



Educational attainment for at-risk high school students: closing the gap

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Abstract

The higher education gap persists in the United States for underserved, first-generation, low-income minority students. They often have little knowledge of college application and future success. This mixed-method study evaluated a Northeastern university-sponsored tutorial-mentorship 2-year program, Soar (pseudonym), for 80 metropolitan first-generation junior and senior high school students. One research question guided the study: Does Soar as a precollege program for underserved, first-generation, minority high school students help them successfully complete applications and prepare them for higher educational success? With college-oriented classes and workshops, the students submitted applications and received 205 acceptances from 96 colleges. Quantitative surveys and qualitative forums showed significant improvement in socioemotional and cognitive skill development and knowledge. Themes derived from qualitative focus groups supported the quantitative results. For juniors: Confidence, Aligning Schools and Strengths, Financial Literacy. For seniors: College Aspirations; Successfully Complete College Applications; Confidence, Self-Advocacy, Communication; Knowledge About Diversity of Schools and Critical Thinking. For mentors: Matching, Closeness, Trust; Confidence, Voice, Perseverance, Strengths, Goal Pursuit; Civic Engagement. The findings illustrate how an outreach program can result in higher education attainment and success for underserved, first-generation, minority high school students. Soar can become a model for college preparation for similar underserved students in other urban areas.

Keywords College orientation · Cognitive skills · Mentors · Minority · Noncognitive skills · Students' self-confidence · Underserved · First-generation

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Background and need

In the past 30 years in the United States, an increasing income gap has become evident (Income Inequality in the United States 2021). The gap persists in significant educational inequalities for low-income students from underrepresented communities whose parents did not attend college (Black 2017; Cataldi et al. 2018; Stephens et al. 2014; US Department of Education 2016; Yin 2017). In 2022, 55% of students enrolled in college were White (Bouchrika 2022).

The average college enrollment rates for underserved students were 56.6% for Blacks and 56.2% for Latinx, compared with 62.7% nationally (US Bureau of Labor Statistics 2021). Yet today, 65% of all jobs require postsecondary education (Carnevale et al. 2020). The lifetime income differential remains significant, with high school graduates earning an average of \$1.6 million compared to 4-year college graduates, who earn approximately \$2.8 million (Carnevale et al. 2021).

Underserved students experience many barriers that often perpetuate the gap. Their families are not knowledgeable about college, have had negative educational experiences, and cannot support the students. The students are exposed to few or no neighborhood models of educational success and have multiple responsibilities in addition to high school, such as care of siblings and necessary jobs. Further, these students are minimally exposed to the college experience and diversity of colleges and universities, have limited career goals, and lack financial literacy (Balemian and Feng 2013; Carey 2018; Ives and Castillo-Montoya 2020; Katrevich and Aruguete 2017; Rendón 2006).

As a result, these students do not possess the knowledge or skills to understand college costs, effectively complete financial aid forms, seek scholarships, or budget for college. The students also generally lack strong writing skills, experience acute test anxiety, and often feel unprepared for racial and socioeconomic differences they encounter at college (Lyons et al. 2019; Murphy 2016; Rendón 2006; Rendón et al. 2004a; Roderick et al. 2008; Schultz and Mueller 2006; Spinney et al. 2018; Travers et al. 2015). Effective programming, such as the Soar program (pseudonym), can decrease such barriers and the higher education gap for underserved, first-generation students (DuBois et al. 2002, 2011; Gandara and Bial 2002; Rendón 2006; Tierney and Garcia 2014; Wilson-Ahlstrom et al. 2014).

The research question

Does Soar as a precollege program for underserved, first-generation, minority high school students help them successfully complete applications and prepare them for higher educational success?

Theoretical foundations

Theory of positive youth development

Holland's theory of positive youth development (PYD; Reardon 2017) suggests that students who understand their own strengths and interests are more likely to pursue majors and seek out environments that match their interests (Allen and Robbins 2008; Burkhard et al. 2019; Demetriou and Powell 2014). The more aligned are students' vocational preferences with their choices of school, college major, or career, the more likely they are to succeed in college.

The theory of youth development encompasses five domains (5Cs): competence, connection, confidence, caring, and character (Lerner et al. 2005; Parry et al. 2021), with several core ideas. These are (a) developmental contexts (i.e., places, settings, ecologies, and relationships with the potential to generate supports, opportunities, and resources); (b) the nature of the child with accents on inherent capacity to grow and thrive (and actively engage with supportive contexts); (c) developmental strengths (attributes of the person, including skills, competencies, values, and dispositions important for successful engagement in the world); and two complimentary conceptualizations of developmental success; (d) the reduction of high-risk behavior; and (e) the promotion of thriving (Benson et al. 2006a, b).

Through many programs, research has shown that youth develop these characteristics (Benson et al. 2006a; Lerner et al. 2013; Parry et al. 2021; Vella et al. 2011). Research has also shown that the 5Cs can be measured reliably across middle adolescence (Bowers et al. 2010; Conway et al. 2015). The Soar program is grounded in PYD. In complement are the self-concept of mattering and the theory of the value of mentoring.

Theory of mattering and mentorship

As Chapin (2017) explained, the strengths-based perspective emphasizes the rights of individuals to form their own goals and aspirations. Soar relies on the science of relationship-based learning that fosters a profound sense of mattering. According to Dixon and Tucker (2008), mattering to others involves individuals' perceptions that they are important and valued by other people. Jean Rhodes, Director for the Center for Evidence-based Mentoring, pointed out that many youths served by mentoring programs may face relationship challenges. Programs such as Soar, that include high-quality mentoring and seek to create trustful relationships and supportive communities, can demonstrate to youth that they matter and lift them toward their full potential (Dubois et al. 2011).

Research supports mentoring programs, like Soar, that maximize both the relationship quality of mentor and mentee and instrumental activities, such as goal-setting (Cavell et al. 2021). These programs are more likely to increase the positive academic, behavioral, and social-emotional outcomes for youth (Lyons et al. 2019). Karcher et al. (2006) observed that, as mentors help mentees to meet certain

short-term goals and provide advice, counsel, and suggestions about instrumental skills, the mentors are also fostering longer-term relationships. As a result, mentees develop emotional and social skills. In combination, activities that are more tangible and task-focused, such as goal setting (MENTOR 2009), are positively correlated with developmental and interpersonal processes that can help youth overcome deficits (Dubois et al. 2011). Simultaneously, their positive academic, behavioral, and social-emotional outcomes are increased (Lyons et al. 2019; Rhodes 2015; Rhodes and Dubois 2006).

Research indicates that many students who would benefit from help are the least likely to ask for assistance. Often, these students avoid unsolicited inquiry into their academic or social challenges. Provision of support for help-seeking and network skills, particularly in academic settings, can insulate students and provide protective factors (Parnes et al. 2020). To increase self-efficacy in enlisting social capital and help-seeking behaviors, Soar mentors support mentees in developing networks and encourage them to seek academic and social support, further increasing their opportunities for college success (Fig. 1).

The Soar program

To help close the college enrollment gap, the Soar program was designed for diverse underserved high school students from low-income families. These students attended underresourced schools in a major metropolitan area and were of the first generation in their families to desire to attend college. The analyses and evaluation presented here stem from Soar's theory of change, with the foundation of Soar's mission, vision, core values, and program goals. A logic model was created, grounded in evidence, a community of support, and learned best practices (Kellogg Foundation 2004).

Through a 2-year, mentorship-based model, the Soar program develops students' self-advocacy, critical thinking, communication, and financial literacy skills while guiding them through the college application process. The program aims to meet

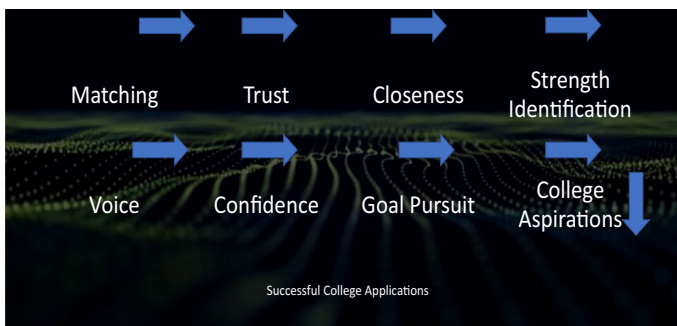


Fig. 1 Mentor contributions to students' successful college applications. Note: Researcher-designed. For illustrative purposes, the domains are shown in a straight-line progression, although many intertwined and converged during the program

students where they are and build their confidence to reach their college aspirations by providing consistent support throughout the program. The vision of Soar is to prepare underrepresented students to enroll in and complete a postsecondary education and ultimately become independent, contributing members of society.

Originally established in 2015, Soar was designed as a 1-week exposure program for first-generation students to experience college life over the summer (students attended academic classes and lived in university dormitories). However, successful programs that seek to build college bridges for underserved high school students are highly layered and complex (Lundell et al. 2005). Accordingly, Soar evolved to a 2-year model, grounded in both literature and best practices, with a 1-week summer intensive followed by eight Saturday workshops and summer activities. The first year is for high school juniors and is devoted to writing and students' developing goals, identifying values and strengths, and networking, among other activities. The second year is for high school seniors and is devoted to the students' finalizing of applications, including financial aid, grants and scholarship opportunities; and preparation for and orientation to college.

The curriculum focused on several main areas in addressing the students' barriers. The areas included support and counseling from communities of adults and peers, self-reflection and identification of personal and career goals, orientation to the college experience and application processes, personal and professional development, financial literacy, writing, and socioemotional learning. Throughout the program, students built strong relationships with other students, mentors, teachers, and the staff (McPhail 2015).

Soar program core values

Soar's well-defined core values are based on students' needs and the literature and guided the program goals and implementation.

1. **Empathy:** having an appreciation, understanding, and respect for others and their individual perspectives.
2. **Access and opportunity:** recognizing that all students have the knowledge and capabilities necessary to enroll in quality higher education and should have the support necessary to succeed.
3. **Collaboration:** working together to create a robust and supportive community that recognizes and values each person's unique contributions.
4. **Equity:** recognizing that the current state of education and society is neither fair nor equitable and working toward ensuring students' opportunities to pursue higher education goals according to individual needs.
5. **Grit:** having determination, tenacity, and the ability to bounce back, applied to students, mentors, and the entire Soar team.
6. **Active learning and engagement:** students learning by doing, mentors and teachers engaging through practice, and the support teams providing authentic opportunities for participation.

Soar program goals

Based on these core values, six goals were established for the Soar program.

1. From underresourced metropolitan schools, recruit first-generation students who continue to be underrepresented in higher education.
2. Successfully help students submit applications for college or university.
3. Provide students with knowledge of financial aid, financial literacy, and scholarships.
4. Provide students with the knowledge, critical thinking, self-advocacy, leadership, and communication skills to enter higher education.
5. Broaden students' understanding of the diversity of postsecondary education.
6. Cultivate a community of support and caring for the students through formal mentoring.

For each well-established need, the Soar team developed corresponding activities. Each activity is based on at least one theoretical or evidence-based study. These activities, in conjunction with Soar's six goals, were directly linked to the outcome measures.

The Soar staff

The program presented a multifaceted community of support that included formal mentors, teachers, staff, and peers. The Soar staff was chosen from among applicants who had a college degree and experience with community service and who expressed deep interests in closing the college access and opportunity gap for underserved, first-generation students. The author, experienced in survey research and qualitative focus group methods, was asked to evaluate both years of the program and was the sole evaluator.

The students

Most of the Soar students came from underresourced metropolitan schools, as defined by free or subsidized lunches and lower-than-average graduation, college readiness rates, and attendance rates (Cataldi et al. 2018). For maximum representation, the five cohorts came from different areas in the metropolitan area. Consistent with best practices, student selection included those with a B average combined with carefully configured and flexible indicators of high potential. These indicators included grade trajectory, aspirations, barriers, and character (Brown et al. 2021). A total of 80 students participated in the Soar program.

Each student admitted into the program received a full scholarship that covered tuition, housing, and meals for the 1-week intensive, weekend workshops, speakers, events during the two academic years, and supplemental online programming.

The workshops were focused on developing college, career, critical thinking, and noncognitive skills that increased efficacy, communication, self-actualization, and motivation. Both years followed the same pattern.

During the program, Soar invited all family members to attend the orientation. The staff also initiated outreach to family members for informational purposes and encouraged parents and guardians to support the program goals. The inclusion of families can strengthen youths' development further than the dyadic mentor-and-mentee relationship (Auerbach 2004; Carey 2018; Jaffe-Walter and Lee 2011; Roksa and Kinsley 2019; Schwartz and Rhodes 2016).

The mentors

High-quality and intensive mentor training and support are significantly correlated with positive outcomes (Peaslee and Teye 2015). Matching mentors' personalities, interests, and values to those of mentees is crucial for attunement and strong and lasting bonds (Bernier et al. 2005; iMentor 2021, 2022; MENTOR 2009; Weiler et al. 2017). Given the critical role of mentors in the Soar program, recruitment processes focused on potential mentors with the values and personalities associated with high-quality mentor relationships. These included a desire to work with youth, volunteerism, empathy, mentorship experience, time available, and a history of civic engagement.

The mentors were university undergraduate and graduate students enrolled at the sponsoring university and selected for their academic achievement and commitment to community service. The mentors were all university Deans Scholars (minimum GPA 3.5), chosen for their academic achievement and commitment to community service, as outlined in their required statements of purpose and shared during their interviews with staff.

All mentors were required to attend a rigorous 8-h research-based training developed in collaboration with the city Youth Development Office in the Department of Education. This training included defining a mentor, uncovering personal biases and stereotypes when working with low-income youth, building relationships, managing behaviors, reporting obligations (including mandated reporting requirements), and role-playing challenging scenarios, as well as information about American university systems, ongoing briefings, and input and support by staff and program advisors. These features are associated with successful attributes of mentoring programs focused on first-generation students (Alexander-Hunt 2021; Brown et al. 2021; Goodwin et al. 2016; Lieberman 2016; MENTOR 2009; Schwartz and Rhodes 2016; Tierney and Garcia 2014).

Mentors served as both role models and advocates for the Soar high school students. The mentors themselves had recently experienced the complex college application process and were able to guide the mentees with knowledge and understanding (Pallais 2015; Tucker 2014). For their participation, mentors received \$10,000 to offset tuition costs in support of their significant commitment. A total of 25 mentors participated in the Soar program. Twenty-one were graduate college students, and four were undergraduate students.

The mentors were carefully matched with two to four high school student mentees and a program staff member based on compatible personalities, academic/career goals, and extracurricular activities. Together they formed a “mentorship pod” or family. The pod gave high school students access to multiple mentors and cultivate peer relationships and support. The model also enabled the mentors to capitalize on each other’s strengths. Studies indicate that these types of mentorship pods increase the efficacy and quality of the relationships (DuBois et al. 2011; Garringer and McQuillin 2017; Karcher et al. 2006; Lyons et al. 2019; Peeslee and Teye 2015).

Activities

At the week-long residential intensive on the university campus and eight Saturday sessions, students engaged in formal mentoring, skills building, networking, community activities, and exercises to enhance socioemotional skills and strengths. The activities included those to develop socioemotional growth in several noncognitive capacities, such as confidence, perseverance, and goal pursuit aligned with students’ cognitive growth and success.

Writing courses and assignments increased students’ abilities for college-level writing, often lacking in underserved students (Nietzel 2020). Improved writing and socioemotional support resulted in students’ ability to express themselves well in their college essays. In turn, the students gained practice in discovering their authentic voices through the written word.

For college applications, Soar students researched different colleges and explored career options, professional and social networking, and work-based and internship learning opportunities. They were guided to understand the diversity of postsecondary education and choose colleges aligned with their strengths and developing or newly discovered career identities. Through workshops, they were also taught how to assess college costs correctly and apply for financial aid, grants, and scholarships, as well as broader financial literacy activities. Financial literacy courses and activities developed students’ knowledge and understanding of Free Application for Federal Student Aid (FAFSA), scholarships, and grants so they could finance college and develop their abilities to budget while in college.

Evaluation methodology

A mixed-method approach best captured the outcomes and provided increased validity through several data collection approaches; these were quantitative with multiple surveys and qualitative with focus groups. Because college admission alone will not close the access and opportunity gap or lead to ensuring students’ equitable opportunities to pursue their higher education goals, Soar included a set of outcomes to support the students in admissions and far beyond, according to research-based program philosophies and design (Kezar et al. 2020; Means and Pyne 2017; Yes We Must Coalition 2022). This evaluation measures all six Soar program goals.

Data collection

For each Soar program goal, associated measurement tools included surveys, focus group discussions, learning assessments, and observations. Soar relied on several validated surveys customized to reflect the unique programming and goals from multiple professional organizations, research councils, and universities, including the National Mentoring Resource Center, Columbia Teachers College, and the Institute for Higher Education. These organizations provide aggregated lists of validated instruments for noncognitive assessments, including mentor and mentee relationship quality.

For cognitive skills, such as writing, university instructors provided learning assessments in addition to students' pre- and postprogram survey questions and focus groups. Successful applications to college were first defined and then measured quantitatively. Successful applications meant that students applied and were accepted to schools aligned with their vocational identities, values, and goals, in addition to self-reported responses about personal and school alignment and satisfaction. Quantitative data were also tabulated for financial aid and scholarships.

In addition, all program participants were asked to complete program and mentor–mentee relationship surveys. Soar senior and junior students received pre- and postprogram surveys, and juniors received a retrospective pre-then-post survey to decrease response bias. Students also self-reported college application and acceptance data, financial aid data, and scholarship amounts to Soar staff.

The evaluator worked closely with the Soar team at all phases. One cohort at a time was evaluated from start to finish. The Soar staff coordinated the survey distribution after Saturday programming. The evaluator conducted focus groups throughout the year to elucidate the survey data with participants' voices and mentors' observations. For the writing assessments, students preprogram writing samples were compared with their postprogram samples and reviewed by two teachers.

Quantitative analysis: surveys

All surveys were completely anonymous and confidential, with students and mentors' identities protected. Following from many other educational programs, Soar utilized pre-, mid-, and posttests to measure students' changes throughout the program interventions (Chang and Little 2018; Dimitrov and Rumrill 2003; Drennan and Hyde 2008). Based on some of the results, midcourse adjustments were made in the interventions.

For cognitive domains, the evaluator developed assessments for both juniors and seniors about exposure, consideration, knowledge or understanding, in addition to those collected from classes and workshops. Increased cognitive skills can positively impact noncognitive domains (Garcia 2014; Zhou 2016). The converse is also true—attitudes and emotional intelligence can positively impact learning. Several validated mentor quality indexes were used to measure the strength of the mentor and mentee relationship and were administered to juniors, seniors, and mentors (MENTOR 2009; Peaslee and Teye 2015; Weiler et al. 2017).

Four-point Likert scales were used for most questions (e.g., *strongly disagree* to *strongly agree*, *not at all* to *always*, *almost never* to *almost always*, *very false* to *very true*, *never true* to *always true*). Completion of each survey took approximately 30 min, consistent with best practices for youth assessments. All surveys were administered to participants individually. Table 1 illustrates the statements for each group.

Reliability and validity of survey instruments

To establish the reliability and validity of the survey instruments, Cronbach's alphas were conducted to measure internal consistency (Christmann and Van Aelst 2006; Wadkar et al. 2016). A value of 0.70 is recommended as the minimum for adequate reliability (Nunnally 1978). For the senior survey before and after the program, the Cronbach alpha was 0.889. For the seniors' end-of-program mentee survey, the alpha was 0.874. For the mentors' end-of-program survey, the alpha was 0.835. The other surveys had similar values. Thus, the surveys used in the Soar program had high reliability.

Data cleaning and data analysis

Data cleaning was conducted following collection of data. The data were imported to SAS software for analysis. Data cleaning and/or screening indicated that no missing values were present and all assumptions of parametric statistics were met. Quantitative analyses of all surveys took place through quantitative statistical methods—frequencies, percentages, means and standard deviations, paired *t* tests, and tests of reliability (e.g., Cronbach's alphas).

Table 1 Survey illustrations per group

Group	Survey name	Sample
Junior	Retrospective pre-then-postsurvey	I understand the college application process When I decide upon a goal, I stick to it Now, after my first semester in Soar Before I joined Soar
Junior	Mentee survey	My mentor provides constructive feedback I trust my mentor
Senior	Pre-post survey	I keep trying as many different possibilities as necessary to succeed at my goal I think about exactly how I best realize my plans
Senior	Mentee survey	My mentor helps me to set and reach goals I feel safe when I am with my mentor
Mentor	Mentor survey	My mentees I are well-matched I feel close to my mentees

Qualitative analysis: focus groups interviews

The purpose of the qualitative data collection and analysis was to provide greater depth and explanation of the quantitative findings through individual experiences (Brandl et al. 2018; Hancock et al. 2016). Focus groups interviews can also produce greater insights because interactions encourage reflection as multiple viewpoints are shared and participants add responses (Onwuegbuzie et al. 2009; Rennekam and Nall 2000).

Additionally, qualitative focus groups can help offset response bias by capturing program results through individual, lived experiences as well as participants' increase in trust and decrease in the desire to "look good" (Rosenman et al. 2011, p. 321). Soar utilized focus groups and open-ended questions throughout the evaluation period to decrease bias and increase internal validity (Heale and Twycross 2015; Moore and Tananis 2009, as cited in Young and Kallemeyn 2019; Rosenman et al. 2011).

The six focus groups were held 4 to 6 weeks apart throughout the program. Participants were solicited by the staff and agreed to participate. Three focus groups were held separately with junior and senior students, and three focus groups of five to nine mentors each were held as well. Each session was approximately 30–60 min following Saturday programming. The first two groups of students and mentors were held in person and the remainder were held virtually because of the COVID-19 pandemic.

The evaluator introduced each group with a brief overview of the purposes and questions and explained the voluntary, private, and anonymous nature of participation. She then guided the groups through predetermined topics based on the evaluation questions and 14 domains keyed to the program cognitive and noncognitive goals. The domains were as follows: (a) Understanding College Diversity, (b) Financial Literacy, (c) Successful Application, (d) College Aspirations, (e) Grit/Perseverance, (f) Decision-Making/Problem Solving, (g) Goal Pursuit, (h) Confidence, (i) Leadership, (j) Career Exploration/Strengths/Vocational Identify, (k) Self-Advocacy/Communication, (l) Test Anxiety, (m) College Preparation, and (n) Writing.

A total of 20 students and 20 mentors ($N=40$) participated in the focus groups and discussed their lived experiences. In accordance with focus group recommendations, the evaluator followed up on responses and probed for deeper levels of meaning (Brandl et al. 2018; Van Eps et al. 2006). The evaluator also took detailed notes, and immediately after the meetings reviewed her notes and added observations and reflections. She practiced "data reduction" by collapsing similar ideas and quotes into senior, junior, and mentor themes (Doody et al. 2013, p. 268). Themes were further categorized by the frequency of repetitive views (Vaismoradi et al. 2016) and are presented in the findings.

Research results: summaries by goals

The Soar program was complex and multilayered. Thus, reporting of quantitative results and qualitative findings by goal seemed the most understandable presentation. In this section each goal is repeated, followed by literature support and the quantitative and qualitative findings.

Program Goal 1: Recruit first-generation students from underresourced metropolitan schools who continue to be underrepresented in higher education

Soar retained over 80% of its participants for the 2 years. Of those who did not graduate from the program, 4.9% graduated from high school early, leaving 14.6% of the Soar class who did not complete the program. A total of 78% completed the program and committed to college. Table 2 illustrates these results.

The qualitative data illustrated that, prior to Soar, students often felt unprepared as first-generation college seekers. Soar successfully helped them build on their identified strengths and cultural capital to prepare them to enroll and succeed in college.

The program successfully met Goal 1.

Program Goal 2: Successfully submit applications for college or university

Successful college applications include alignment with students' strengths and vocational identities as well as knowledge and capabilities, such as writing (Allen and Robbins 2008; Moss and Bordelon 2007; Warren 2013). Noncognitive abilities, such as confidence, grit, motivation, and goal seeking, are also important to successful applications. Confidence and motivation converge with the ability to finance college (Hicks 2005; Stone 2005; Winkelmes et al. 2016). Accordingly, this goal was more complex than might at first appear.

Crucial skills development can lead to successful applications and college achievement, and first-generation students do not have the same level of social or cultural experiences or knowledge related to the college processes as continuous-generation students (Ricks and Warren 2021; Roderick et al. 2008). Moreover, the writing skills of underserved students often lag behind those of their better resourced peers (Winkelmes et al. 2016). Writing skills are a constant for high college retention (Nietzel 2020). College essays are also a key component of all college applications. Accordingly, Soar focused curriculum on writing skills and college essay writing (Warren 2013).

For the students in the Soar program, the results were striking after the workshops and guidance on college applications. Juniors' survey question responses about college applications were highest for this goal, with the greatest mean difference on the 4-point scale before and after a year in Soar, 1.26. The results for seniors

Table 2 Soar program: final student completion outcomes

Outcome	Number (<i>N</i> =80)	Percentage
Graduated from high school early	4	4.9
Did not complete Soar	12	14.6
Completed Soar, committed to military service	2	2.5
Completed Soar, committed to college	62	78.0

were similar: they were more confident and comfortable applying to college after the program than before, with the highest mean difference of all survey questions, 1.77.

On average, Soar students applied to 12 different higher education institutions. They received 205 acceptances from 96 different institutions, an average of six admission offers per student. A total of 32 students reported committing to a college at the time of this evaluation. Table 3 illustrates these results.

Qualitative data revealed that, because of Soar, students' knowledge, confidence, and motivation to successfully complete and submit applications significantly increased. Junior students felt much more prepared and confident about their applications, and seniors shared that Soar increased their motivation and abilities to successfully apply and pay for college.

The program successfully met Goal 2.

Program Goal 3: Provide knowledge of financial aid, financial literacy, and scholarships

Numerous studies have found that financial literacy is crucial for college student successful access, enrollment, and retention (Britt et al. 2016; Cude et al. 2006; Kezar and Yang 2010). Students from low-income families often overestimate college costs, particularly to public colleges and universities, and thus rule out attendance. In addition, their families are less aware of college costs than the families of their higher-income counterparts (Avery and Hoxby 2004; Bettinger et al. 2012; Cox 2016). Low-income students may learn about financial aid too late in the college-choice process (Heller 2006). For first-generation families, guidance and support include providing parents and students with information about college costs, helping students and families complete FAFSA, and providing support for scholarship applications (Bettinger et al. 2012; Eitel and Martin 2009).

Further, low-income families face a complex and unfriendly financial aid process (Murphy 2016). In a review of the federal aid system, the Advisory Committee on Student Financial Assistance (ACSFA) found that many students find the intricacies of the financial aid process overwhelming (ACSFA 2005). This complex system

Table 3 Soar students' successful college/university applications

Action	Results
Applications	Each student applied to average of 12 different higher educational institutions
Admissions	205 acceptances from 96 colleges 6 admissions offers per student
Acceptances	32 students committed to 24 colleges (31 to 4-year colleges)
Institutional type	58 private colleges—97 acceptances 38 public colleges—108 acceptances
Financial aid	Total: \$1.3 million* ($N=13$ seniors; five students received special educational opportunity grants) Of this, \$680,000 grants, scholarships ($N=17$) 75% of students received state assistance funds 84% of students received federal Pell grants

results in more than 10% Pell Grant-eligible students failing to complete necessary forms. Soar's design addressed these deficits and included rigorous workshops, guidance, and support to build students' financial literacy. Most of the financial literacy programming was offered for seniors to assure that students could understand and compare financial packages while applying for scholarships and budgeting for college admission.

Financial literacy was defined by a broad understanding of how to pay and budget for college. Scholarship knowledge was measured by the number of students who self-reported scholarships. As Table 3 shows, senior students ($N = 13$) reported over \$1.3 million dollars in financial aid support overall, with \$680,000 ($N = 17$) in grants and scholarships.

Qualitative analysis of the focus group responses revealed students' understanding of financial aid and their relief and excitement in being able to pay for college. All students agreed that Soar made it possible for them to attend college.

The program successfully met Goal 3.

Program Goal 4: Broaden students' understanding of the diversity of postsecondary education

First-generation students are often not exposed to the knowledge and diversity of postsecondary education. This knowledge is important for access, opportunity, and college success (Demetriou and Powell 2014; Tate et al. 2015). Additionally, they generally do not identify their strengths and career identities for alignment with their college choices (Bettinger et al. 2012; Cox 2016; Stephens et al. 2014).

In the Soar program, students explained that they lacked crucial knowledge about the great varieties of colleges and universities. The Soar staff worked with the students to identify interests and values early and foster their research skills through online exploration. Teachers and mentors also arranged tours for the students with colleges and universities.

First-generation, low-income postsecondary students benefit from participation in comprehensive career development and exploration, supplemented by self-reflection, instruction in job searches, and on-site workplace experience (Pérusse et al. 2017; Tate et al. 2015; Yes We Must Coalition 2022). Experiential career curriculum increases students' cognitive functioning and vocational identity (Folsom et al. 2001). When such activities are combined with student self-reflection and direct experience preparing for jobs or internships, students develop greater self-advocacy and achievement (Cavilla 2017; Travers et al. 2015).

The program's emphasis on students' values, goals, and interests and their relationship to college and career choices were likely to positively impact long-term student success. Workshops that helped students consider their values and goals, in addition to reflections about their futures and career research, assisted them in identifying their strengths and aligning them with their choices (Travers et al. 2015). For example, the students participated in building a "life map" while developing SMART (Specific, Measurable, Attainable, Realistic, Timebound) goals and journaling as a means of self-reflection (Gullatt and Jan 2003; Whitehead and Alves

2022). Additionally, during networking events, students were exposed to professional guests, who taught them how to identify and transfer their experiences into skills for resumes and college applications.

First-generation students from underserved communities often apply to only one or two colleges, and those colleges rarely offer courses and majors aligned with the students' strengths, values, interests, or goals (Bettinger et al. 2012; Cox 2016; Vargas 2004). Moreover, compared to their peers from continuing-generation and well-educated families, more of these students apply to 2-year programs that are less selective (Francis and Miller 2007; Redford et al. 2017; Tibbetts et al. 2018). However, the Soar students applied to an average of 12 colleges and committed to 24 different institutions (Table 3). A total of 97% ($n = 31$) of the graduating students applied to 4-year programs, with 32 students self-reporting their commitment.

For juniors, midprogram survey questions illustrated significant increases in knowledge about college diversity. Juniors' survey questions also revealed an increase in their leadership and problem-solving skills, related to critical thinking and further confirming goal attainment. Senior survey data showed significant increases after the program. After Soar, seniors also expressed a great deal of new knowledge about college diversity. Further, qualitative forum interviews illustrated that Soar students understood the diversity of colleges and chose colleges that aligned with their strengths and passions.

The program successfully met Goal 4.

Program Goal 5: Provide students with the knowledge, critical thinking, self-advocacy, leadership, and communication skills to enter higher education

Although Soar focused on core skill building and learning that included financial literacy, critical thinking, and writing, equally important are social and emotional learning to students' long-term accomplishments (Hicks 2005; Stavsky 2015). With the positive youth development approach, Soar staff, teacher, mentors, and the students themselves searched for their personal characteristics and those in their social environment that could be "harnessed to build strengths and provide an incubator of positive development" (Benson et al. 2006b, p. 1). The program specifically promoted competencies that included self-regulation, self-efficacy, and the ability to interact positively with others (Benson 1997). Often distinguished from cognitive skills, such as financial literacy, budgeting, and writing (Early and DeCosta-Smith 2011; Gutman and Schoon 2013), many of these attributes are associated with positive educational outcomes for youth and long-term success (Garcia 2014; Gutman and Schoon 2016; Oakes 2015).

However, challenges can be encountered in identifying, classifying, measuring, and quantifying noncognitive skills (Garcia 2014; Zhou 2016). Consistent with PYD and youth theories of leadership, Soar sought to foster and measure students' self-awareness, goal attainment, persistence, resilience, self-advocacy, communication, self-confidence, motivation, critical thinking, and a sense of belonging or connectivity. Often first-generation students who come from underresourced schools possess noncognitive skills such as resilience; surviving difficult situations; handling

multiple realities; and negotiating social, political, and economic hardships (Jalomo 1995; Longwell-Grice et al. 2016; Rendón et al. 2004b; Trueba 2002).

Junior survey findings indicated that, midway through Soar, students had grown in confidence, leadership, and problem-solving. For seniors, students reported statistically significant differences and growth before and after Soar. Survey results indicated significant increases in self-efficacy, persistence, problem-solving, communication, and leadership. Improvement in these domains also related to improved self-advocacy and communication skills. All of these cognitive and socioemotional skills are correlated with personal and professional success (Danner et al. 2021; Kautz et al. 2014; Lechner et al. 2019; Spengler et al. 2018).

The students' writing assessments also demonstrated new knowledge, critical thinking abilities, and communication skills (Condon and Kelly-Riley 2004; Pennebaker et al. 2014). For greater interrater validity, two instructors used a 3-point rubric (*beginning, emerging, accomplished*) to guide and teach the students and assess their college essays. Twenty seniors voluntarily shared their essays. A total of 88% of the Soar graduating seniors improved their writing, with 27% increasing in scores and 66% moving from *beginning* to *emerging* or *emerging* to *accomplished*.

Qualitative findings supported these results. Both students and mentors attested to great growth in students' confidence, which is connected to self-advocacy (Douglas 2021; Turner 2007). Students also reported finding their "voices" and passions. Their revelations about newfound abilities to pursue their goals and problem-solving were tied to leadership and critical thinking (Azmitia et al. 2018).

The program successfully met Goal 5.

Program Goal 6: Cultivate a community of support and caring through formal mentoring

Many studies have shown that mentoring is a valuable tool for closing the college attainment gap. This is especially true for underserved, first-generation students (Bernier et al. 2005; Bowers 2019; Brown et al. 2021; Coles 2011; Goff 2011; Lyons et al. 2019; MENTOR 2009, 2016; Rhodes and DuBois 2006; Tierney and Garcia 2014). Mentors provide opportunities for knowledge sharing and emotional and social support while helping students transition to their first year of college (Gandara and Mejorado 2005; Levine and Nidiffer 1996).

For example, the College Mentoring for Access and Persistence Scholars (College MAP) is a program that works to empower students similar to Soar students. College MAP reported that 100% of the first cohort of high school students would be attending college (Miranda 2011). The National Mentoring Partnership program reported that young people who had mentors set higher educational goals and were more likely to attend college than those without mentors (Bruce and Bridgeland 2014). Similar to Soar, programs which foster strong relationships between the students and mentors and in which students are the drivers of their own achievements are effective at closing the college access gap (Bernier et al. 2005; Bowers 2019; Dubois et al. 2011; Lyons et al. 2019; MENTOR 2016; Rhodes and DuBois 2006).

Socioemotional learning and support systems that provide students with opportunities for long-term counseling and advice in mutually respectful, trustful, reflective, and empathetic relationships are equally as important to program success (iMentor 2022). Soar, like many successful mentorship programs, is based upon the philosophy. As film director Steven Spielberg observed, “the delicate balance of mentoring is not creating them [mentees] in your own image but giving them the opportunity to create themselves” (Kukreja et al. 2020, p. 65).

Research further supports mentoring programs such as Soar maximize both the relationship quality and instrumental activities, such as goal-setting. The activities are likely to increase the positive academic, behavioral, and social-emotional outcomes for youth (DuBois et al. 2002; Kezar et al. 2020; Lyons et al. 2019; Wilson-Ahlstrom et al. 2014). As the mentors help the mentees meet shorter-term goals and provide advice, counsel, and suggestions about the instrumental skills, they foster longer-term relationships and emotional and social skills (Karcher et al. 2006). Such combinations are positively correlated with developmental and interpersonal processes that can help youth overcome challenges and reach their full potential (DuBois et al. 2011; Lyons et al. 2019; Rhodes and DuBois 2006).

In the quantitative results of the evaluation, both the mentee and mentor surveys showed very strong relationships from the perspectives of the junior mentees, senior mentees, and mentors. For example, on the 4-point scale of the junior midprogram survey, of a possible 4 points, the participants scored the items about their mentors from 3.42 to 3.88. For the undergraduate and graduate mentors, on most items about the positive aspects of their mentees, both groups scored from 3.3 to 4.00.

The qualitative focus groups reflected similar views. Junior and senior responses included reflections about the close bonds, strength of the relationships, and trust. The quantitative and qualitative results indicated that Soar was highly successful in building meaningful communities of support between students and mentors that fostered students’ confidence, goals, knowledge, and motivation to successfully apply to and succeed in college.

The program successfully met Goal 6.

Table 4 shows the qualitative findings per program goal.

Surveys: composite research results

Students’ domains

For both juniors and seniors, the surveys before and after Soar showed significant improvement in many domains, that is, program outcomes. These were (a) financial and budgeting knowledge; (b) awareness of college diversity; (c) college application; (d) college aspiration; grit, critical thinking, decision making, and pursuit of personal goals; (f) self-efficacy and persistence; (g) problem solving; (h) communication and leadership; (i) career exploration; and (j) college preparation. Paired *t* tests were conducted to determine differences between two variables before and after students’ Soar experiences. Table 5 illustrates the results.

Table 4 Qualitative findings per program goal

Program goal	Qualitative results
1. Recruit first-generation students from under-resourced metropolitan schools who continue to be underrepresented in higher education	See Table 1 Students: I am first-generation and thought I was limited. They taught me I am not
2. Successfully submit applications for college or university	See Table 2 Students: Soar has changed my life in so many ways. I am definitely college bound now It was hard for me to gain enough confidence to apply. Soar motivated me to look for the right program
3. Provide knowledge of financial aid, financial literacy, and scholarships	Students: It was overwhelming to think about paying for college. Soar has helped me understand how and helped me do what I need to, so I can go to college I was always interested in college, but Soar opened it up for me and now I know about financial aid and my career
4. Broaden students' understanding of the diversity of postsecondary education	Students: I am shocked at how helpful it has been for me to figure out my career path I am definitely college bound now I was lost when I started. But I saw I could do more
5. Provide students with the knowledge, critical thinking, self-advocacy, leadership, and communication skills to enter higher education	Students: I was lost when I started. But I saw I could do more I came outside my box—a whole new me Writing was hard for me. They treated me as a person, and taught me I am an individual I have gained confidence to move forward
6. Cultivate a community of support and caring through formal mentoring	Students: My mentors helped me to be prepared and have confidence to apply I have more confidence to attend too. Mentors guide you through the whole process I'm a first-generation, so no one in my family can help me. Soar and my mentor have helped me with everything Mentors: Soar did a good job of matching. A real genuine connection The matching helps them open up to me I feel close to all of them It is so great to see my mentee's progress. She has opened up and became more outgoing I see self-determination. My mentee came to me and asked me to look at her college essay She was struggling. I asked her how do you want people to know you? All this language came out that wasn't in the essay. It was so exciting

As Table 5 shows, College Application had the most difference, 1.78. Students were able to apply and were more comfortable applying to college after Soar than before. This value was followed by College Diversity, with a mean difference of 1.50. Next was Financing and Budgeting for college with a mean difference of 1.39. The other domains were all lower, from 1.38 (Grit, Critical Thinking, Decision Making and Pursuit of Personal Goals) to 0.22 (College Aspiration). Nevertheless, for all domains, the mean differences were statistically significant.

Juniors as mentees The survey for juniors on their midprogram experiences as mentees revealed extremely positive experiences with their mentors. On the 4-point Likert scale, their responses ranged from a mean of 3.88—“My mentor listens to me”—to a mean of 3.62—“My mentor and I share interests.” Other high means were on the mentor’s constructive feedback (3.82), help in solving problems (3.71), setting goals (3.79), preparing for college (3.71), and feeling safe (3.79).

Seniors as mentees The survey for seniors on their end-of-program experiences as mentees also revealed positive experiences with their mentors. On the 4-point Likert scale, their responses ranged from 3.91—“My mentor listens to me”—to 3.61—“We spend time working on how I can improve as a person.” Other high means were feeling safe with the mentor (3.87), the mentor looking out for them and helping (3.87), talking about problem-solving (3.83), and setting and reaching goals (3.83).

Table 5 Results of domain paired t tests before and after soar

Domain/outcomes	Before soar	After soar		df	t-value	p value
	Mean	MeanDiff				
Financing and budgeting	3.53	2.14	1.39	17	7.77	0.0001
College diversity	3.64	2.14	1.50	17	9.91	0.0001
College application	2.06	1.78	1.50	17	8.00	0.0001
College aspiration	3.89	3.67	0.22	17	2.20	0.0416
Grit, critical thinking, decision making, and goal pursuit	3.88	2.60	1.38	17	8.59	0.0001
Self-efficacy and persistence	3.87	2.50	1.37	17	9.40	0.0001
Problem solving	4.047	2.89	1.15	17	6.70	0.0001
Communication and leadership	3.61	2.82	0.79	17	4.84	0.0001
career exploration	3.46	2.70	0.76	17	4.94	0.0001
College preparation	3.40	2.61	0.79	17	5.76	0.0001

Mean=based on 4.0 scale. MeanDiff=mean difference—the mean after Soar minus the mean before Soar

p < 0.05

Mentors

The surveys for mentors also showed high rankings on the 4-point Likert scale. The highest value was their enjoyment in being a mentor, 3.87. The mentors scored 3.74 for these values: confidence in the challenges of mentorship, mentees achieving goals they set together, mentees having greater confidence than at the start of Soar, helping mentees prepare for college, and helping them find their strengths. Also, all at 3.65 were mentors' reports that their mentees' communication skills had grown, their mentees trusted them, and the mentors helped their mentees solve their problems.

Focus groups: themes

The qualitative findings from the focus groups corroborated the quantitative results. Table 6 shows the findings from juniors and seniors. The direct quotes provided feedback.

Juniors: confidence

As these students described convictions about their positive futures, they demonstrated their confidence with declarations of purpose, motivation, and even empowerment. As with several other themes, this theme integrates the relationship between two main domains, confidence and goal pursuit. Students searched for their personal characteristics that would build strengths and provide "an incubator of positive development" (Benson et al. 2006b, p. 1).

Juniors: aligning schools and strengths

This theme shows the importance of students recognizing their strengths, passions, and vocational identities, reflected in their college applications and personal stories. As the students began to understand the college application process, including how to pay for college, their commitment to attending increased. As noted, student identification of strengths and passions also leads to greater career and program alignment that, in turn, engenders greater college success (Brown et al. 2021; Engle and Tinto 2008).

Juniors: financial literacy

Many students reported that they previously had not applied to college or completed the applications because of the financial barriers. This admission is similar to that of other first-generation students (Eitel and Martin 2009). During the focus groups, most students explained that they could not imagine how they would pay

Table 6 Qualitative findings by theme: juniors and seniors

Class	Theme	Quotes
Juniors	Confidence	Even though I am a junior I feel like they teach you so much.... I feel empowered now I feel more confident I will succeed in college now
Juniors	Aligning schools and strengths	Soar is helping me choose the right college and program I am starting to identify my strengths with my mentors for my college applications Soar helped me discover my passion
Juniors	Financial literacy	I am shocked at how helpful it has been for me to figure out my career path I learned a lot about financial aid and scholarship and grants It was overwhelming to think about paying for college. Soar has helped me do what I need to, so I can go to college
Seniors	College aspirations and college preparation	I loved the simulation for our finance class. It made me feel prepared for college Soar motivated me to apply to colleges and dig deeper into every single college I have gained confidence to move forward I learned leadership from my mentors. I learned as a student and as a person I am going to apply that it in college too
Seniors	Successfully complete college applications	I wouldn't have finished FAFSA without Soar I am so ahead of the game now I had no idea what I was talking about when it came to college They made a spreadsheet just for me!
Seniors	Confidence, self-advocacy, communication	My mentors helped me to be prepared and have confidence to apply I have more confidence to attend I had doubted myself; now, I am motivated Now I have target goals
Seniors	Knowledge about diversity of schools and critical thinking	I was lost when I started. But I saw I could do more Soar and my mentor helped me with everything It was hard for me to gain enough confidence to apply—but the program helped me

for college. However, with the new knowledge and understanding, their commitment strengthened, and they showed a sense of relief. All students agreed that Soar made it possible for them to attend college. Soar's core values of equity, access, and opportunity were strongly evident as the participants discussed the program gave them the support necessary to enroll and succeed in higher education. As reported earlier, most students were highly successful in obtaining financial aid (Table 2).

Seniors: college aspirations and college preparation

In these two themes, the seniors envisioned their futures and discussed how Soar changed their outlooks. When one student explained that she was using the benefits of the program "out there" in her personal life, all others vigorously agreed. When another said that he would take Soar with him to college, everyone also agreed. These two domains converged as students discussed how their desire to attend college was greater now than before, and they felt more confident about their abilities to succeed.

Seniors: successfully complete college applications

Seniors' successful completion of applications resulted from their mentors' help and support. Mentees and mentors experienced active learning and engagement, two of Soar's core values. As the research indicates, lack of mentorship and guidance is a barrier for many first-generation students (Bruce and Bridgeland 2014; Coles 2011; Cox 2016; Harris 2014; Peaslee and Teye 2015; Schwartz et al. 2016). To help support students once they entered college, Soar also offered seniors workshops about college logistics, resources, research, and successful first-year strategies.

Seniors: confidence, self-advocacy, communication

The seniors' focus groups showed a strong theme of increased confidence, self-advocacy, motivation, perseverance, and goal pursuits. During every group, all seniors enthusiastically agreed that their confidence had increased. As students gained greater self-assurance and found their voices, their writing improved, and they became more motivated to apply to colleges and reach their goals.

Seniors: knowledge about diversity of schools and critical thinking

Students who do not arrive at the alignment of their values and career goals with a particular college or fail to identify their vocational identity are less likely to succeed

in college (Allen and Robbins 2008; Engle and Tinto 2008; Means and Pyne 2017; Xie et al. 2016). This theme was also reiterated in the students' abilities and motivations for successfully submitting college applications.

In addition to these themes, from the group interactions it was also clear that the Soar core value of collaboration, "working together to create a robust and supportive community that recognizes and values each person's unique contributions," played an important role in how the seniors' goals were achieved. The seniors' interactions of camaraderie and supportive and familial exchanges also indicated their ability to interact positively with each other. Through all of these connections, they fostered their sense of belonging and connectivity.

Mentors: Matching, Closeness, and Trust

For these three domains, the mentors' words, emotions, and intensity indicated how much their mentees meant to them. The mentors often referred to how well they were matched with their mentees and the trust and bonds they had built, indicative of support and caring. The mentors also often used the words "close," "connections," and "bonds" in describing their relationships.

These connected themes are not surprising; careful matching is an important component of close and trusted mentor relationships (Karcher et al. 2005; MENTOR 2009; Weiler et al. 2017). Additionally, the building of trust and close bonds are often precursors to mentees' increased confidence and a sense that they matter (Bernier et al. 2005; Karcher et al. 2005; Lyons et al. 2019; Madia and Lutz 2004). Thus, increased confidence and voice are also connected with trust and bonds, each building on and buoying the others. Table 7 shows the qualitative findings for mentors.

Mentors: confidence, voice, perseverance, strengths, and goal pursuit

This complex and strong theme of transformation is also indicative of building a strong community of support and caring through mentorship. All mentors discussed the positive changes of their mentees during the program. Whenever a mentor related a testimony about a mentee, all enthusiastically agreed. They also observed their mentees finding their voices, identifying their strengths, becoming more determined, and gradually valuing their personal characteristics and lived experiences.

Mentors: civic engagement

This theme was not part of Soar's program goals. However, mentors often spoke of their heightened commitment, after completing the Soar mentorship, to continuing to help close the opportunity gap for underserved students' postsecondary access. These mentors felt a strong sense of purpose and accomplishment. They spoke of

Table 7 Qualitative findings by theme: mentors

Function	Theme	Quotes
Mentors	Matching	We established connections early The matching helps them open up to me I can associate them with my experiences too
Mentors	Closeness and trust	I have had 3-h Zoom conversations about sensitive things. Her family doesn't want her to go far and she wants to look far They open up about their families and their lives. They share sensitive parts O themselves I felt like we had a bond the first week
Mentors	Confidence, voice, perseverance, strengths, and goal pursuit	She began sharing stories with me. I have helped her see how amazing she is Their diversity of perspective is a strength, and they never thought of it that way I tell them their experiences are valuable to their character. I help them find confidence to find strengths and talk about their differences.... I see so much of their determination in Soar
Mentors	Civic engagement	There are so many inequalities. This is one way to level the playing field This is also personal. When I was younger, I was not able to get a college education I am interested in educational equality

admiration for and closeness to their mentees, the mentees’ dedication, and their own convictions of educational equality, civic contributions, and the opportunity to give back.

Many of the mentors were also themselves first-generation college students and discussed how they would have benefited from a program such as Soar. All agreed that the program changed lives, including their own. One mentor eloquently summarized the experience:

- My mentees have inspired me so much with their drive, tenacity, and curiosity. For me, the Soar program has been an extremely energizing experience, and I feel I am living peace- building principles and intergenerational coleadership through my participation. program.

The themes of the mentors confirmed the results of the paired *t* test statistical analysis, which showed that the highest mean difference after the program was in mentees’ ability to successfully apply to college (Table 5). As the mentors’ comments indicated, they played a pivotal role in helping their mentees prepare for college, reflected in the mentees’ high college applications (Table 2). The focus groups revealed many rich themes for both mentees and mentors. It is evident that both gained significantly from the program. Table 8 summarizes the themes of both the mentees and mentors.

Unintended benefits

Although Soar’s primary goals were focused on closing the education gap for underserved, first-generation students, high-quality mentoring programs have additional benefits. Astin et al. (2000) reported that mentoring provides a lens through which mentors can experience the impacts of income and educational disparities far beyond statistics. When mentors work with these youth, they gain insights and even feel outrage about the gaps (Hughes and Dykstra 2012).

As noted, the Soar mentors became motivated to greater civic engagement. Civic engagement often increases after mentorship (Brady and Dolan 2009;

Table 8 Themes summarized for junior and senior mentees and mentors

Juniors	Seniors	Mentors
Confidence	College aspirations, preparation	Matching, closeness, trust
Aligning schools and strengths	Successfully complete college applications	Confidence, voice, perseverance, strengths, goal pursuit
Financial literacy	Confidence, self-advocacy, communication Knowledge about diversity of schools and critical thinking	Civic engagement

Bruce and Bridgeland 2014; Hughes and Dykstra 2012; Madia and Lutz 2004). The positive effects and community engagement can be long-term, with increased understanding of young people (Goldner and Golan 2017).

Many mentees reported that they shared what they were learning with their parents, siblings, and friends. For parents, their children's ambitions may have been highly gratifying. For siblings and friends, such positive "goal contagion" (King and Mendoza 2020, p. 795) may have prompted them to pursue their own higher education goals (Burgess et al. 2018; Shin 2022). Positive contagion has not been measured in this context and would merit further research.

Limitations

Additional funding could further decrease the mentor-to-student ratio from two to four students per mentor optimally to one to one. The data indicated that the mentors were always available for their mentees. However, several mentors admitted that they sometimes had difficulty maintaining the high-quality level of support they desired for each mentee.

During the pandemic of 2020–2021, Soar continued to operate virtually. Although most participants agreed that this mode was not ideal, the staff and mentors should consider whether the virtual modality was beneficial. If so, a hybrid mode could be adopted as the program returns to normal operations.

All students' family members were invited to attend the program orientation, and the staff instituted outreach during the program. Inclusion of family members can help strengthen the youths' development and knowledge acquisition (Auerbach 2004; Carey 2018; Jaffe-Walter and Lee 2011; Longwell-Grice et al. 2016; Roksa and Kinsley 2019; Schwartz and Rhodes 2016). As the program continues to grow, Soar staff should consider whether family members can play enhanced roles. Such positive contagion could be tracked in future evaluations.

Recommendations

Toward more comprehensive measurements and future evaluations of SOAR programs, writing should be emphasized as a central component for college application completion and students' college success (Condon and Kelly-Riley 2004; Irvin 2010; Moss and Bordelon 2007; Schmoker 2018). It is recommended that all students be encouraged to submit their preprogram writing samples and post-program college essay samples. With sample submission, more comprehensive diagnostic comparisons could be made to further enhance evaluation outcomes and continuous improvement.

Seniors could be tracked during their first year in college for how the Soar program helped them acclimate. For example, college culture, finances, writing,

and confidence could be explored in terms of how the program helped them, with specific examples. Both quantitative and qualitative feedback could be sought. Results may help Soar staff refine future programs.

Additionally, research could further refine a holistic theory of attainment based on the youths' feedback. Such research would be similar to that related to positive youth development theory but focused on successful college achievement. Characteristics could be explored regarding the value and components of successful college achievement for both 2-year and 4-year colleges. Relationships could be drawn as well with theories of positive youth development and retention.

Only 14.6% ($n = 12$) of the Soar program participants did not complete the 2-year program. Soar staff attempted communication with these students to engage them in the program; however, the students declined support. Further analysis comparing these students with those who successfully completed the program may provide actionable data for future retention.

As students are exposed to college readiness and successful strategies, for many there is a corresponding increase in high school performance (Lundell et al. 2005; Schneider et al. 2013; Tierney and Garcia 2014). Soar did not include high school performance in the outcome measures.

However, future research could include such measurement to better understand the effects and implications of the program and mentors.

As suggested above, it is also recommended that the current Soar students be followed in college (Chiu 2021; Strayhorn 2007). The seniors were given a course in orientation to college, and documentation and analysis of their successes with both quantitative measures (and grades) and qualitative feedback on their experiences are recommended. Such analyses could reveal the most effective aspects of the program and areas needing improvement.

Finally, higher education institutional administrators could consider summer programs similar to Soar for students in the earlier high school and middle school grades. Several studies have been conducted for students in these grades on after-school enrichment programs, with promising results (Huang et al. 2000; Reisner et al. 2004; Vandell et al. 2005). These programs could introduce the younger students gradually to college-level thinking and requirements.

Conclusion

In response to the research question of this study, the quantitative and qualitative evidence shows that the program does indeed help underserved, first-generation, minority high school students to successfully complete applications and prepare for higher educational success. The 2-year Soar program succeeded by all measures. The sponsoring institution and staff demonstrated an ongoing commitment to closing the postsecondary education access and opportunity gap. This gap persists however, and first-generation students from underserved schools and communities,

especially those in the lower socioeconomic classes, face additional challenges to successfully apply, enter, and succeed in college.

Based upon multiple modes of data, analyses, and significant findings, this study illustrated that Soar embodied its core values and met all six program goals. The program contributed to decreasing the gap in first-generation students' college attendance for students selected from a major metropolitan area. Consistently, teachers, staff, and mentors collaborated to create a culturally empathetic, respectful, and positive environment that sought to inspire, empower, and foster the students' noncognitive and cognitive skills. The core values (grit, equality, access and opportunity, and empathy), combined with activities and events designed to increase communication skills, networking, life mapping, and goal setting, all increased the students' socioemotional learning and other capabilities needed to enter and succeed in higher education.

The Soar program can be used as a successful model for other universities to further encourage effective programs that close the access and opportunity gap for underserved, first-generation students. However, the cost is substantial for such programs. Funding and community support are paramount, as well as rigorous criteria for participating staff, students, and mentors. The success of Soar through this evaluation attests its effectiveness in helping students apply to college as well as their significant improvement in crucial cognitive and noncognitive areas.

It is hoped that this description of the Soar program and the study results attesting fulfillment of its mission will inspire other higher education institutions to sponsor similar programs. These should help provide underserved, underprepared, first-generation minority high school students the access and opportunity for the higher education that they deserve.

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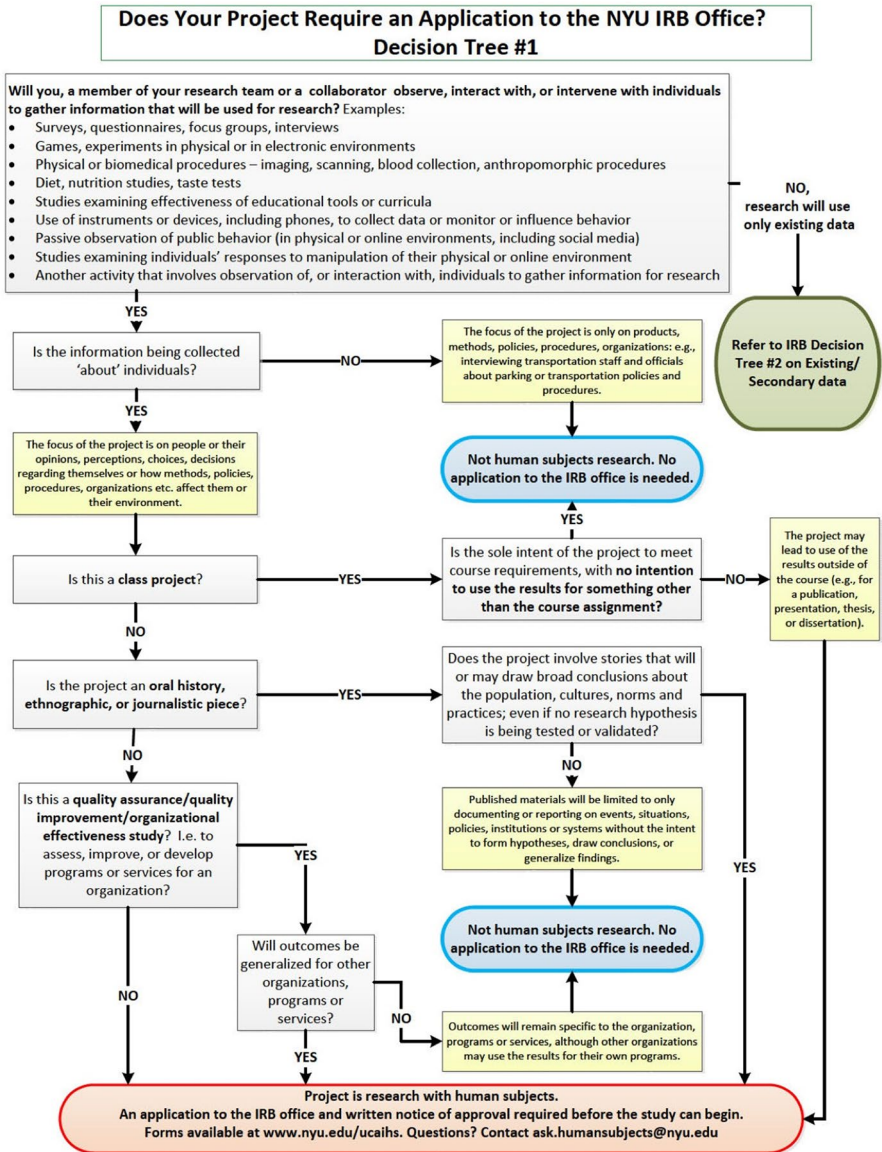
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Data availability Data will be available.

Declarations

Conflict of interest I have no conflict of interest.

Ethical approval All surveys and interviews participants were informed that their participation was voluntary, anonymous and they could stop at any time with no negative consequences. Per New York University IRB rules, this project did not need to be submitted for IRB approval. According to the NYU rules, this is "not human subject research" (See the decision tree below) because "outcomes will remain specific to the organization, programs or services, although other organizations may use the results for their own program." This work does not meet the first criteria as it is not a systemic investigation and is not intended for generalized knowledge. Please see the NYU IRB Decision Tree on the next page and: <https://www.nyu.edu/research/resources-and-support-offices/getting-started-with-our-research/human-subjects-research/faqs/faqs.html>



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