized that they provide valuable guidance and advice to help them navigate their educational and career paths. In addition, 60.3% noted that these role models offered encouragement and motivation, instilling confidence and inspiring them to pursue their goals. Meanwhile, 54.6% of respondents shared that role models enriched their perspectives by sharing personal experiences and insights into overcoming challenges in the field. However, 15% of respondents reported a lack of role models in their professional journeys, underscoring the need for accessible mentors within the community.

"SHPE HAS PROVIDED ME WITH OPPORTUNITIES TO FORM DEEP AND MEANINGFUL FRIENDSHIPS, MEET MENTORS, BE A MENTOR, AND TO IMPACT MY COMMUNITY IN A WAY THAT HELPS REMIND ME EVERY DAY THAT I AM SURROUNDED BY A SUPPORTIVE FAMILIA."

To provide accessible role models, SHPE offers several programs that showcase inspiring STEM journeys and experiences:

Podcasts: Members share their journeys, challenges, and triumphs, providing relatable and motivational content.

Internship Videos: Highlight the projects and contributions of SHPE interns across various organizations, illustrating real-world impact and inspiring students.

STAR Awards: Celebrate high-achieving Latino STEM leaders, reinforcing successful career paths.

Virtual STEM Labs: Hands-on learning experiences where experienced members lead interactive projects and discussions.

National Convention: Brings together STEM professionals, students, and families to network and celebrate Latino success.

Hill Day: Engages Latino STEM students and professionals in policy discussions that showcase their leadership in research, technology, and innovation.

Together, these initiatives foster a supportive community and provide Latino students with role models who pave clear pathways to academic and professional success in STEM.

2. Familia (*Equipando Padres*)

For Latino students, family support plays a fundamental role in their academic and professional journeys. Because many Latino students are first-generation college students, the concept of *familia*—or family—shapes their experiences and provides a support network critical to their success. In fact, **50.4%** of SHPE members reported that family support was pivotal to their achievements. Family engagement has been shown to positively influence educational outcomes, yet many families lack the resources or information to guide their children through STEM pathways.

SHPE's *Equipando Padres* initiative addresses this gap by equipping families with the tools and resources to support their student's STEM aspirations. The program's effectiveness is evident, achieving a high Net Promoter Score (NPS) of **95.2**, significantly above the average for similar initiatives.* Additional indicators of the program's success include the following:

- A total of 84.6% of respondents noted an increase in their knowledge, with 48.9% reporting that they now know "a lot more" about the topics covered, 20.4% indicating they know "somewhat more," and 15.3% observing a slight increase in their knowledge.
- An overwhelming 95.15% of respondents expressed increased confidence in their ability to support their children's academic journeys.
- A strong connection to the SHPE Familia community was indicated by 87.20% of respondents, who rated their sense of belonging between 8 and 10.

* NPS is a metric that measures customer or participant satisfaction and loyalty by asking respondents how likely they are to recommend a program, product, or service to others. Scores range from -100 to 100, with higher scores indicating greater satisfaction.

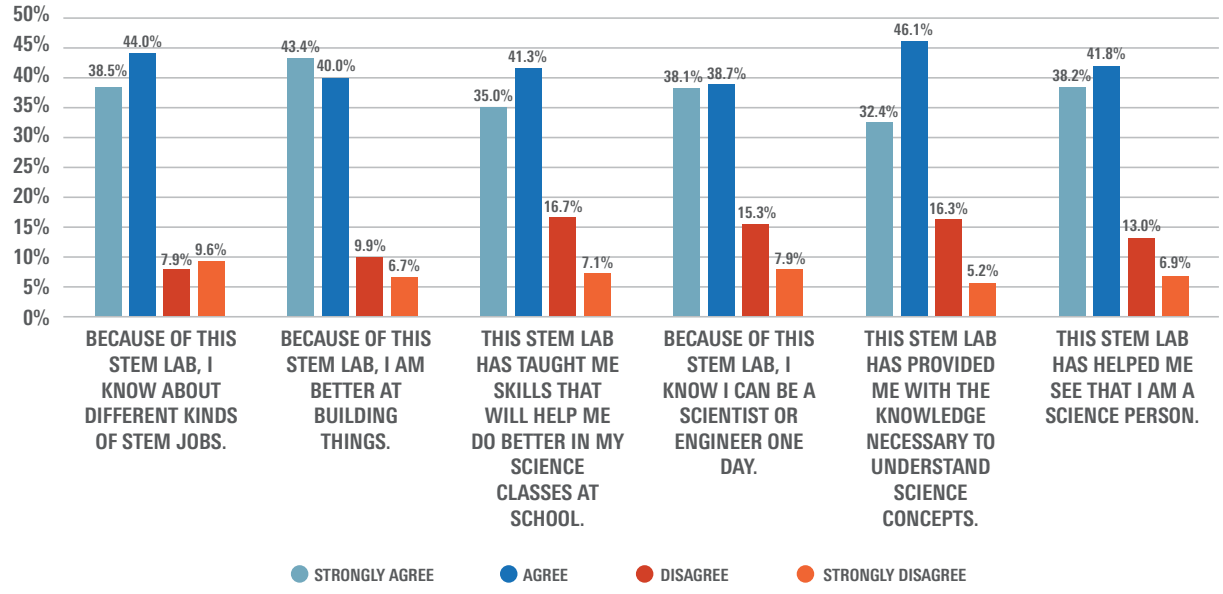
"AS ONE OF THE LARGEST MINORITIES IN THE U.S., LATINOS GAIN THE MOST VALUE WHEN WE UNITE UNDER THE BANNER OF ORGANIZATIONS LIKE SHPE THAT PROMOTE THE BEST OF OUR PEOPLE AND GIVE US THE OPPORTUNITY TO CONTINUALLY IMPROVE OUR LIVES IN EVERY WAY."

THROUGH *EQUIPANDO PADRES*, SHPE EMPHASIZES THE CRITICAL ROLE FAMILIES PLAY IN LATINO STUDENTS' SUCCESS, FOSTERING A SUPPORTIVE NETWORK THAT EMPOWERS STUDENTS ACADEMICALLY AND PROFESSIONALLY.

3. Pre-College Programming

SHPE's Virtual STEM Lab program provides K-12 students with access to engaging, hands-on experiences in STEM to spark an early interest in these fields. Recognizing the significant impact of early exposure to STEM, the program aims to increase awareness of diverse STEM degrees and careers, empowering students to envision STEM as a viable and exciting career path. The objectives of the Virtual STEM Lab focus on three main areas: raising awareness of STEM fields, boosting students' confidence in their abilities, and fostering a strong STEM identity. Through these initiatives, SHPE is inspiring the next generation of Latino STEM leaders and innovators.

Figure 10. Virtual STEM Labs Events (April to December 2023)

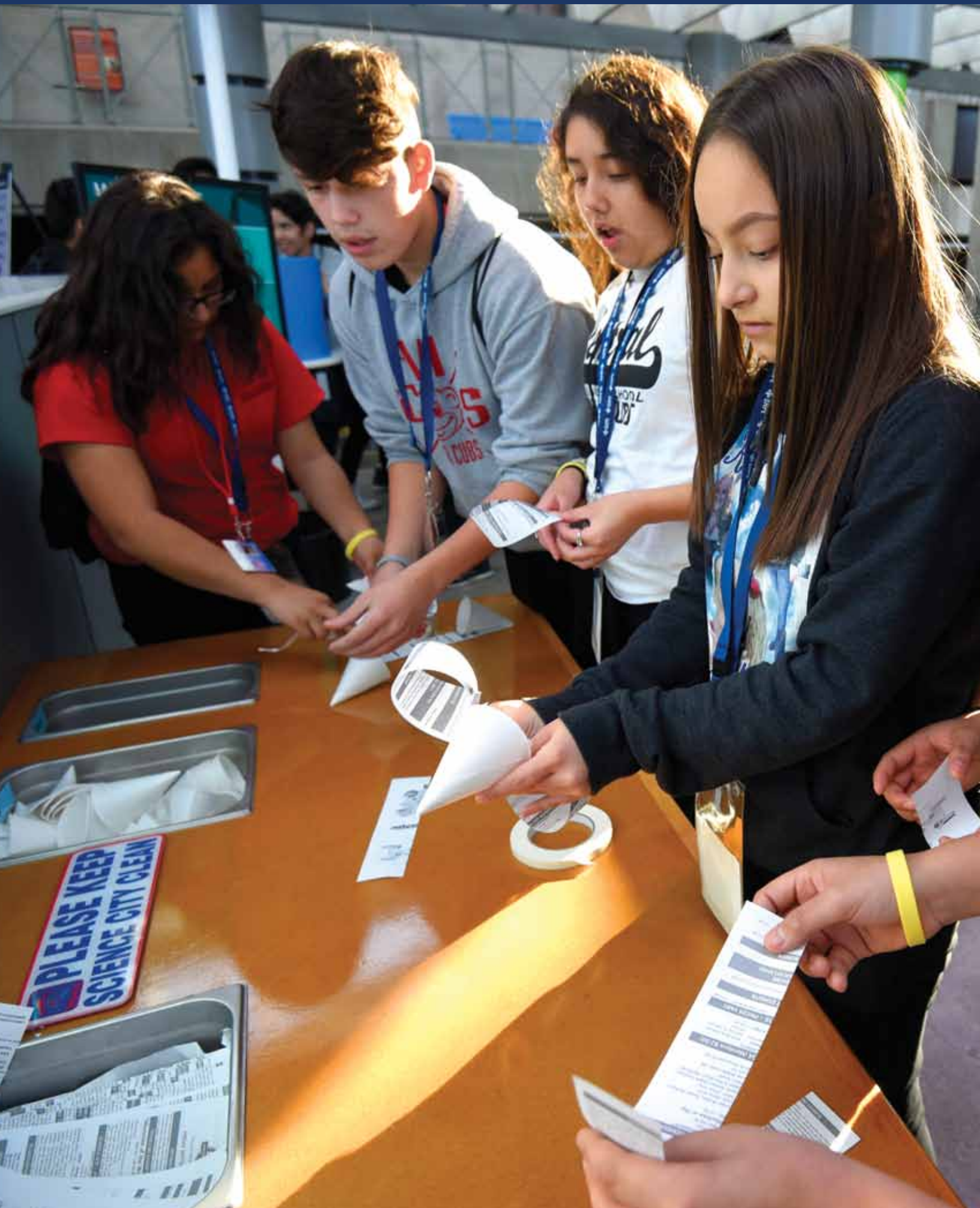


Since its inception in 2021, SHPE's Virtual STEM Labs have reached 16,865 participants, with 82.5% agreeing or strongly agreeing that they now have more knowledge about different STEM careers and 76.8% reporting that they feel inspired to become a scientist or engineer. Parent satisfaction with the program is high, as reflected in an NPS of 87.8. These metrics underscore the program's effectiveness in boosting students' awareness and confidence in STEM.

Scaling the Virtual STEM Lab program to classroom settings offers significant potential to reach thousands more students. For example, implementing the program in one middle school could impact 200 to 500 students annually, depending on the size of the school.

Expanding to 10 schools could positively impact up to 5,000 students each year, providing invaluable opportunities for early exposure to STEM. Research from the National Science Foundation underscores the importance of these efforts, showing that early exposure can increase the likelihood of students pursuing STEM degrees by up to 25%. Scaling SHPE's Virtual STEM Labs will not only broaden the program's reach but also cultivate a generation of informed and inspired future STEM leaders.

"SHPE HAS HELPED SHOW MY HIGH SCHOOL STUDENTS THAT THEY BELONG IN STEM FIELDS AND THAT THEY WILL HAVE A SUPPORT NETWORK THROUGH THE SHPE FAMILIA."


PLEASE KEEP
SCIENCE CITY CLEAN

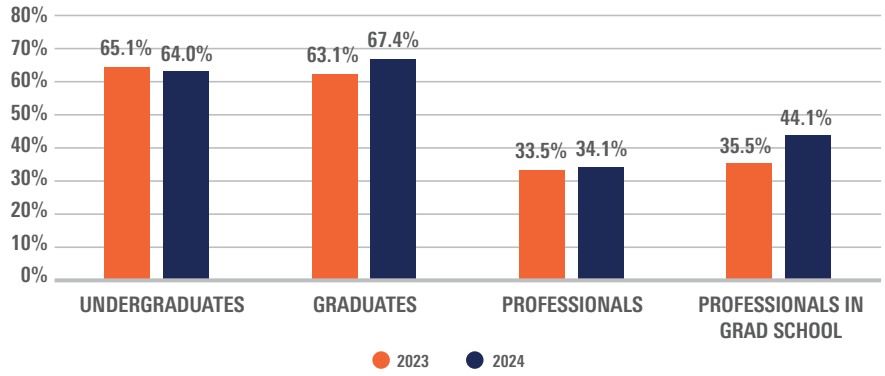
Areas of Opportunity and Addressing Challenges

THE ROAD TO EQUITABLE REPRESENTATION OF LATINO STUDENTS IN ENGINEERING AND TECH IS FRAUGHT WITH OBSTACLES. HOWEVER, THROUGH A COMBINATION OF TARGETED FINANCIAL, EDUCATIONAL, AND SUPPORT INITIATIVES, ORGANIZATIONS LIKE SHPE ARE ADDRESSING THESE CHALLENGES HEAD-ON.

A. Financial Needs

- In the past year, 65.7% of students, both undergraduate and graduate, reported experiencing financial struggles.
- Among professionals, the figure is 39.1%, an improvement but still an indication that financial literacy remains a critical issue.
- Latino professionals show upward mobility, with fewer financial struggles compared to their student peers, highlighting career advancement despite initial financial barriers.

Figure 11. Individuals Reporting Financial Struggles by Group, 2023–2024



SHPE's Initiatives:

- Financial Skill Development: SHPE offers courses on budgeting, managing student loans, and personal finance through partnerships with MindEdge and iGrad. These resources empower students to make financially sound decisions that support long-term success.
- ScholarSHPE: In 2023, SHPE awarded 377 scholarships totaling over $1.6 million, supporting students in overcoming financial barriers.
- ALL-IN Relief Fund: Initially launched as a response to the pandemic, this fund continues to support members facing day-to-day financial challenges, with $26,375 disbursed in early 2024, benefiting 83% of applicants.

B. Basic Needs

- In 2024, 20.2% of undergraduate students faced housing and financial insecurity at some point in the past year.
- For graduate students, housing and financial insecurity increased significantly, rising from 20.2% to 28.1% between 2023 and 2024.
- Despite a decrease in homelessness among undergraduates in 2024, housing and financial insecurity remain challenges for many young Latinos. These challenges are influenced by broader systemic issues rather than individual financial constraints.

Figure 12. Individuals Reporting Housing and Financial Insecurity by Group, 2023–2024

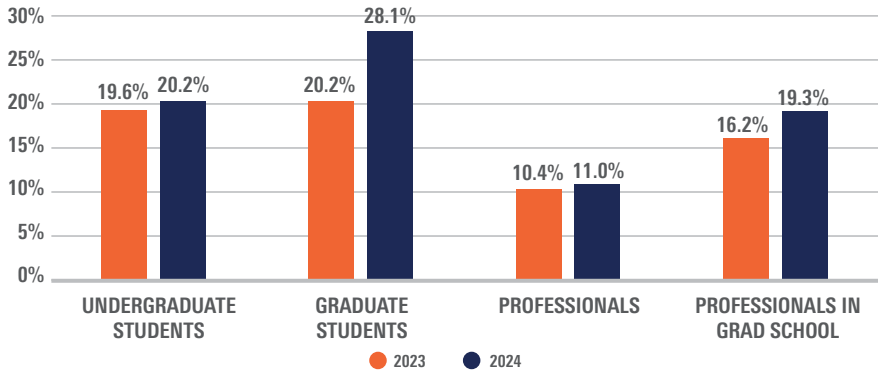
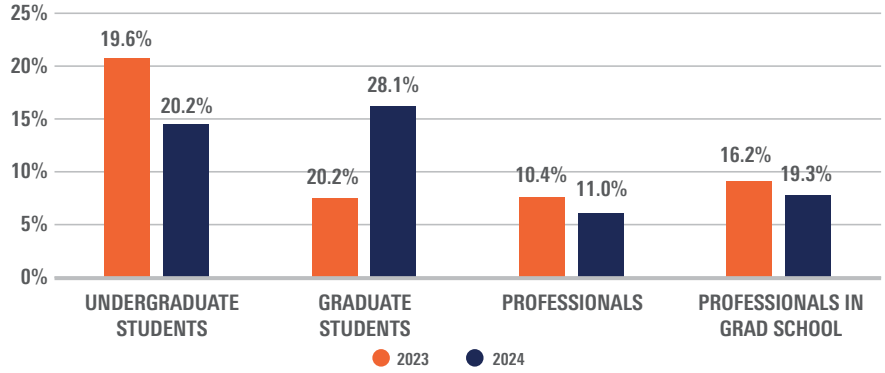


Figure 13. Individuals Reporting Homelessness in the Past Year by Group, 2023–2024



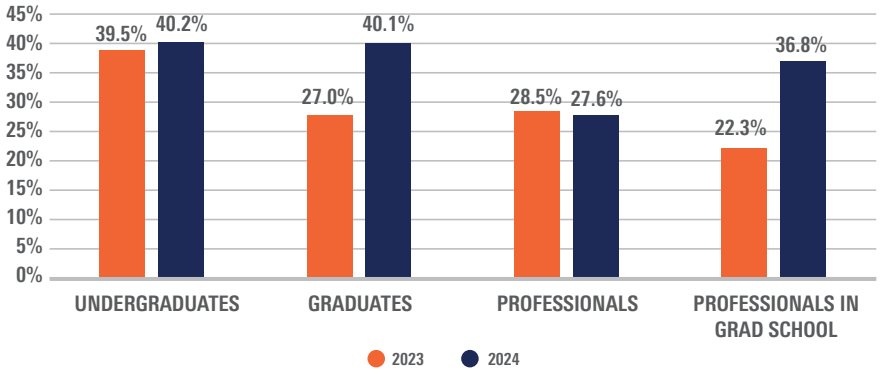
C. Physical and Mental Well-Being

Physical Health

- Graduate students reporting poor/fair physical health increased from 27.0% to 40.1%, reflecting a deterioration in overall wellness due to factors such as a lack of time for self-care, extended work hours, and balancing academic and family responsibilities.

- The trend among professionals in graduate school was similarly concerning, with 36.8% reporting poor/fair health.

Figure 14. Individuals Reporting Physical Health Challenges by Group, 2023–2024



Mental Health:

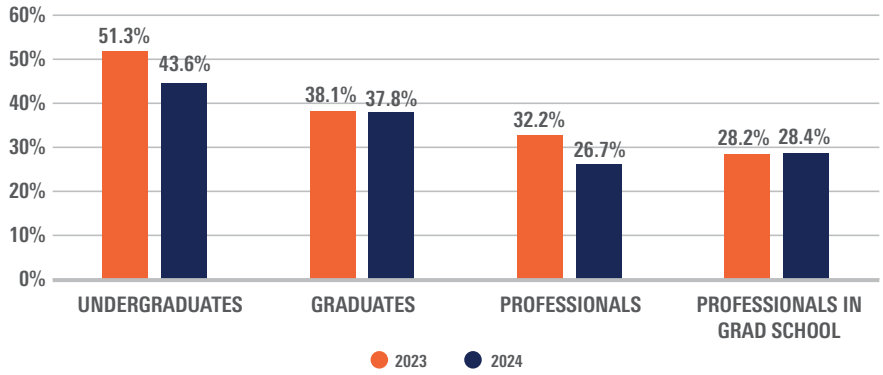
- Undergraduate mental health improved, dropping from 51.3% to 43.6%, while professionals' mental health improved slightly, down to 26.7%.

- These improvements are attributed to increased access to mental health resources, support networks, and increased awareness of mental health issues within the Latino community.

- Mental health challenges often stem from financial stress, academic pressures, and family obligations, which require ongoing support to maintain progress.

- Latino youth have improved access to mental health resources, with growing awareness and support networks reducing the percentage reporting poor mental health. Mental health challenges are often linked to financial stress, academic pressures, and family responsibilities.

Figure 15. Individuals Reporting Mental Health Challenges by Group, 2023–2024



SHPE's Initiatives:

- Sana Sana con SHPE: Through this initiative, SHPE supports mental health education and provides culturally relevant resources that address wellness among students and professionals.

D. Gender Gap

Latinas' Untapped Potential:

- Latinas account for 3.8% of engineering enrollments and 3.1% of degrees awarded, well below their representation in the population.

- Of all undergraduate students surveyed, 41.4% expressed a desire to earn a master's degree, while 19.3% aimed for a doctorate. These aspirations were mirrored among Latina students, with 41.0% aiming for a master's degree and an encouraging 21.5% hoping to achieve a doctoral degree. Latino students had similar aspirations, with 42.3% seeking a master's degree and 17.0% aiming for a doctorate.

- Latinas represent a significant opportunity, with increasing numbers pursuing advanced degrees. In the 2023 Needs Assessment Survey, Latinas expressed strong interest in master's and doctoral degrees, reflecting their commitment to advancing in STEM.

- Doctoral programs have seen an increase in Latina enrollment, but the numbers remain below parity, indicating the need for additional support.

Gender Pay Gap:

- Latinas earn 57 cents for every dollar paid to White, non-Hispanic men.
- Within SHPE, men are 1.85 times more likely than Latinas to earn over $150,000.
- Compared to other groups, Latino men and women combined face a significant pay gap in STEM fields, although improvements have been noted in recent years.

SHPE's Initiatives:

- SHPEtinas: Dedicated to empowering Latinas in STEM, SHPEtinas provides mentorship, leadership development, and networking opportunities to help Latinas increase their visibility and career prospects.
- Excel con SHPE: This program offers targeted academic support, providing 2,597 hours of tutoring in 275 sessions in 2023, enabling students to effectively tackle challenging STEM subjects.

E. Extended Latino Graduation Timelines

- Latino students take an average of 26.5 terms to complete an engineering degree, longer than other groups, such as White students (24.8 terms), Black students (26 terms), Asian students (22.68 terms), Native American students (25.73 terms), and international students (22.68 terms).

"SHPE ENCOURAGES ME TO FOLLOW A PATH IN A STEM FIELD –I CAN'T BELIEVE ALL THE OPPORTUNITIES THAT SHPE GIVES ME AS A LATINA WOMAN IN THE ENGINEERING INDUSTRY."

- Among undergraduates, 67.2% work while completing their degrees, with 30.2% working more than 20 hours per week.
- Among graduate students, 73.7% work, with 24% working more than 20 hours weekly.
- A total of 16.3% of respondents self-identified as caregivers or parents, which adds more challenges to their academic workload.
- More than half (54.4%) of SHPE members identify as first-generation college students, reflecting a strong drive to break through barriers in higher education.

SHPE's Initiatives:

- MentorSHPE: In 2023, MentorSHPE facilitated 940 mentor-mentee relationships, a 30% increase from the previous year, supporting Latinos through both academic and personal challenges.

F. Lack of Institutional Support

- While 71.6% of undergraduates feel supported by their institutions, 28.4% express dissatisfaction, highlighting gaps in resources and institutional understanding of Latino students' needs.
- Among graduate students, 62.4% report adequate support, but 37.6% cite challenges such as insufficient resources or lack of cultural competency.
- In the professional sphere, 61.3% of Latino professionals believe that their employers provide adequate resources and support for career development. However, 38.7% feel underserved, particularly in terms of mentorship and leadership opportunities within their organizations.

SHPE's Initiatives:

- Academic and Industry Partnership Councils: SHPE collaborates with 75 academic institutions and 77 companies to provide Latino students with research, internships, and professional development opportunities, ensuring pathways to impactful STEM careers.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Conclusion

THE 2024 SHPE-LDC U.S. LATINOS IN ENGINEERING AND TECH REPORT HIGHLIGHTS THE TRANSFORMATIVE POTENTIAL OF LATINO YOUTH IN SHAPING THE FUTURE U.S. WORKFORCE, PARTICULARLY IN HIGH-SKILL FIELDS LIKE ENGINEERING AND TECHNOLOGY.

With 25% of the U.S. population under the age of 18, Latino youth are poised to play a critical role in meeting the country's workforce needs. Their educational advancements are evident: 22% of Latinos aged 25–34 now hold a bachelor's degree or higher, a promising indicator of their growing presence in STEM fields. The surge in Latino undergraduate engineering enrollment, which rose by 38.6% from 2012 to 2022, along with a 56.7% increase in engineering degrees awarded, underscore their growing interest and achievement in these fields. However, consistent support and resources remain essential to bridging the gap between educational gains and workforce representation.

Latinos have already made significant contributions to the workforce, accounting for 80% of net labor force growth over the past decade. Projections indicate that by 2033, Latinos will represent 22% of all U.S. workers, positioning them as indispensable to filling the growing need for skilled professionals in STEM. Additionally, cultural strengths—including hard work, perseverance, bilingualism, and strong family support—enhance their adaptability and resilience, enriching their educational and professional pursuits in STEM.

Yet challenges remain. Addressing financial insecurity, mental health, and institutional support are vital to ensuring their sustained success. In 2023, 65.7% of Latino students reported financial struggles, and 20.2% experienced housing insecurity, underscoring the need for targeted initiatives. SHPE's impactful programs, such as Equipando Padres and Virtual STEM Labs, have been instrumental in providing family support, early exposure to STEM, and resources that increase students' knowledge and confidence.

To fully unlock the potential of Latino students and professionals, collaboration across industry, academia, government, and communities is essential. By uniting efforts, we can empower Latinos in engineering and technology, ultimately enriching the U.S. economy and helping to ensure a robust, skilled workforce for the future.

Recommendations

Call to Action for Industry and Corporate Foundations:

1. Seek talent from Latino communities. Implement targeted hiring practices, create pathways for advancement, and work for Latino representation in leadership.

2. Expand mentorship and internship programs. Partner with SHPE to offer internships and mentorships specifically for Latino students to address the high demand for STEM role models.

3. Support SHPE's educational programs. Invest in initiatives like Virtual STEM Labs and Equipando Padres to promote early STEM interest and resources for Latino families.

4. Foster inclusive workplace cultures. Create environments that value the unique perspectives of Latino engineers to drive innovation and growth.

5. Highlight Latino role models. Include Latino engineers in branding to inspire future talent.

Call to Action for Academia:

1. Strengthen support systems. Provide tailored mentorship, academic advising, and resources for Latino students, especially those who are first generation.

2. Increase faculty representation. Recruit Latino educators to mentor and inspire students.

3. Integrate SHPE programs. Incorporate Virtual STEM Labs to build early interest in STEM and increase awareness by over 80%.

4. Promote culturally relevant learning. Include Latino perspectives in curricula to create relatable learning environments.

5. Expand STEM funding. Offer scholarships and resources that address the financial challenges faced by Latino students.

Call to Action for Government:

1. Boost STEM funding. Increase support for scholarships and programs like SHPE's Virtual STEM Labs, mentorship, and education initiatives.

2. Enact merit-focused policies. Implement policies that open pathways for Latinos in STEM, making access to resources and opportunities possible.

3. Collaborate with SHPE: Partner on internships, career fairs, and public-private initiatives to promote STEM careers for Latinos.

Call to Action for Individuals:

1. Mentor and inspire. Latino engineers can mentor young talent, share successful career pathways, and foster community.

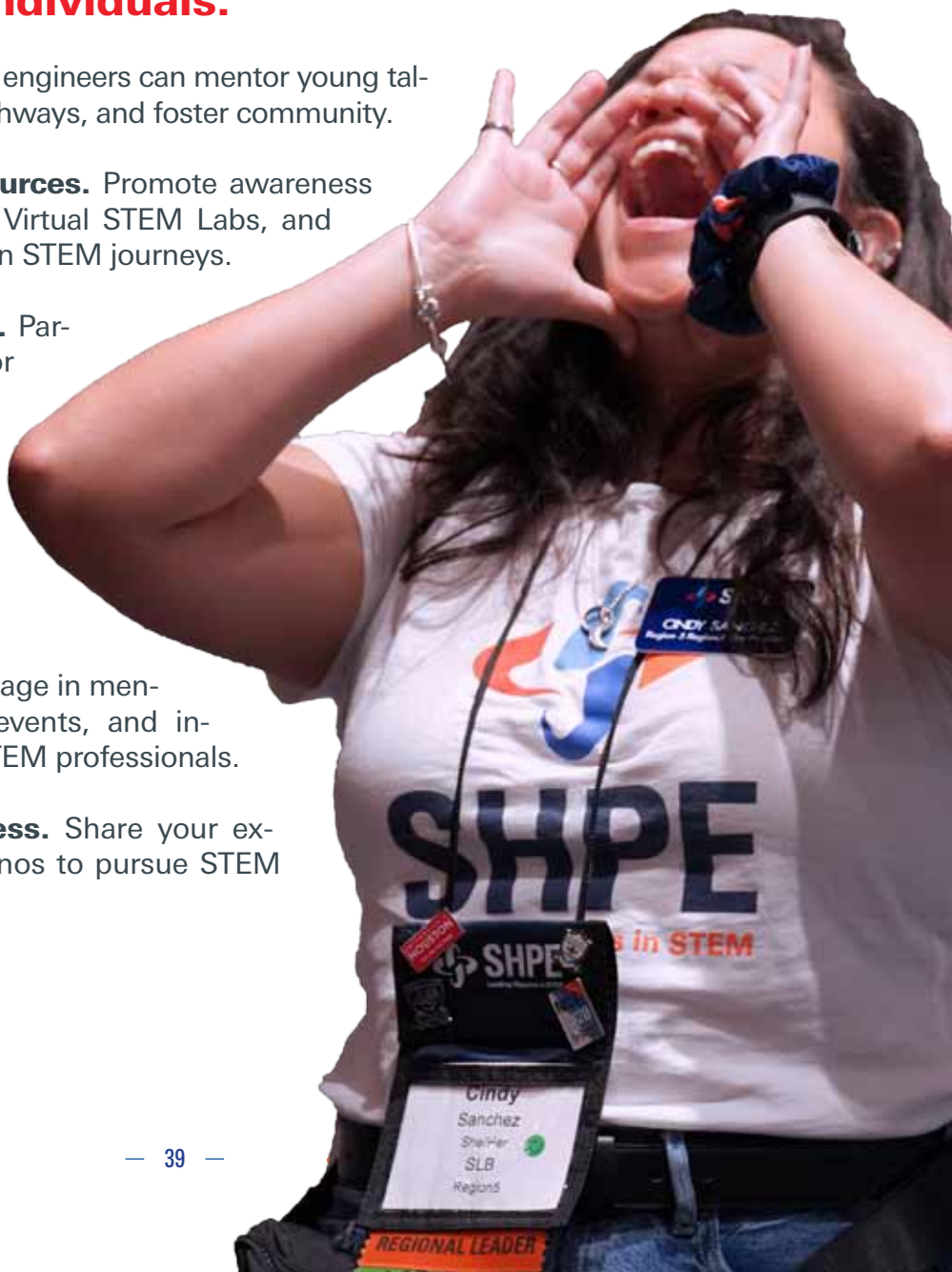
2. Advocate for STEM resources. Promote awareness of SHPE's resources, such as Virtual STEM Labs, and encourage family involvement in STEM journeys.

3. Support SHPE's mission. Participate as a volunteer or donor to expand access to STEM for Latino students.

Call to Action for Latinos in STEM:

1. Serve as role models. Engage in mentorship, participate in SHPE events, and increase the visibility of Latino STEM professionals.

2. Promote STEM awareness. Share your experiences to inspire other Latinos to pursue STEM careers.

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Methodology

The analysis of trends in engineering and technology presented in this report was based on data from the American Society for Engineering Education (ASEE) report *Engineering by the Numbers*. This report provided a comprehensive overview of key metrics within the engineering sector that were used to identify and analyze significant trends.

In addition to the ASEE data, the remaining data used in this report were derived from SHPE's 2023 and 2024 Needs Assessments. These assessments were conducted via SurveyMonkey and distributed to all current and past SHPE members. The sample sizes for the 2023 and 2024 assessments were 2,288 and 2,529 respondents, respectively, with completion rates of 76.4% and 81.5%, respectively.

The methodology for data analysis included both descriptive statistics, which were used to summarize and visualize the key characteristics of the data, and statistical inference, which was employed to draw conclusions and identify significant patterns and differences among various member groups. Statistical inference was particularly useful for understanding the relationships between variables, assessing the impact of specific factors on outcomes, and making generalizations about the broader Hispanic in engineering and tech community based on the sample data.

This combined approach of descriptive and inferential statistics ensured a robust and comprehensive analysis of the data, allowing us to accurately identify trends, challenges, and opportunities within the Hispanic in engineering and tech community.

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