

A Scholarship Program for Students Transferring from Two-Year Colleges

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Abstract: This paper provides a mid-project report on a scholarship program funded by the National Science Foundation that focuses on students who transfer at the 3rd year level from 2-year schools to the engineering and engineering technology BS programs at our university. The goals of the program are: (i) to expand and diversify the engineering/technology workforce of the future, (ii) to develop linkages and articulations with 2-year schools and their S-STEM programs, (iii) to recruit, retain, and graduate 78 low-income students, and place them in industry or graduate schools, (iv) to generate knowledge about the program elements that can help other universities, and (v) to serve as a model for other universities to provide vertical transfer students access to the baccalaureate degree.

The project is in its fourth year, and has met its recruitment goal of a total of 78 scholars divided in three cohorts. Our goal is to retain and graduate at least 95% of these scholars.

Three key programs that have contributed to our success are: (i) the co-op program facilitated by the Office of Cooperative Education and Career Services, (ii) a newly developed zero-credit VTAB Orientation Program course, and (iii) our academic advising system.

Our external evaluator was involved in the development, implementation, and analysis of two surveys and focus group interviews, and is satisfied with the progress we have made. Survey #S1 was developed in year one for incoming scholars, and has been administered to all three cohorts. Survey #S2 was developed last semester for scholars in the middle of the program, and has been administered to the first cohort. The focus group interview protocol was developed in year one, and has been administered to all three cohorts.

We faced two major challenges so far: (i) obtaining the complete list of incoming scholars from the Office of the Financial Aid and Scholarships (OFAS) before the Fall semester began, and (ii) setting up the zero-credit VTAB Orientation course. First challenge was overcome by working with OFAS to get the name of the scholar as soon as the student accepted our admission and scholarship offer instead of waiting until all scholarships had been awarded. The second challenge was overcome by having a specific course code assigned to the Orientation course by the Registrar with time/day/location so that each scholar could adjust their academic schedule to accommodate the course, and register for it before the Fall semester began.

We are on schedule with no major changes from our original timeline. This paper will provide an overview of the scholarship program, and the progress we have made so far.

Introduction: This paper discusses the VTAB (Vertical Transfers' Access to the Baccalaureate) project that focuses on students who transfer at the 3rd year level from 2-year schools to the engineering and engineering technology BS programs at RIT. The objectives of this project are:

1. Recruit a total of 78 low-income vertical transfer students from 2-year colleges into RIT's engineering and Engineering Technology BS degree programs,
2. Retain and graduate at least 95% of the recruited scholars,
3. Prepare scholars with the necessary skills, education, and work experience to enter the high technology workforce upon completion of BS degree, and place them in industry or graduate schools,
4. Design and develop program elements to achieve objectives #1, #2, and #3, and
5. Generate knowledge about each program element that will be essential to the success of a vertical transfer program at any 4-year private institution.

The VTAB project is funded by a five-year grant from the National Science Foundation (NSF) that began in September 2017. In its program solicitation [1], NSF stated its goals to be: (i) to increase the number of low-income academically talented students in STEM, (ii) to improve the education of these STEM students, and (iii) to generate knowledge to advance understanding of factors that lead to the success of these students. VTAB is leveraging the lessons learned from an earlier TiPi (Transfer Pipeline) project to achieve the first two goals [2]. The third goal is addressed later in the section that describes the online surveys and focus group interviews [3].

The VTAB project is a collaborative effort of eight academic departments from two colleges, the Enrollment Management and Career Services Division, and the Office of Financial Aid and Scholarships. Table 1 lists the participating departments in column 2, and their BS degree offerings in column 3.

Table 1: Participating Colleges, Academic Departments, and Degree Programs		
College*	Academic Department	BS Program in
CET	Civil Engineering Technology and Environmental Management and Safety (CET-EMS)	Civil Engineering Technology
		Environmental Sustainability, Health, and Safety
CET	Electrical, Computer, and Telecommunication Engineering Technology (ECTET)	Electrical Engineering Technology
		Computer Engineering Technology
		Telecommunication Engineering Technology
CET	Manufacturing/Mechanical Engineering Technology (MMET)	Manufacturing Engineering Technology
		Mechanical Engineering Technology
CET	Packaging Science (PS)	Packaging Science
COE	Electrical and Microelectronic Engineering (EME)	Electrical Engineering
		Microelectronic Engineering
COE	Mechanical Engineering (ME)	Mechanical Engineering
COE	Industrial & Systems Engineering (ISE)	Industrial Engineering
COE	Computer Engineering (CE)	Computer Engineering

*CET ≡ College of Engineering Technology;

*COE ≡ College of Engineering

Collectively, the eight departments listed in Table 1 offer thirteen BS degree programs that are five-year programs with a mandatory cooperative education component wherein students attend classes in Fall and Spring semesters in their first two years. During the third and fourth years, students alternate between on-campus study and off-campus co-op employment in industry. All students must complete at least 48 weeks of paid co-op employment. Each student finds co-op employment with help from an assigned co-op coordinator in the Office of Cooperative Education and Career Services.

Recruitment: The project is in its fourth year. Its goal was to recruit 26 low-income transfer students from 2-year schools in three yearly cohorts for a total of 78 scholars. Figure 1 shows each year's recruitment goal, and the resulting cohort size. The project has met its goal of recruiting 78 scholars.

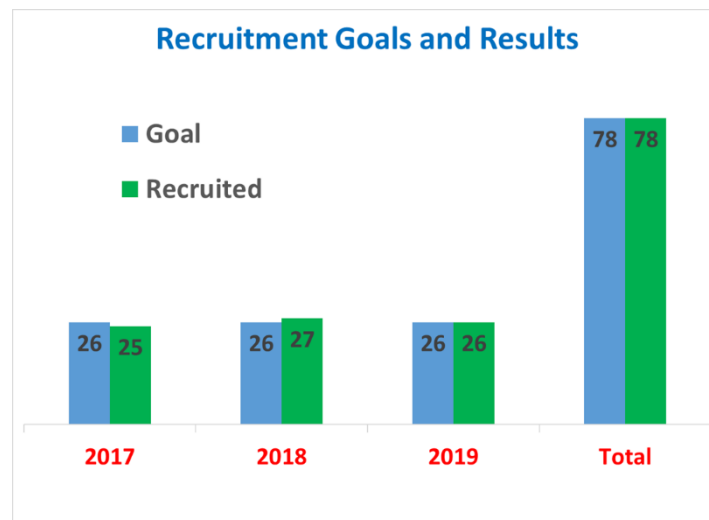


Figure 1: Number of transfer students recruited from 2-year schools in Fall of 2017, 2018, and 2019

64 scholars are male, and 14 are female. Under NSF classification for race, 58 reported White, 10 Asian, 4 black or African American, and remaining 6 did not answer. Table 2 shows the departmental distribution (see Table 1 for departmental abbreviations):

Table 2: Number of scholars in each department								
CET	ECTET	MMET	PS	EME	ME	ISE	CE	Total
11	1	19	1	15	21	4	6	78

Each scholar will receive a scholarship of \$2,500 per semester for four semesters for a total of \$10,000. This scholarship is in addition to other grants and aid consistently awarded by RIT. After the grant expires, RIT will ensure that continuing VTAB scholars have adequate financial support to complete their degree.

Retention: The second goal is to retain and graduate at least 95% of these scholars. Figure 2 shows the retention statistics in each academic term beginning the Fall of 2017. The five bars for each term indicate the number of scholars (i) on campus, (ii) on coop employment, (iii) on official leave of absence, (iv) graduated, and (v) left RIT. One scholar graduated at the end of the Summer of 2019. Only one scholar left RIT resulting in 98% retention so far.

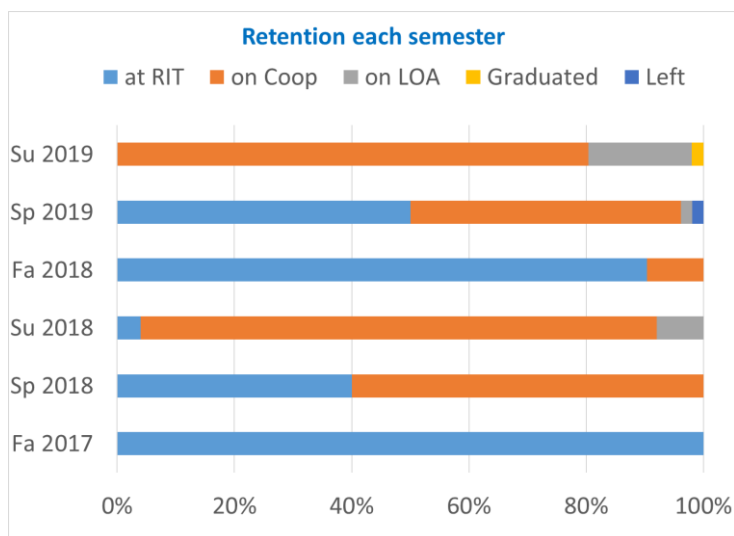


Figure 2: Number of scholars (i) on campus, (ii) on coop, (iii) on leave of absence, (iv) graduated, and (v) left RIT in each academic term beginning the Fall of 2017

Paid Co-op Employment: RIT's degree requirements require that each scholar must complete at least 48 weeks of paid co-op employment. A scholar will be in either on-campus study or paid coop employment. At the end of each co-op session, students submit a report of their experience along with evaluations from their employers. Figure 3 shows the percentage of scholars who are not on-campus with paid co-op employment in each academic term based on student co-op reports. The slightly lower 82% reported for Summer 2019 may not include a few co-op reports that need to be completed.

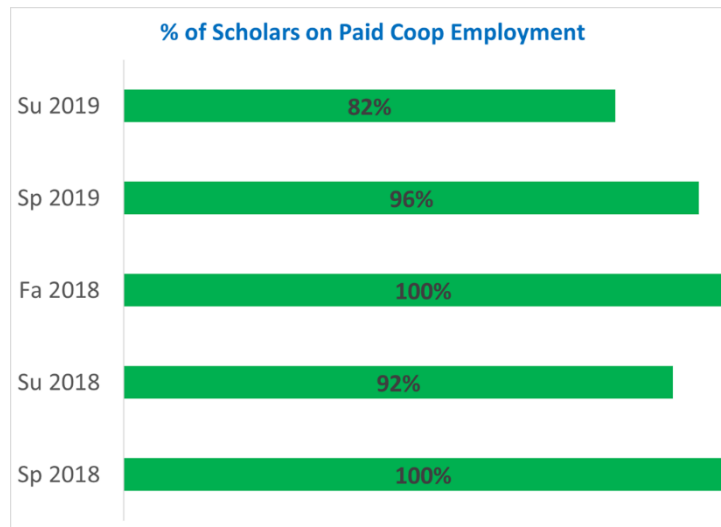


Figure 3: Percentage of scholars (not on campus) who are in paid coop employment

Support Programs and Challenges: To help VTAB scholars succeed, several new program elements were developed such as a six-week zero-credit VTAB Orientation course for all incoming scholars, individualized diagnostics and intervention for underperforming scholars, providing special mentoring and scholarly opportunities, and a lunch get-together each semester hosted by a participating department [3]. The project has had excellent support from the Offices of Financial Aid and Scholarships, Cooperative Education and Career Services, and Transfer Admissions.

We faced two major challenges so far: (i) obtaining the complete list of incoming scholars from the Office of the Financial Aid and Scholarships (OFAS) before the Fall semester began, and (ii) setting up the six-week zero-credit VTAB Orientation course for all incoming scholars. The first challenge was overcome by working with OFAS to get the name of the scholar as soon as the student accepted our admission and scholarship offer instead of waiting until all scholarships had been awarded. The second challenge was overcome by having a specific course code assigned to the Orientation course by the Registrar with time/day/location so that each scholar could adjust their academic schedule to accommodate the course, and register for it before the Fall semester began.

Knowledge Generation: An external evaluator is involved in the development, implementation, and analysis of three online surveys and two focus group interviews. The first survey developed in year one has been administered to all three cohorts. The survey was organized to examine the scholars' experiences at their 2-year schools, their experiences during the transfer process, as well as their experiences while enrolling RIT and their expectations academically, financially, personally, and socially for RIT. The first focus group interview at end of the six-week orientation course has also been conducted for all three cohorts. The focus-group questions were built on their responses to the survey and the orientation course, and to determine how scholars were acclimatizing to RIT. The survey and focus group results will be reported in an upcoming paper in the 2020 ASEE Annual Conference Proceedings.

The second online survey for each cohort during their third semester will focus on their experiences at RIT and during coop employment. It will connect back to their preconceptions from the first survey. It has only been administered to the first cohort so far.

The third online survey for each cohort will be administered before graduation and will focus on their career preparation at RIT. The second focus group interview will build on the third survey, and have questions about scholars' experiences at RIT and on coop. These are currently under development as the first cohort will graduate this coming Spring.

The external evaluator is satisfied with the progress the project has made, and suggests that the project should now shift its attention from recruitment to retention and graduation. The project is on schedule with the original timeline with no major changes.

Conclusions: The VTAB project has met its goal of recruiting 78 low-income highly talented transfer students from 2-year schools to BS degree programs in engineering and engineering technology at RIT. The goal is to retain and graduate at least 95% of these scholars. Only one scholar has left RIT, and one scholar has graduated. Results from the first online survey and focus group interview of all three cohorts will be published in the 2020 ASEE Annual Conference Proceedings.

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3. S. K. Gupta, F. Foltz, J. E. Moon, R. Melton, M. Kuhl, D. P. Johnson, M. Valentine, J. Lee, R. Garrick, *An Orientation Program for Vertical Transfers in Engineering and Engineering Technology*, Proceedings of the 2019 ASEE Annual Conference in Tampa, FL (June 2019).