

**Possible Causes of Leaks in the Transfer Pipeline:  
Student Views at the 19 Colleges of The City University of New York**

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The data set and survey for this research are available in the open access repository titled CUNY Academic Works at [https://academicworks.cuny.edu/gc\\_pubs/711](https://academicworks.cuny.edu/gc_pubs/711) and [https://academicworks.cuny.edu/gc\\_pubs/712](https://academicworks.cuny.edu/gc_pubs/712). Portions of this research were presented at the National Institute for the Study of Transfer Students 2022 Annual Conference. We have no known conflicts of interest to disclose. This study was funded by The City University of New York, and by Grant R305A180139–19 from the Institute of Education Sciences (IES) of the Department of Education (the contents of this paper do not necessarily represent the policy of the Department of Education, and endorsement by the Federal Government should not be assumed). For contributions to all stages of the research, including comments on

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**Abstract**

Only 11% of community college (associate's-degree) students transfer vertically and obtain a bachelor's degree within six years, despite over 80% originally intending to do so. These leaks in the transfer pipeline disproportionately affect students from underrepresented groups, who are more likely to attend community colleges and to leak out of the pipeline. To obtain insights about how to decrease these leaks, a survey was distributed to all City University of New York undergraduates; 31,511 responded. The survey concerned students' life and academic circumstances, as well as their information about and views on transfer. Analyses particularly compared responses of never-transferred associate's and bachelor's students and vertical transfer students. The results suggest multiple actions that higher education can take to decrease the pipeline leaks and increase higher education equity, including by increasing transfer students' belongingness, course availability, credit transfer, financial support, information, and time efficiency.

*Keywords:* associate's degree, bachelor's degree, transfer, persistence, student views, malleable factors

### **Possible Causes of Leaks in the Transfer Pipeline:**

#### **Student Views at the 19 Colleges of The City University of New York**

Approximately three out of every eight college students eventually transfer between colleges (National Student Clearinghouse, 2018). Consistent with those data, of those students who had received a college degree within eight years of entering college in 2010, 27% received that degree from a different college than that at which they had started (Shapiro et al., 2019). At The City University of New York (CUNY, the site of the current research), for at least the past ten years over 50% of the graduates of each of the colleges offering bachelor's (but not associate's) degrees has consisted of transfer students (Z. Tang, personal communication, June 14, 2021). There has been speculation that, nationally, when the pandemic ends, transfer will increase to even higher levels (e.g., Acosta et al., 2021).

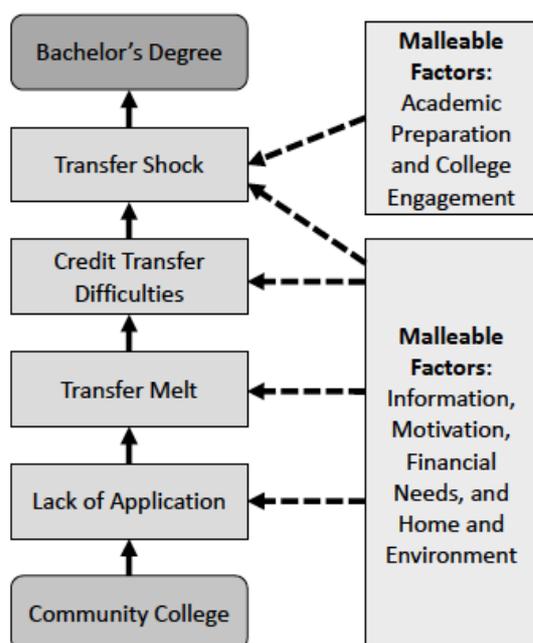
Some students transfer due to academic or other difficulties at their original colleges. However, there are many other reasons. For example, a student may be unable to find work near the original college, or the student may no longer be able to afford to live in their original location or pay the tuition of the original college, or may wish to pursue a different or more advanced degree program than is offered at the original college.

The most frequent transfer path consists of students who start in an associate's program at a community college and then transfer to a bachelor's program at a different college (vertical transfer; Shapiro et al. 2018; Turk & Chen, 2017). For many reasons, approximately 42% of United States college students begin their postsecondary experience in an associate's-degree program (Shapiro et al., 2018), even though over 80% of these students wish to obtain at least a bachelor's degree (Jenkins & Fink, 2015; it was 87% for CUNY community college freshmen in 2015, C. Chellman, personal communication, November 2, 2021). Given that community colleges rarely offer bachelor's degrees, most community college students must transfer to achieve their goals. Although 31% of associate's-program

first-year students do transfer to a bachelor's program within six years (Shapiro et al. 2020), and 11% do receive a bachelor's degree within six years (National Center for Education Statistics, 2020), clearly a great many community college students are not persisting in college and meeting their original educational goals. These leaks in the vertical transfer pipeline are unfortunate because a goal of a bachelor's degree is a worthy one—as just one reason, jobs increasingly require at least a bachelor's degree (Carnevale & Cheah, 2018).

Associate's-degree students may leak out of the pipeline to a bachelor's degree at many different points (Transfer Opportunity Project, 2021, 2022). Figure 1 is a heuristic for

**Figure 1.** Diagram of Four Challenge Points for Vertical Transfer Including Some Possible *Malleable Factors*



depicting this pipeline, including four of the possible challenge points that may be associated with pipeline leaks. The first is *Lack of Application*: Qualified associate's-degree students who seek a bachelor's degree may not apply to transfer. Second is *Transfer Melt*, our term for students accepted to transfer but who do not enroll at the new institution (compare with “summer melt”; Castleman & Page, 2014). Third is *Credit Transfer Difficulties*, which refers

to situations in which a transfer student's general education or major credits at their original college are changed into elective credits, or credit evaluation is delayed, or credits do not transfer at all. The last challenge point is *Transfer Shock*, a term first used by Hills (1965) for situations in which new transfer students' GPAs decrease (which may be temporary).

Figure 1 also depicts some possible pipeline *Malleable Factors*. For the purposes of this paper, we will define *Malleable Factors* as aspects of the environment or of students' behavior whose variation is associated with increases or decreases in pipeline leaks. Figure 1 groups these possible *Malleable Factors* into those concerning *Information, Motivation, Financial Needs, Home and Environment, Academic Preparation, and College Engagement*.

Research concerning aspects of students' environments associated with transfer student success may constitute evidence for possible *Malleable Factors* that could influence vertical transfer pipeline leaks. For example, having sufficient funds to complete college has been described as influential in transfer student success (United States Government Accountability Office, 2017). In related findings, family income is positively associated with transfer students' completion of a bachelor's degree (Zhang, 2022), and experiencing food and housing insecurity can interfere with college performance (Manze et al., 2021).

Turning to aspects of the college environment, Musoba and Nicholas (2020), in their interviews of vertical transfer students, found that class schedules were reported as a significant problem for these students, either because courses had no openings or because many commuting students could only get nonblocked schedules, resulting in excessive commuting time, to the point even of missing class. The frequency and quality of advising, and of other sources of information related to transfer (e.g., from websites or orientations), as well as the transparency and simplicity of transfer procedures and the availability of other transfer student support services, have also been reported as critical in transfer student success and helping transfer students accumulate transfer student capital (Hayes et al., 2020;

Schudde et al., 2020, 2021b; Taylor, 2019).

Moving into the classroom, taking (and presumably being assigned to) few remedial courses, as well as having a relatively high grade point average (GPA), have both been associated with transfer student success (Hagedorn et al, 2008; Johnson & Mejia, 2020). The potential course-related *Malleable Factor* that has likely received the most research and policy attention is *Credit Transfer Difficulties*, which has been found to be significantly associated with transfer student success (see, e.g., Fink et al., 2018; Monaghan & Attewell, 2015; United States Government Accountability Office, 2017).

A final potential *Malleable Factor* in vertical transfer student success is a sense of belonging, described as increasing students' motivation and thereby persistence in college (Tinto, 2017). A sense of belonging "is most directly shaped by the broader campus climate and the perceptions of belonging students derive from their daily interactions with other students, faculty, staff, and administrators on campus and the messages those interactions convey about their belonging" (Tinto, 2017, p. 258). Multiple studies have shown that a sense of belonging, arising from interactions with friends, faculty, and other college members, increases college student success, including in transfer students (e.g., Anistranski & Brown, 2021; Hoffman et al., 2002-2003; Moore, 2020; Nora & Rendon, 1990). Gopalan and Brady (2020) found that racial-ethnic minority students and first-generation college students had a greater sense of belonging when enrolled in associate's, as compared to bachelor's, programs. This finding has particular salience for vertical transfer students, who begin college in an associate's program, and then transfer to a bachelor's program.

Prior research has also pointed to multiple student (nonbehavioral) characteristics that are associated with transfer student success. For example, researchers have found significant differences in transfer student success according to students' gender, race and ethnicity, and age, with Black and Hispanic, male, and younger students showing less transfer

success than White, female, and older students (Wood & Palmer, 2016; Zhang, 2022).

As indicated by the research described previously, interviews and surveys of students about transfer can be helpful in understanding which student characteristics and *Malleable Factors* may be associated with vertical transfer pipeline leaks and success. Towards those ends, there have been dozens of survey and interview studies examining the reported views of potential and actual transfer students. These studies have used such approaches as assessing transfer students' stated views about what can be done to improve transfer (e.g., Daddona et al.'s 2021 survey of 257 transfer students; Jackson & Laanan's 2015 survey of 320 transfer students; and Ogilvie & Knight's 2019 survey of 1,070 transfer students), and asking community college students about their transfer intentions, along with examining the associations of those intentions with student characteristics and transfer student capital (e.g., Chan & Wang's 2020 survey of 1,668 community college students; Rosenberg's 2016 survey of 4,924 community college students; and Wang et al.'s 2017 survey of over 1,000 community college students). Additional survey studies have used preexisting national student data sets to assess the relationships of transfer student success to student characteristics and experience (e.g., Lee & Schneider's 2018 study of 860 transfer students from the Beginning Postsecondary Students Longitudinal Study; Wood & Palmer's 2016 results involving 11,384 Black male respondents from the Community College Survey of Student Engagement; Zhang et al.'s 2018 results with 7,059 National Survey of Student Engagement respondents [NSSE]; and Zilvinskis's 2018 results with 22,994 NSSE respondents). There have also been interview studies that have examined community college student transfer intentions and the variables associated with those intentions, such as the accumulation of transfer student capital (see, e.g., the interviews of community college students by Jabbar et al., 2022, and Schudde et al., 2021a). Eller (2017) interviewed 30 freshmen and 30 transfer students at CUNY, one of the few studies to include both

prospective and actual transfer students.

Together, these studies have largely supported the findings described previously regarding student characteristics and *Malleable Factors* associated with transfer student success. For example, in Daddona et al.'s (2021) survey, transfer students reported that course schedules, credit transfer, financial resources, and advising were all critical factors in these students' success. Eller's (2017) interviews with prospective and actual transfer students supported the importance in transfer student success of such factors as providing information and advising, and fostering college engagement and belongingness.

Attention to the challenges involved in increasing transfer student success seems to be increasing. For example, *Inside Higher Ed* recently started a blog on transfer (Kadlec, 2021), now titled "Beyond Transfer." One reason for this increased attention, particularly concerning vertical transfer, may be increasing realization of the implications of vertical transfer challenges for higher education equity. In comparison to bachelor's programs, associate's programs tend to have higher percentages of students from underrepresented groups, including of Black, Hispanic, and federal financial aid recipient students (National Center for Education Statistics, 2021; Radwin et al., 2018). At CUNY, the 2020 community college percentages of Black/Hispanic, Pell recipient, first-generation, and first-language-other-than English college students were 67, 55, 65, and 40, respectively, while in the bachelor's programs they were 51, 52, 57, and 38, respectively (CUNY Office of Institutional Research and Assessment, 2021). Due to these demographic differences between associate's and bachelor's programs, anything, such as transfer challenges, that makes it more difficult for an associate's student to receive a bachelor's degree than for a never-transferred bachelor's student, will differentially harm students from underrepresented groups and therefore negatively impact higher education equity.

Students' actions and therefore their success as vertical transfer students will be a

function of their perceptions of their environment and of transfer. However, despite the many published reports of student views on transfer, there has not yet been a comprehensive survey of students regarding their views and experiences with respect to the many different factors that can influence transfer student success (and thus higher education equity). Therefore, the present research sought to answer the following specific questions:

- 1) What experiences and views do students report that may be associated with some potential *Malleable Factors* and transfer pipeline leaks and challenges, as depicted in Figure 1?
- 2) More specifically, how are the reported experiences and views of students with and without vertical transfer histories similar and how are they different? In other words, how do the reported experiences and views of vertical transfer students compare to similar students who have not yet engaged in vertical transfer (associate's-degree students) and to students enrolled in the same bachelor's programs as the vertical transfer students but who have never transferred?
- 3) How might all of this information suggest ways that the vertical transfer pipeline leaks could be decreased and vertical transfer student success increased, particularly by means of the actions of higher education institutions?

To obtain this information, we fielded a survey for all full-time and part-time undergraduates at CUNY. CUNY has a wide variety of academic programs. Among CUNY's 20 urban and suburban undergraduate colleges, seven offer only associate's degrees (community colleges), three offer both associate's and bachelor's degrees (comprehensive colleges), and ten offer only bachelor's and graduate degrees (senior colleges; see Table 1). The survey examined the prevalence of students' reported experiences and views related to transfer, and allowed us to determine the relationships of those self-reports with student characteristics in a large undergraduate sample (over 31,000 participants). The ultimate goal of this research was to

**Table 1.** The 20 Colleges, Their Survey Invitees, and Their Participants

College	Degrees offered <sup>a</sup>	Number invited	Number responded	Response rate (%)
A	a	20,470	3,719	18.2
B	a	7,756	1,221	15.7
C	a	789	172	21.8
D	a	5,679	933	16.4
E	a	5,498	706	12.8
F	a	9,135	1,528	16.7
G	a	10,591	2,235	21.1
H	a, b	4,671	644	13.8
I	a, b	13,374	1,533	11.5
J	a, b	10,272	1,295	12.6
K	b	14,408	3,215	22.3
L	b	12,841	1,767	13.8
M	b	11,319	1,826	16.1
N	b	15,029	2,935	19.5
O	b	12,134	2,212	18.2
P	b	11,138	1,912	17.2
Q	b	14,674	1,973	13.4
R	b	6,161	1,182	19.2
S	b	2,055	487	23.7
T	b	43	16	37.2
Total	---	188,037	31,511	16.8

<sup>a</sup>a = associate's degrees, b = bachelor's degrees

obtain information to better approach the ideal vertical transfer process, in which students who begin their postsecondary education at a community college obtain a bachelor's degree with no more challenges than similar students who begin in a bachelor's program.

## Method

### Survey Instrument

Survey questions were constructed based on (a) the research reviewed previously on views of students concerning transfer, (b) the research reviewed previously concerning major challenges to transfer student success (particularly the four challenge points and possible *Malleable Factors* shown in Figure 1), (c) a review of transfer information available on the

websites and in the printed materials of six CUNY colleges, (d) the results from 17 student focus groups at three CUNY colleges conducted by CUNY's Transfer Opportunity Project (for a summary of findings from these focus groups see Sutcliffe & Condliffe, 2020), and (e) the guidance of a panel of about 30 transfer researchers, transfer professionals, and transfer students, based on these individuals' review and testing of earlier survey versions.

Questions were presented in True/False, multiple choice, continuous 7-point Likert scale, and open-ended formats (the almost 30,000 responses to the open-ended questions will be reported in a different paper). The survey was divided into three sections. The *General Background* section included questions concerning students' work, commute to campus, children, marital status, and food and housing conditions. The *General Situation in College* section included questions about students' educational goals, experience registering for classes and meeting with an advisor, as well as perceived degree of belongingness. This section also included questions about students' current and previous enrollment. The *Transfer* section included questions about students' experience acquiring information about transfer, applying to transfer, getting their transfer courses evaluated, registering for classes at their transfer institutions, and perceiving support once at their new colleges. This section also included questions testing students' transfer knowledge.

Based on a student's answers to the enrollment questions, each student was placed in one of six groups (Table 2). Some questions in both the *General Situation in College* and *Transfer* sections differed across groups, as appropriate to a student's reported enrollment history. For example, students who had never transferred (Groups ASSOC and BACH) were not asked about their transfer experience. Supplemental material Appendix A is the consent form used, and Appendix B is the survey for ASSOC→BACH students (bachelor's-degree students who previously attended an associate's-degree program at another college).

**Table 2.** Definitions of Survey Groups

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<u>Group</u>	<u>Type of Student</u>
ASSOC	Associate's students with no enrollment in a previous college
ASSOC→ASSOC	Associate's students previously enrolled in another college's associate's program
BACH→ASSOC	Associate's students previously enrolled in another college's bachelor's program
BACH	Bachelor's students with no enrollment in a previous college
ASSOC→BACH	Bachelor's students previously enrolled in another college's associate's program
BACH→BACH	Bachelor's students previously enrolled in another college's bachelor's program

### **Participant Recruitment, Administration of Survey, and Awards to Participants**

Prior to the start of the research, all aspects of participant recruitment and treatment were approved by CUNY's Institutional Review Board (IRB File #2018-1223). Invitations to complete the survey were sent to all part-time and full-time CUNY students who met the following criteria: enrolled in associate's or bachelor's programs as of February 16, 2020 (20 days after the start of the spring semester for 17 colleges, and 10 days before the end of the fall II semester for 3 colleges), 18 years of age or older, and for whom we had a valid email address and/or cell phone number (a total of 188,037 students).

Supplemental material Appendix C is a sample of the initial email invitation sent to students. The invitation asked all students to respond, whether they had ever been interested in transferring or not, and included a statement from the student's president or dean urging the student to complete the survey, as well as a statement that students who did the survey would "have the chance to win one of a hundred \$50 Amazon gift cards." An initial invitation text message was also sent four days after the initial invitation email.

During the survey's fielding, students who had not completed the survey received up

to five email and two text reminders. These reminders also extended the deadline to complete the survey several times. The final deadline was one month after the survey was first made available (total fielding: February 3, 2020 to March 3, 2020).

Colleges were asked to encourage their students to complete the survey, such as by sending additional emails to their students. Students were also encouraged to complete the survey by notices posted on social media and on CUNY's central course management (Blackboard), course record (Degree Works), Student Portal, and Student Center websites. Further, three CUNY-wide organizations (the Advisement Council, the Transfer Council, and TEAMS—the Transfer Evaluation and Articulation Management Systems group) were asked to remind their members to encourage students to respond. Also, several CUNY undergraduate programs were asked to encourage their students to respond.

Finally, 2.5 weeks after the start of the survey fielding, we randomly selected 960 nonrespondents for phone reminders (we had phone numbers for only 950 of these students). Oral contact was made with 83 of these students, and oral messages were left for another 192. Of these 275 total students, 52 (18.9%) subsequently responded to the survey before the end of the survey fielding. Of the remaining 685 randomly selected students (who were not contacted), only 62 (9.1%) subsequently responded to the survey before the end of the survey fielding, indicating that phone reminders can increase survey response rates.

The survey was administered using the Qualtrics platform. Each invitation to complete the survey included a unique link to the survey specific to the student to whom the invitation was sent. These links allowed us to match a student's survey responses to other information about that student contained within databases of the CUNY central Office of Applied Research, Evaluation and Data Analytics (OAREDA).

Approximately 10 weeks after the survey closed, we randomly selected 100 students who had agreed to complete the survey and sent each of them a \$50 Amazon gift card.

## Results

Several questions asked students for information that was contained within institutional records concerning students' enrollment. Student reports and institutional data were concordant for 97.3% of participants regarding whether the student was enrolled in an associate's or a bachelor's program, and 99.4% of participants regarding the particular college in which the student was enrolled, suggesting that the students provided reliable information on the survey.

The following sections report the students' answers on all survey questions that were asked of all survey groups (with the exception of questions about particular pieces of CUNY software), plus some questions asked only of particular survey groups.

### **Response Rates and Participant Representativeness**

The goal of the present research was to use a survey to obtain the reported views on transfer by a large number of students. This section reports the survey's response rate information, as well as summaries of analyses we used to explore the representativeness of this survey's participants in comparison to the entire population invited to participate and to all United States college students. (A more detailed version of these analyses is given in supplemental material Appendix D.)

(1) In the present survey, a student was categorized as a participant if they gave consent and answered at least one survey question (over 99% of participants answered more than one question). There were 31,511 participants out of 188,037 invitees, for an overall response rate of 16.8%. College response rates varied between 11.5% and 37.2% (see Table 1).

(2) Table 3 shows the percentages of participants in the six survey groups as compared to the student population invited to participate. The largest difference occurred with Group ASSOC→BACH (vertical transfer students), with the percentages for participants and for the invited population being 22.8 and 21.0, respectively.

**Table 3.** Distribution of Participants Among Groups in Comparison to Population

Group	Participants Percentage (N)	Invited Population Percentage (N)
ASSOC	26.6(8,389)	27.8(52,324)
ASSOC→ASSOC	6.4(2005)	5.3(10,056)
BACH→ASSOC	3.5(1,089)	4.2(7,971)
BACH	29.5(9,304)	31.1(58,450)
ASSOC→BACH	22.8(7,176)	21.0(39,476)
BACH→BACH	11.3(3,548)	10.5(19,760)

*Note.* Given students' accuracy in reporting their enrollment, and the fact that the particular survey questions they received depended somewhat on their survey responses, students were classified into groups using the survey information they provided regarding their current and past enrollment. In the absence of that information, they were classified using CUNY institutional records, supplemented by National Student Clearinghouse data.

(3) The students invited to participate and those who did participate differed on a variety of individual characteristics (Table 4), but for only two of those characteristics did these two groups differ by at least three percentage points: gender and part-time/full-time status (a greater percentage of females and full-time students participated than were present in the invited population). Participants also had higher high school grades (by 1.0 point on a 100-point scale) and college grades (by 0.2 point on a 4-point scale) than did the invited population. In comparison to the United States college population, the survey's participants were less likely to be White (20.2% vs. 54.0%), more likely to be female (57.2% vs. 56.6%), older (mean and median ages of 24.3 and 21.9 years for the survey, respectively, and median 20-21 years for the United States college population), more likely to be in an associate's program compared to a bachelor's program (37.6% vs. 34.6%), more likely to be full-time (74.2% vs. 61.8%), and more likely to be a Pell Grant recipient (54.4% vs. 33.6%, National Center for Education Statistics, n.d.). However, only for race/ethnicity, Pell status, and full-time/part-time status is there a difference of more than 3.0 percentage points.

**Table 4.** Comparison of Participant Group and Population Characteristics

Student Characteristic	Invited	All	Participant Group		
	Population n=188,037	Participants n = 31,511	ASSOC n = 8,389	BACH n = 9,304	ASSOC→BACH n = 7,176
Student Characteristics					
Gender (% F)	57.2	67.6	67.2	65.6	69.0
Race/Ethnicity(%W)	20.2	18.4	11.4	21.0	19.8
Age (% ≥ 25 years)	28.0	30.7	26.3	10.7	51.9
Program (%Assoc)	37.6	37.4	100.0	0.0	0.0
% Full-Time	74.2	79.4	83.4	89.7	69.2
% Pell Recipient	54.4	56.4	64.3	61.0	53.8
Percentage Assessed as Needing Remediation in					
Reading	11.6	11.3	22.6	3.1	13.9
Writing	17.5	17.9	33.6	5.2	20.6
Math	26.8	24.1	43.3	9.3	35.2
Academic Performance [M(SD)]					
CAA <sup>a</sup>	80.9(8.1)	81.9(8.1)	77.2(7.5)	85.6(6.5)	78.8(7.6)
Cum College GPA	2.8(0.8)	3.0(0.8)	2.5(1.0)	3.0(0.7)	2.9(0.7)

*Note.* Imputation procedures were used by CUNY Institutional Research and by the researchers as needed to ensure there were no missing data for any variable.

<sup>a</sup>CAA = College Admission Average (mean grade of high school courses)

(4) When a logistic weighting procedure was used to weight the survey's answers to reflect the demographics of the invited population, weighting does not appear to have made any substantial differences in responses. For example, for the question "This semester I have a job that pays me for my work," 53.1% of participants answered True without weighting, and 53.4% with weighting.

(5) A total of 204 comparisons between the responses of students who answered the survey before receiving any reminders and those of students who answered the survey only after receiving all reminders showed that, although 26% were statistically significantly different

(using chi square tests for the True/False questions and t tests for the Likert questions), none had a medium or larger effect size ( $\geq .5$ ). (This finding suggests that a shorter survey fielding time and a response rate smaller than that of the present survey—16.8%—would have been adequate to yield the information obtained with the month-long fielding period.)

(6) Response rates for individual survey questions varied from 99.9% (“This semester I have a job that pays me for my work,” asked of all students) to 20.2% (“More credits transfer from an associate’s- to a bachelor’s-degree program if you have an associate’s degree,” asked of the BACH students). Thus, some survey questions had more opportunity for nonresponse bias than did others. However, most questions had response rates of more than 78%.

### **Comparisons of Groups ASSOC, BACH, and ASSOC→BACH**

Comparisons involving Groups ASSOC, BACH, and ASSOC→BACH allowed us to assess the reported bachelor’s-degree goals and experiences of potential and actual vertical transfer students.

In contrast to the Table 4 comparisons between the characteristics of the participants and the invited population, participants in Groups ASSOC, BACH, and ASSOC→BACH often differed substantially from each other. By definition, all the ASSOC students were enrolled in associate’s programs and all the BACH and ASSOC→BACH students were enrolled in bachelor’s programs. However, in addition, ASSOC→BACH students were typically older than students in Groups ASSOC and BACH (mean ages of 27.9, 23.9, and 21.7, respectively). Also, because CUNY generally does not permit remediation in the senior colleges, and students who have not been assessed as needing remediation are more likely to transfer to a senior college (Transfer Opportunity Project, 2021), ASSOC students were most likely to have been assessed as needing remediation and BACH students the least (with a similar pattern for high school and cumulative college grades). Other differences include the ASSOC→BACH students being most likely to be female and least likely to be full-time and a

Pell recipient, while ASSOC students were least likely to be White, consistent with national data on community college students (National Center for Education Statistics, 2020),

Table 5 shows responses to True/False and Likert format survey questions, for all participants as well as the responses just for Groups ASSOC, BACH, and ASSOC→BACH. Table 6 shows responses for these same groups for the multiple-choice questions. All of these findings are presented according to the *Malleable Factor(s)* addressed by each question. Figure 2 compares the responses of Groups ASSOC, BACH, and ASSOC→BACH just for the four most frequent responses for each of the multiple choice questions listed in Table 6.

### ***Home and Noncollege Environment***

Participants reported many time-consuming obligations. For example, over half of the participants reported that their commute to college took at least 40 minutes (one way).

Although 10% or less reported having a child less than 5 years old, and 12% or less were married or had a domestic partner, a quarter of all participants (31% of ASSOC→BACH students) reported caring for someone for at least 10 hours per week.

### ***Financial Needs***

Participants reported substantial financial needs. On a 7-point scale from low to high, the mean rating across all participants for food insecurity was 2.8 (SD = 1.8), and for housing insecurity was 2.2 (SD = 1.8). ASSOC→BACH students reported the highest food insecurity (3.0) and were tied with ASSOC students for the highest housing insecurity (2.4). About half (53%) of the students reported having a paying job this semester, although it was 62% for the ASSOC→BACH students. Also indicating the salience of financial considerations for the participants are the answers to the survey question: “What’s the biggest challenge you face in getting a bachelor’s degree?” (see Table 6 and Figure 2). Consistent with the results in the *Financial Needs* section of Table 5, the cost of education was the most common answer for all respondents combined as well as for ASSOC and ASSOC→BACH students. It was the

**Table 5.** Responses to True/False and Likert-Scale Questions Related to Specific *Malleable Factors*

Question	All	Group		
	Participants	ASSOC	BACH	ASSOC→BACH
	n = 31,511	n = 8,389	n = 9,304	n = 7,176
<i>Malleable Factor: Home and Noncollege Environment</i>				
> 40 mins to get to campus? <sup>a</sup>	57.8(31,181)	56.5(8,271)	61.8(9,215)	57.8(7,111)
Child < 5 years old <sup>a</sup>	7.8(31,166)	9.6(8,262)	3.0(9,204)	10.5(7,114)
Married/domestic partner <sup>a</sup>	11.4(30,521)	11.8(8,055)	5.0(9,038)	11.9(6,960)
Provide care ≥ 10 hours per week <sup>a</sup>	25.1(31,153)	27.6(8,258)	17.7(9,201)	31.1(7,108)
<i>Malleable Factor: Financial Needs</i>				
How often worried about having enough food <sup>b</sup>	2.8(1.8)(23,853)	2.9(1.9)(6,587)	2.5(1.7)(6,741)	3.0(1.8)(5,583)
How often worried about having an okay place to sleep <sup>b</sup>	2.2(1.8)(18,434)	2.4(1.9)(5,130)	1.9(1.6)(5,140)	2.4(1.9)(4,374)
This semester I have a job that pays me for my work	53.1(31,471)	46.6(8,371)	47.7(9,296)	61.5(7,169)
<i>Malleable Factor: Motivation</i>				
Expect to complete ≥ bachelor's	74.8(29,737)	65.3(7,831)	81.5(8,679)	76.6(6,904)
Faculty/staff at current college encouraged me to transfer to bachelor's	--	65.9(7,000)	--	--
Faculty/staff at previous college encouraged me to transfer to bachelor's	--	--	--	69.6(6,461)
<i>Malleable Factor: Information and College Support</i>				
Have had needed support and services at current college <sup>b</sup>	4.8(1.6)(28,806)	5.2(1.5)(7,634)	4.8(1.5)(8,494)	4.6(1.6)(6,589)
Instructors/staff in current college understand me <sup>b</sup>	4.6(1.6)(28,357)	4.8(1.6)(7,532)	4.4(1.6)(8,339)	4.4(1.7)(6,465)
Instructors/staff understood me at previous college <sup>b</sup>	--	--	--	5.3(1.6)(6,251)
Staff/faculty at current college 1st gave transfer info. before 2nd year <sup>a</sup>	--	55.3(6,169)	--	--
My knowledge about bachelor's colleges/majors before I transferred was <sup>b</sup>	--	--	--	4.5(1.5)(6,206)
There are rules for all of CUNY that help students transfer their credits	92.8(11,749)	95.2(2,889)	93.8(3,156)	91.3(3,360)
More credits transfer if have Associate's degree	80.8(9,554)	83.0(2,340)	71.2(1,768)	84.1(3,825)
Transfer students are told how credits transfer before register at new college	64.7(13,695)	80.5(2,776)	70.8(3,030)	57.3(4,647)
Transfer students are told how credits transfer before have to pay money to	62.8(11,443)	72.9(2,140)	67.3(2,457)	57.6(3,969)
Students can use up all available financial aid before bachelor's degree	75.4(8,008)	71.4(1,796)	73.2(2,130)	77.6(2,391)

**Table 5** (continued)

Should transfer to bachelor's after finishing associate's <sup>a</sup>	35.1(22,174)	25.0(5,710)	41.5(6,174)	35.6(5,920)
Is difficult to transfer credits from one CUNY college to another <sup>b</sup>	3.4(1.6)(21,292)	3.6(1.5)(5,404)	3.5(1.5)(6,596)	3.1(1.7)(5,123)
I was able to get into the major I wanted at my current college	--	--	91.3(5,872)	93.3(5,406)
<i>Malleable Factor: Academic Preparation</i>				
How well current college preparing you for academic success in bachelor's <sup>b</sup>	--	4.9(1.6)(6,729)	--	--
How well did previous college prepare you for success in bachelor's <sup>b</sup>	--	--	--	5.0(1.6)(6,205)
Amount learn in associate's & bachelor's course that have same name <sup>c</sup>	4.8(1.5)(22,400)	4.6(1.6)(5,386)	4.8(1.5)(6,698)	5.0(1.4)(5,774)
Last registered by myself <sup>a</sup>	59.9(29,774)	48.0(7,878)	61.5(8,756)	69.7(6,840)
<i>Malleable Factor: College Engagement and Belongingness</i>				
I feel that I fit in or belong at my current college <sup>b</sup>	4.9(1.6)(28,755)	5.2(1.6)(7,629)	4.8(1.6)(8,436)	4.9(1.7)(6,589)
At my previous college, I felt that I fit in or belonged in college <sup>b</sup>	--	--	--	5.3(1.7)(6,235)
It is difficult to make good friends with other students at current college <sup>b</sup>	3.9(1.8)(26,552)	3.9(1.8)(6,945)	4.0(1.8)(7,998)	3.9(1.8)(6,076)
At previous college, was difficult to make good friends with other students <sup>b</sup>	--	--	--	3.3(1.8)(5,293)
I have one or more good friends at my current college <sup>a</sup>	63.2(29,687)	65.3(7,854)	75.6(8,733)	52.6(6,814)
At my previous college I had one or more good friends <sup>a</sup>	--	--	--	81.8(6,473)
I am involved in extracurricular activities at my current colleg <sup>a</sup>	22.3(29,509)	19.9(7,801)	30.5(8,644)	17.0(6,805)

<sup>a</sup>Percentages of all who answered this question (N)

<sup>b</sup>Rated from 1 (low) to 7 (high); M(SD)(N) shown

<sup>c</sup>Responses from 1 (more in associate's-degree course) to 7 (more in bachelor's-degree course); M(SD)(N) shown

second-most common answer for BACH students.

### **Motivation**

Three quarters of all survey respondents stated that they expected to obtain at least a bachelor's degree,

**Table 6.** Responses to Multiple Choice Questions

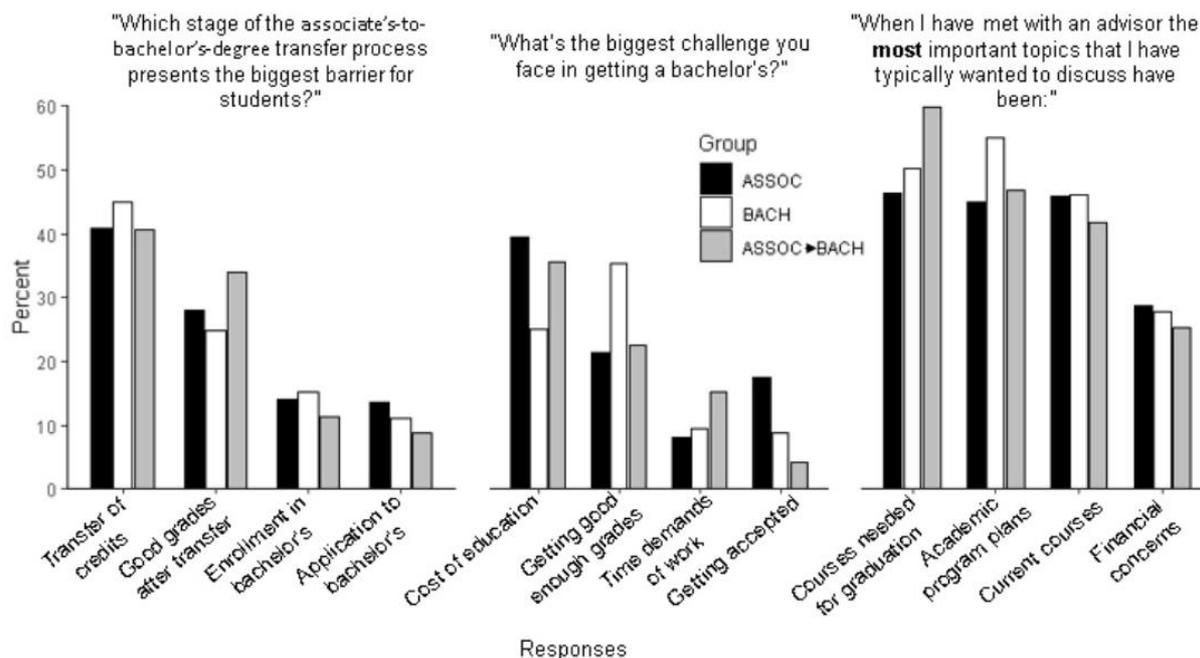
	All Participants	Group		
		ASSOC	BACH	ASSOC→BACH
“Which stage of the associate’s-to-bachelor’s-degree transfer process presents the biggest barrier for students?” ( <i>Malleable Factor: Motivation</i> )				
Application to bachelor’s	11.4(2,774)	13.5(816)	11.1(810)	8.8(531)
Enrollment in bachelor’s	13.9(3,382)	14.0(846)	15.3(1,118)	11.4(688)
Good grades after transfer	28.0(6,803)	28.0(1,692)	24.9(1,813)	33.9(2,043)
Transfer of credits	41.6(10,086)	40.9(2,468)	44.9(3,267)	40.5(2,439)
Other	5.1(1,230)	3.6(220)	3.8(275)	5.4(325)
“What’s the biggest challenge you face in getting a bachelor’s?” ( <i>Multiple Malleable Factors</i> )				
Getting accepted	10.2(2,254)	17.4(881)	8.9(621)	4.2(223)
Cost of education	32.9(7,238)	39.4(1,995)	25.0(1,748)	35.5(1,868)
Time demands of family	7.2(1,585)	5.8(293)	6.6(460)	9.2(484)
Getting good enough grades	25.7(5,657)	21.3(1,079)	35.4(2,475)	22.6(1,186)
Time demands of work	11.6(2,558)	8.0(404)	9.5(661)	15.3(808)
Other	6.7(1,469)	4.7(240)	6.1(425)	9.0(471)
I don’t have any challenges	5.7(1,252)	3.3(166)	8.5(595)	4.1(217)
“When I have met with an advisor the <b>most</b> important topics that I have typically wanted to discuss have been:” ( <i>Multiple Malleable Factors</i> )				
Academic program plans	48.7(14,346)	45.0(3,521)	55.0(4,754)	46.8(3,172)
Career/job plans	21.7(6,405)	19.1(1,493)	27.3(2,364)	18.8(1,278)
Courses needed for graduation	52.5(15,488)	46.2(3,616)	50.3(4,351)	59.7(4,050)
Current courses (including grades)	43.8(12,900)	45.8(3,585)	46.0(3,978)	41.8(2,838)
Financial concerns <sup>a</sup>	28.0(8,259)	28.7(2,248)	27.8(2,408)	25.3(1,716)
Emotional well-being/mental health	7.4(2,195)	8.6(673)	8.8(764)	5.4(366)
Transfer to another college	11.5(3,401)	23.0(1,798)	6.0(520)	3.7(257)

*Note.* %s and Ns are shown for students who responded to this question. Percentages add to greater than 100% because each student could select up to three answers.

<sup>a</sup>This row shows the % that selected “Financial aid” and/or “Other financial concerns”

with the ASSOC, ASSOC→BACH, and BACH students reporting increasing values of such expectations (65%, 77%, and 82%, respectively). In terms of being encouraged to transfer to a bachelor’s program, 66% of ASSOC participants reported such encouragement and,

**Figure 2.** The Four Most Frequent Answers for Each Multiple Choice Question, by Group



similarly, 70% of ASSOC→BACH students reported that their previous (community) college had encouraged them to obtain at least a bachelor’s degree.

One of the survey’s questions asked ASSOC→BACH students “Why did you transfer to your **current** college? (**Check all that apply**).” Almost two-thirds of participants (63%) gave as the reason that the college had a major program that the student wanted. The next most common answer was the college’s location (36%), followed by its reputation (31%) and the college’s cost (21%; all other reasons were given by less than 10% of participants).

**Information and College Support**

Consistent with previous research (Ogilvie & Knight, 2019), students tended to report that they were receiving (ASSOC) or had received (ASSOC→BACH) more support from their community than their senior colleges, in comparison to BACH students. For example, when asked to rate, on a 7-point scale (from none to all) if they had had “the support and services you needed” at their current college, ASSOC→BACH students gave the lowest rating (4.6) of the three groups. As another example, for the question stating “instructors and staff in [their] current college understand who I am” (on a 7-point scale from not at all to

strongly agree), ASSOC students gave a mean rating of 4.8, but ASSOC→BACH students' mean response was 4.4 for their current colleges and 5.3 for their previous colleges.

Participants reported low levels of transfer information. Despite 65.3% of ASSOC students stating that they want to receive at least a bachelor's degree, only 55% of the ASSOC students stated they had been given transfer information before their second year of college, and the mean rating by ASSOC→BACH students of their transfer knowledge before transferring was only 4.5 on a 7-point scale from low to high. Further, although over 90% of participants answered correctly that "There are rules for all of CUNY that help students transfer their credits," answers to questions about specific CUNY transfer policies were consistently inaccurate. The majority of students who answered the questions about whether more credits transfer if you have an associate's degree, as well as whether students are told how their credits will transfer before registration and before having to pay money at their new college, said that these statements were true. However, they are all false. (Yet a minority of participants in all groups said that community college students should wait to transfer until after they have their associate's degree.) Three-quarters of all students did answer correctly that "Students can use up all their available financial aid before receiving a bachelor's degree." It is noteworthy that for the questions about whether students learn how their credits will transfer before they register and before they have to pay money at the new college, ASSOC→BACH students, who would have had direct experience with these matters, still responded incorrectly 57-58% of the time. However, ASSOC and BACH students, who would not have had such experience, responded even more incorrectly (67-81%). At the same time, ASSOC→BACH students rated the difficulty of transferring credits (on a 7-point scale from low to high) as only 3.1 in comparison to ASSOC and BACH students' ratings of 3.6 and 3.5, respectively. Consistent with these results, BACH and ASSOC→BACH students reported little difference in their getting the major they wanted (91% and 93%, respectively).

To see how transfer information might effectively be transmitted, we can examine the

answers of ASSOC→BACH students to the question: “From where did you get most of your information about transfer when you were at your previous associate’s-degree college?” The most frequent answer was college websites (32.9% of answers, n = 2,149). A distant second was college staff other than faculty members (18.3% of answers, n = 1,198). Consistent with these results, in student-advisor meetings the reported importance of discussing transfer was lower than of students’ academic plans, courses needed, and current courses (Table 6).

### ***Academic Preparation***

ASSOC and ASSOC→BACH students reported similar confidence in how well their community colleges were preparing, or had prepared, them for success in a bachelor’s program (4.9 and 5.0, respectively, on a 7-point scale from low to high). Nevertheless, students in all groups tended to report that you learn more in a bachelor’s-program course than an associate’s-program course with the same name, with ASSOC→BACH students reporting the strongest such beliefs (5.0 on a 7-point scale from 1, more in the associate’s-degree course, to 7, more in the bachelor’s-degree course). Related to *Academic Preparation* or academic know-how, only 48% of ASSOC students reported last registering by themselves, but 70% of ASSOC-BACH students reported doing so.

### ***College Engagement and Belongingness***

Consistent with prior research (Gopalan & Brady, 2020), and with the results discussed previously concerning college support, students either in community college (ASSOC) or who had transferred from community to senior college (ASSOC→BACH) tended to report fitting in better at their community colleges and that it was easier to make friends there than at senior colleges. For example, ASSOC→BACH students, on a 7-point scale from low to high, gave a mean rating of 4.9 for fitting in at their current (senior) college, but 5.3 at their previous (community) college, and a mean rating of 3.9 for it being hard to make friends at their current (senior) college but 3.3 for their previous (community) college. In addition, 53% of the ASSOC→BACH students reported having at least one good

friend at their current (senior) college, but 82% at their previous (community) college. Finally, for all student groups, a minority of participants reported being involved in extracurricular activities, but the percentage was lowest for ASSOC→BACH students (17%).

### ***Additional Concerns About Credits and Registration***

Concerns with credits could be reported in multiple places in the survey. One relates to what we have called *Transfer Melt*—students who are accepted to transfer but do not do so. A total of 386 ASSOC students reported that they had applied to transfer from their current college but then did not. The most common reason these students gave for why they did not transfer although they were accepted was “Concerns about credit transfer” (n = 94).

Another example of transfer credit concern was demonstrated by ASSOC→BACH students’ answers to the question asking whether “All of my previous credits transferred to my current college.” A total of 36.9% of students who responded to this question said that statement was false. Students who answered false were then asked whether the following statement was true: “Because the credits didn’t transfer, I will have to [or had to] retake at least one course or take more credits than the minimum required for my degree.” A total of 81.4% of the students who responded agreed (1,616 of 1,986 students).

Still another part of the survey in which concerns with credits could be demonstrated was in the answers to the question “Which stage of the associate’s-to-bachelor’s-degree transfer process presents the biggest barrier for students?” (Table 6 and Figure 2). About 40% of all groups of participants gave the (most common) answer of credit transfer. Next most common was getting good grades after transferring (i.e., avoiding *Transfer Shock*).

Problems associated with credits are not just seen with credit transfer, but also with registration. The percentages of ASSOC, BACH, and ASSOC→BACH students who replied true to the statement “The first semester at my current college I was able to register for every course I wanted to take” are 75.3% (5,249 of 6,974 students), 64.1% (5,098 of 7,951 students), and 63.7% (3,992 of 6,272 students, the lowest percentage for the three groups),

respectively. ASSOC→BACH students were asked to compare the registration processes at their current (bachelor's-degree) and previous (associate's-degree) programs. Of 6,222 responses, 41.9% stated that registration was harder at their current college, 39.7% that it was the same, and only 12.8% said it was easier (5.5% said they were not sure). These difficulties were reported even though 85.6% of ASSOC→BACH students said that they had participated in academic advising at their current college, and those who had generally found it useful (mean response 5.1 on a scale of 1, not at all useful, to 7, very useful; SD = 1.7, n = 5,078). Almost two-thirds (64.9%) had also participated in orientation at their current colleges, again generally finding it useful (mean response of 5.0, SD = 1.7, n = 3,593).

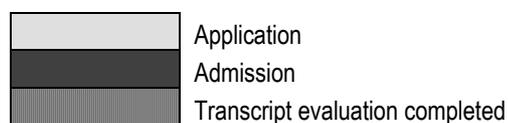
To try to determine whether timing might have caused the reported registration difficulties of ASSOC→BACH students, the survey asked these students to report the month and year in which each step of the transfer process had occurred in transferring to their current college. A total of 632 students answered these questions for Fall 2019 (the most recent fall semester for which there were complete data at the time of the survey). Results showed that the median month to apply for that semester was March, for admission was May, and for completion of transcript evaluation was August (Figure 3 shows college results; notification of financial aid was usually the same month as completion of credit transfer evaluation). Note that Fall 2019 semester registration for *continuing* undergraduates at these colleges started at the beginning of April, and Fall 2019 classes started on August 27.

### **Survey Responses as a Function of Student Characteristics**

Table 4 lists two student characteristics for which all participants combined differed from the invited population by at least five percentage points: percentage female and percentage full-time. Therefore, we examined students' responses as a function of each of these characteristics on the True/False and Likert questions asked of all participants. Given GPA variation in Table 4 (which was similar to the remedial status variation in that table), and GPA's integral nature to the definition of *Transfer Shock*, we also examined that student

**Figure 3 .** Median Reported Dates for Transfer Application, Admission, and Completion of Transcript Evaluation for Fall 2019 at Senior Colleges with  $\geq 75$  Students Providing Complete Information (Classes Began 8/27/19)

College	12/2018	1/2019	2/2019	3/2019	4/2019	5/2019	6/2019	7/2019	8/2019
K (n = 126)									
L (n = 127)									
M (n = 79)									
N (n = 142)									
O (n =103)									
P (n =143)									
Q (n =103)									



characteristic. (We used correlations to examine the relationships between two continuous variables, chi-square tests to examine the relationships between two discontinuous variables, and t tests to examine the relationships between a continuous and a discontinuous variable.). For all three student characteristics, although the majority of questions (15 of 21 for both gender and GPA, and 16 of 21 for full-time/part-time status) were statistically significantly different, all of these items had less than a medium effect size (.3 for the correlations and .5 for the chi-square and t tests).

### Discussion

The data obtained from this survey of over 31,000 CUNY students indicate that these students face many challenges in traversing the pipeline from associate’s program enrollment to bachelor’s degree completion. In addition to the noncollege environment challenges that these students frequently face (limited financial resources, holding a job, being a member of an underrepresented racial group, commuting long times, being a caregiver, not having English as their first language, and being a first-generation college student), the data indicate that these students must face multiple additional challenges that derive from specific aspects

of the transfer process. It is a testament to the students' hard work and perseverance that so many successfully traverse the entire pipeline. Yet higher education institutions need to help many more community college students achieve their goal of a bachelor's degree.

Fortunately, the present research on possible causes of the pipeline leaks indicates multiple means by which higher education institutions can do so.

For example, consider the four possible pipeline challenge points depicted in Figure 1, beginning with *Lack of Application* and *Transfer Melt*. The current survey data give us a new insight regarding these challenge points: Approximately 5% of this survey's ASSOC participants reported applying to transfer but stayed at their original college, and the most common reason they gave for staying was concerns about credit transfer. Facilitation of credit transfer by sending and receiving institutions could decrease *Transfer Melt*.

Figure 3's data give us additional insights, this time about the third and fourth challenge points: *Credit Transfer Difficulties* and *Transfer Shock*. Even within this single university system (CUNY), it typically took as many as three months at some colleges for students to receive a response to their transfer applications, and it could typically take some colleges five months from transfer application submission until these colleges notified the applicant about how all their associate's-program credits would transfer (and the financial aid they would receive), with less than a month until the start of classes. Unless a new college saves registration spaces in classes specifically for transfer students (and some do), such a timeline severely limits new transfer students to course times, types, and instructors that, for various reasons, are unpopular. Consistent with these findings, although ASSOC→BACH students were, on average, the oldest and most academically advanced of the students in the three groups, and ASSOC→BACH students generally reported satisfaction with orientation and advising (even if transfer was not frequently discussed), these students reported being least able to register for the courses they wanted. ASSOC→BACH students' responses also indicated that these students generally received knowledge of how their credits would

transfer and their financial aid too late to use that knowledge to choose to which transfer college to commit. All of these reported events—the responsibility of transfer receiving institutions—could contribute to *Transfer Shock*.

In multiple additional places on the survey participants reported concerns with the two post-transfer challenges depicted in Figure 1: *Credit Transfer Difficulties* and *Transfer Shock*. When asked “Which stage of the associate’s-to-bachelor’s-degree transfer process presents the biggest barrier for students?” participants most frequently gave credit transfer as the answer. The second most frequent answer was “...getting good grades after transfer.” Further, of ASSOC→BACH students, over one-third (36.9%) reported having experienced credit problems that could potentially delay their degrees or cause them to incur tuition that would not be covered by financial aid (although they did largely report being able to get into the majors they wanted). Despite on average being the most experienced of the students in the three groups (no ASSOC→BACH participants were new students, unlike some ASSOC and BACH participants), ASSOC→BACH students also reported both experiencing the most difficulties registering for the courses they wanted and more than a third of them found registration at their current colleges to be more difficult than at their previous colleges.

Taken together, these findings suggest that transfer success will be enhanced by receiving institutions more quickly admitting students and telling them how their credits will transfer and the financial aid they will receive, giving them appropriate first-semester schedules, and facilitating their registration.

The survey data provide additional information about possible *Malleable Factors* related to persistence through the vertical transfer pipeline. For example, in terms of financial needs, most ASSOC→BACH students were Pell grant recipients, and they reported substantial food and housing insecurity. In addition, note that ASSOC→BACH students, not surprisingly given that they tended to be older, were more likely to be working and doing large amounts of caregiving than were the ASSOC and BACH students (though few students

in any group reported being married or having a domestic partner or a young child). This is in addition to the long commuting times reported by all student groups. Vertical transfer students in this sample reported many demands on their time and have limited financial resources, and so would likely benefit from additional financial supports, including from their colleges.

In terms of the *Malleable Factor of Motivation*, most students, even ASSOC students (Jenkins & Fink, 2015), stated they expected to obtain at least a bachelor's degree. Further, 30% of ASSOC→BACH students transferred from an associate's- to a bachelor's-degree program despite, they reported, their community college never encouraging them to do so. One might therefore conclude that no additional interventions are needed to increase this study's participants' motivation. However, these data also suggest there may be additional transfer-qualified students who never transferred (either due to *Lack of Application* or *Transfer Melt*) but who might have done so if given encouragement. Recall that 65% of CUNY community college students are first-generation college students (CUNY Office of Institutional Research and Assessment, 2020), so CUNY community college students may be relatively unaware of the advantages of a bachelor's degree. Given that by far the most frequent reason ASSOC→BACH students gave for transferring to their colleges was specific programs at those colleges, institutions promoting their particular attractive programs may be an effective method for inducing community college students to continue to a bachelor's-degree program.

The survey yielded perhaps the most information relevant to the *Malleable Factor of Information and College Support*. Most students accurately agreed that students can use up all their available financial aid before completing their bachelor's degrees, consistent with the cost of education being the most frequent answer that they gave to the question about the biggest challenge to getting a bachelor's degree. However, on multiple survey questions, participants reported that they were given little information about transfer and they

demonstrated inadequate transfer knowledge. Yet ASSOC→BACH students, who had had direct experience with transfer, tended to report more accurate knowledge about transfer policies and practice than did ASSOC and BACH students, who had no such experience.

The lack of accurate transfer knowledge by students could lead to students making nonoptimal transfer choices. For example, over 70% of the participants in all three groups—even ASSOC→BACH students who had direct experience with transfer—reported believing (incorrectly) that more credits transfer if a student has an associate's degree (although a minority stated that students shouldn't transfer until they have their associate's degrees). Such an incorrect belief could cause an associate's-degree student to wait to transfer until the student had accumulated associate's-degree major credits that would not transfer except as electives. In such cases, a student would minimize their time obtaining a bachelor's and their chances of running out of financial aid by transferring before receipt of the associate's degree. CUNY has multiple programs (such as the John Jay College Justice Academy) that ensure vertical transfer of all major credits. For students not enrolled in such programs, and when credit transfer cannot itself be improved, institutions improving their transmission of good information *about* credit transfer would appear useful, particularly by means of websites, given that websites were by far the most cited source of information in this study (see, e.g., Vora & Buonocore, 2022). Unfortunately, transfer information on websites tends to be missing, inaccurate, or uninterpretable (Logue et al., in press; Schudde et al., 2020). This is an area ripe for institutional interventions to help transfer students.

In terms of the *Malleable Factor of Academic Preparation*, all students tended to report that more is learned in bachelor's than associate's courses of the same name. Nevertheless, both ASSOC and ASSOC→BACH students generally reported being prepared well for bachelor's programs. At the same time, getting good grades was the second-most-frequent stage in the vertical transfer process reported as a barrier for vertical transfer students (after credit transfer). *Transfer Shock* was a concern for these students, but not as

much as credit transfer. Finally, although college GPA was not substantially related to the survey responses, note that Table 4's data indicate that associate's students with higher high school grades and a lower probability of being assessed as needing remediation were more likely to transfer to bachelor's programs. Further, the ASSOC→BACH and BACH students' cumulative college GPAs were almost identical, despite the ASSOC→BACH students receiving much lower grades in high school. High school grades and nonremedial assessment predict progress in the transfer pipeline, but many students with lower high school grades and who have been assessed as needing remediation end up being successful in bachelor's programs even though initially they did not meet the admissions criteria for those programs, a counterpoint to the lower quality that some receiving institutions' members attribute to vertical transfer students (Elfman, 2019).

Findings concerning the *Malleable Factors of College Engagement and Belongingness*, along with findings related to *College Support*, were consistent and concerning. On multiple questions, participants, including ASSOC→BACH students (who had transferred from community to senior colleges), reported greater belongingness in community than senior colleges. These views related to support and affiliation that participants reported feeling from peers, faculty, and staff. In addition, only a small proportion (17%) of ASSOC→BACH students reported being involved in extracurricular activities at their current colleges. This is not surprising given the many demands on their time already discussed, but it is concerning because such lack of involvement represents less engagement in college. Receiving institutions need to increase vertical transfer students' engagement without concomitant substantial increases in their time commitment, such as by engaging them in activities that are virtual or colocated with their campus-based instruction (Eller, 2017).

This study has multiple limitations. First is that the data were obtained from a survey. Participants reported what they chose to report concerning their own subjective impressions.

Direct observational methods would be needed to confirm the findings reported here.

However, the consistency of the findings within this survey and with other information and research suggests that the findings accurately reflect students' views and behavior.

Nevertheless, the views expressed by students in the present sample are not necessarily identical to those of all college students. Although the findings did not differ substantially in accordance with student characteristics, which made the sample's overrepresentation of female and full-time students less of a concern, all the current participants were students in the CUNY system. Students at other colleges may have different experiences and views. In addition, the current participants differ demographically in several ways from all college students, most notably in being less White and having fewer financial resources. However, the characteristics of the current sample tend to be the characteristics of college populations, at CUNY and elsewhere, that face many challenges, as well as facing postsecondary performance gaps, and thus are the types of college populations most in need of interventions to increase college success, and are the populations worthy of our particular attention.

Table 7 summarizes the many recommendations for both transfer sending and receiving institutions made in this paper, which are consistent with previous findings concerning transfer student success. If even some of the findings described here characterize not only students in the CUNY system but students in other colleges and systems, there is much that all institutions can do, and should do, to facilitate vertical—indeed all—transfer. Taking a final look at Table 4, note that the ASSOC→BACH students are a higher percentage White and a lower percentage Pell recipient than the ASSOC students. In other words, students of color and poor students are more likely to leak out of the vertical transfer pipeline. The leaks in this pipeline are substantial for all types of students, but they are also inequitable. Students have now spoken to us through the current survey concerning what about transfer is hard, what is confusing, and what is missing. The question is: Will we

**Table 7.** Survey-Based Recommendations for Decreasing the Leaks in the Transfer Pipeline

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- Both the sending and the receiving institutions should:
    - Encourage associate's-degree students to transfer to bachelor's programs by informing them about attractive programs
    - Provide students and others with easily accessible and accurate information about credit transfer and transfer policies, particularly on websites
  - Receiving institutions should:
    - Provide their members with accurate information about transfer students' characteristics and academic success, countering any stigma towards these students.
    - Quickly admit transfer students and tell them how their credits will transfer and the financial aid they will receive, and do so before they need to make a commitment decision to a new institution
    - Provide scholarships and other forms of financial support to transfer students
    - Transfer more credits as applying to general education, major, and minor degree requirements, and transfer fewer credits as electives
    - Allow new transfer students to register at the same time as continuing students or save them space in needed classes
    - Make efficient use of vertical transfer students' time, such as by providing efficient public transportation to and from campus, offering at least some online and hybrid courses, and making available extracurricular activities that are virtual or colocated with courses
    - Facilitate faculty, staff, and peer support and friendships for new transfer students

listen? It is our responsibility as educators to remove as many of the transfer challenges as possible to ensure that all students, no matter where they begin their postsecondary journeys, have the same opportunity to earn a bachelor's degree. Thus will we increase achievement and equity in higher education.

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