Prepared by:

Riki Garvin

Summary of the Student Transfer in Professional Pathways Project (STP3)
by the Research and Planning (RP) Group for California Community Colleges

Background

Almost three quarters of California's college students begin their higher education at a community college. Considering the state's projected shortages in several careers requiring bachelor's degrees, the RP (Research and Planning) Group for California Community Colleges worked with The California Partnership for Student Success (Cal-PASS) on the Student Transfer in Professional Pathways Project (STP3). The goals of the project were to better understand how students make their way from community college through a bachelor's degree, to determine the factors that support or inhibit students' transfer from community college to university, and to provide this information to colleges, universities, and employers. The research focused on students in five career majors with high workforce demand: engineering, accounting, nursing, teacher education, and administration of justice. Participants in the study had achieved, or were in the process of achieving, bachelor's degrees after successfully transferring to a four-year institution from a community college. The RP group researchers mapped the educational pathways of 14,500 students who started in California community colleges and went on to earn bachelor's degrees at public or private universities. Student perspectives about the factors that influenced their transfer process or progress in school were also collected. Community college and university administration, faculty, and staff, as well as employers and advocacy groups, were also interviewed about how to facilitate transfer in these high-demand career majors (Cooper, Willett, & Pellegrin, 2012).

Summary of Findings

Pathway to Bachelor's Degree

- More than half of transfer students "swirled" (attended more than one community college) before transfer.
    - Administration of justice and nursing students were most likely to swirl
        - They reported that they attended more than one community college in order to take the prerequisite courses they needed.
    - Nursing students often swirled in order to take courses at more convenient times.
- More than half of engineering and accounting graduates transferred to a four-year institution without receiving an associate's degree.
- Accounting students reported that their degrees were sometimes the result of an "accident" as they took the courses they needed for transfer.
- More than half of successful transfer students who earned an associate's degree before transfer held that degree in a field unrelated to their career.

- Whether or not students earned an associate degree was unrelated to the time to transfer or to earn a bachelor's degree in accounting, engineering, teacher preparation, or administration of justice.
- Students who completed an associate's degree were most likely to swirl in accounting, followed by nursing, teacher education, and administration of justice.
- Nursing graduates who achieved an ADN before transfer took longer to complete a bachelor's degree compared to graduates who transferred without an associate's degree and graduates who transferred with an associate's degree in a different major.
- The median time to transfer ranged from 3.0 to 3.9 years, depending on the student's major.
- The median time from first term at a community college to a bachelor's degree ranged from 5.2 to 6.7 years.
- About one-third of successful graduates started below transfer level in English
- About half of successful graduates started below transfer level in math.

Challenges

- Students reported financial struggles and/or the need to support themselves or family while in school.
- Academic challenges included
    - lack of guidance
    - confusing or conflicting transfer requirements
    - the lack of lower division course offerings in the student's major at the community college
    - universities' not accepting units or courses for transfer
- Engineering and nursing students took courses they did not need for transfer because of a lack of information and guidance.
- Engineering and nursing students often ended up taking several lower division courses after transfer because the community colleges did not offer the courses they needed.
- Engineering students encountered widely differing requirements at different universities.
- Accounting students reported confusion between transfer requirements and associate's degree requirements.
- Accounting and nursing students had problems with universities not accepting units for transfer once students were accepted
- Nursing students had to swirl and took more time to transfer because of limited course offerings at the community colleges.

Effective Strategies

- **More than 80% of successful graduates had a detailed education plan.**
- Students said that meeting with counselors, advisors, or faculty mentors was very helpful in helping them establish and make progress on goals.
- Successful engineering students took advantage of **math labs, science and math tutors**, and the MESA (Math, Engineering, Science Achievement) program.
- Accounting students reported that clubs and networking helped them reach their goals.

- Nursing students strongly preferred foundational science courses designed for nurses, saying these courses helped them put their knowledge in context.
- Students appreciated transfer agreements with universities when they were offered, and wanted them when they were not offered.
- Teacher education and administration of justice students reported receiving useful guidance from their community college's transfer center.
- Students in nursing, administration of justice, teacher education, and engineering said they felt very well prepared compared to classmates who had started at the university as freshmen.
- Accounting students stated that a "culture of low expectations" at the community college led to a shock during their first university term.
- Financial aid recipients took about 4-6 months longer to transfer than those who did not receive financial aid as community college students.
- EOPS (Extended Opportunity Programs and Services) students transferred faster in engineering and nursing, and at the same rate as non-EOPS students in the other disciplines.

Sample

The RP Group researchers examined about 14,500 students who earned a bachelor's degree in engineering, accounting, nursing, teacher education, and administration of justice from institutions participating in the Cal-PASS data exchange system, including 13 California State University campuses, six University of California campuses, and two private California universities. The project focused on students who had completed at least 12 transferable units at a community college prior to attending a participating university and who had at least two years of university course data available before degree completion. Community college data were available from fall 1996 to spring 2010. Degree completion data ranged from fall 2000 to spring 2010, although most participants completed their degrees between fall 2005 and spring 2009. In order to find teacher education graduates, whose undergraduate majors varied greatly, the researchers identified students who were working on teaching credentials or master's degrees in education and followed their academic careers back through their undergraduate years at university and community college. As a result, the sample size for teacher education graduates was smaller than the sample size in the other disciplines (see Table 1; Cooper, Willett, & Pellegrin, 2012).

Table 1: Number of graduates, by discipline, included in study data.

Discipline	Number of participating graduates
Engineering	4,219
Accounting	2,118
Nursing	2,820
Teacher Education	792
Administration of Justice	4,555
Total	**14,504**

The five disciplines studied varied greatly in the breakdown of successful transfer students by gender. Accounting and administration of justice had approximately equal numbers of men and women. However, teacher education and nursing graduates were largely female (80% and 86%, respectively), while engineering graduates were mostly male (83%). The disciplines also varied in the breakdown of successful transfer students by ethnicity. The largest percentage of engineering graduates were Asian (40%), while the largest percentage of students in other disciplines were Caucasian. In teacher education and administration of justice, the percentage of Latino graduates was almost as high as the percentage of Caucasian graduates. Asian graduates were almost as numerous as Caucasians in accounting and nursing, with Filipinos making up about half of the Asian nursing graduates (Cooper, Willett, & Pellegrin, 2012).

Findings

College Enrollment before Transfer

Over half of the students who transferred to a four-year institution from community colleges "swirled," or attended more than one community college (Cooper, Willett, & Pellegrin; see Table 2). Nursing and administration of justice students (over 60% in each discipline) were most likely to swirl, followed by teacher education and engineering students (about 50%), with accounting students being least likely to swirl (35%). Nursing, accounting, administration of justice, and teacher education students who achieved associate's degrees were more likely to have swirled than those who did not complete a degree before transfer. Nursing and administration of justice students who participated in the study's focus groups reported that they needed to attend multiple community colleges in order to take the prerequisite courses needed for transfer; nursing students also explained that they swirled in order to take courses at more convenient times than those offered by their home college (Blash et al., 2012b; Cooper et al., 2012a).

Table 2: Number of community colleges attended before transfer to four-year institution.

Discipline	Total	One CC before transfer		Attended More than One Community College					
				Two CC's before transfer		3 or more CC's before transfer		Total swirlers	
		#	%	#	%	#	%	#	%
Engineering	4,219	2,014	48%	1,204	29%	1,001	23%	2,205	52%
Accounting	2,118	1,372	65%	517	24%	229	11%	746	35%
Nursing	2,820	1,043	37%	1,028	36%	749	27%	1,683	63%
Teacher Education	792	393	50%	261	33%	138	17%	399	50%
Administration of Justice	4,555	1,725	38%	1,529	34%	1,301	29%	2,830	62%
Total	**14,504**	**6,547**	**45%**	**4,539**	**31%**	**3,418**	**24%**	**7,863**	**54%**

Many successful transfer students did not finish an associate's degree before transferring to a four-year institution, and of those who did, many earned degrees in disciplines unrelated to their career (see Table 3). For example, only 26% of engineering graduates earned an associate's degree before

transferring, and only 5% received their associate's degree in a discipline related to engineering (Blash et al., 2012b). Nursing, teacher education, and administration of justice students were all more likely to complete their associate's degree in an unrelated field than they were to get an associate's degree in their eventual major (Cooper et al., 2012b; Cooper et al., 2012c; Blash et al., 2012a). Accounting students, who earned related degrees almost as often as they earned unrelated ones, said that their degrees were sometimes the result of an "accident" as they took the courses they would need to transfer (Cooper et al., 2012a).

Table 3: Associate's degree before transfer.

Discipline	Total	Associate's Degree				Did not Earn Associate's Degree	
		Related to Transfer		Unrelated to Transfer			
		N*	%	N*	%	N*	%
Engineering	4,219	211	5%	886	21%	3,122	74%
Accounting	2,118	488	22%	508	24%	1,144	54%
Nursing	2,820	479	17%	1,072	38%	1,269	45%
Teacher Education	792	<8	<1%	451	57%	333	42%
Administration of Justice	4,555	729	16%	2,095	46%	1,731	38%
Total	**14,504**	**1,907**	**13%**	**5,012**	**35%**	**7,599**	**52%**

*The numbers in these columns were calculated by multiplying the percentage by the total given in Cooper, Willett, and Pellegrin, 2012.

Time to Transfer and Degree

Most of the graduates in the study took 3 to 4 years to complete their community college work (see Table 3), and a total of 5-7 years to complete a bachelor's degree (see Table 4). Graduates in the five disciplines studied had a median time to transfer of three or more years, with administration of justice, engineering, and nursing students taking an average of almost four years to complete their community college work (Cooper, Willett, & Pellegrin, 2012).

Table 4: Time from first community college term to transfer.

Discipline	Total	2 or fewer years to transfer		2-4 years to transfer*		More than 4 years to transfer		Median years to transfer
		#	%	#	%	N	%	
Engineering	4,219	672	16%	1,928	46%	1,619	38%	3.7
Accounting	2,118	390	18%	1,005	47%	723	34%	3.3
Nursing	2,820	460	16%	1,147	41%	1,213	43%	3.9
Teacher Education	792	116	21%	391	49%	235	30%	3.0
Administration of Justice	4,555	650	14%	2,218	49%	1,687	37%	3.7
Total	**14,504**	**2,288**	**16%**	**6689**	**46%**	**5,477**	**38%**	Not available

*Included in this group are students who transferred after attending community college for more than two years (for example, two years plus one semester) up to four years.

The median total time to a bachelor's degree from the term students first started at a community college varied from 5.2 years for teacher education to 6.7 years for nursing (see Table 5; Cooper, Willett, & Pellegrin, 2012). It should be noted that nursing students often took time off to work as nurses, or worked and went to school part-time, to a greater extent than students in other career pathways (Cooper et al., 2012b). Earning an associate's degree had no effect on time to transfer, or time to degree, in any of the five disciplines (Cooper, Willett, & Pellegrin, 2012). The one exception was the 17% of nursing graduates who earned their ADN before transfer; these students had the longest time to a bachelor's degree (over 8 years) of all groups studied. However, as mentioned above, nursing students were most likely to attend school part-time or take time off from school to work (Cooper et al., 2012b).

Table 5: Total time from first community college term to bachelor's degree.

Discipline	Total	Fewer than 4 years*		4 - fewer than 6 years**		6 - fewer than 8 years		8 years or longer		Median years to Bachelor's
Engineering	4,219	235	6%	1,409	33%	1,490	35%	1,085	26%	6.5
Accounting	2,118	284	13%	829	39%	600	28%	405	19%	6.3
Nursing	2,820	178	6%	953	34%	844	30%	845	28%	6.7
Teacher Education	792	159	20%	366	46%	166	21%	103	13%	5.2
Administration of Justice	4,555	475	10%	1,882	41%	1,253	28%	945	21%	5.8
Total* **	**14,504**	**1,331**	**9%**	**5,439**	**38%**	**4,353**	**30%**	**3,383**	**23%**	Not available

*These students took less than four academic years from their first community college term to their bachelor's degree.

**These students took at least four years and less than 6 years to achieve their bachelor's degree.

***The "Total" row in this table was calculated from data in Cooper, Willett, and Pellegrin, 2012.

Basic Skills

Many students who successfully completed bachelor's degrees started below transfer level in math and/or English (see Table 6; Cooper, Willett, & Pellegrin, 2012). Engineering students tended to be best prepared in math, although 23% needed some pre-collegiate math (Blash et al., 2012b). Over half of nursing, teacher education, and administration of justice graduates started below transfer level in math, and 43% of accounting students started in basic skills math, indicating that students who start below transfer level can and do succeed in earning a bachelor's degree. About half of administration of justice students (47%) and about one third of students in other disciplines started below transfer level in English (Cooper, Willett, & Pellegrin, 2012).

Table 6: Percentage of students starting below transfer level in English and math.

Discipline	Below Transfer Level in English			Below Transfer Level in Math		
	#	Total	%	#	Total	%
Engineering	1,147	3,475	33%	1,236	3,746	23%
Accounting	657	1,878	35%	820	1,907	43%
Nursing	598	2,137	28%	1,190	2,246	53%
Teacher Education	235	711	33%	467	718	67%
Administration of Justice	1,992	4,238	47%	3,132	4,232	74%
Total*	**4,629**	**12,439**	**37%**	**6,845**	**12,849**	**53%**

*The "Total" row in this table was calculated from data in Cooper, Willett, and Pellegrin, 2012.

Challenges

The researchers surveyed and interviewed post-transfer students to gain understanding of the financial, academic, and other challenges students faced on their way to a bachelor's degree. Most of the students who cited difficulties reported financial struggles or the need to support themselves or family while in school (Blash et al., 2012a, 2012b; Cooper et al., 2012a, 2012b, 2012c).

Academic challenges for all disciplines included lack of guidance, especially in the face of conflicting or confusing transfer requirements (Blash et al., 2012a, 2012b; Cooper et al., 2012a, 2012b, 2012c). Engineering students in particular ended up taking courses they did not need for transfer because of a lack of information and guidance. Students in this discipline also had to contend with widely differing requirements at different universities (Blash et al., 2012b). In addition, accounting students reported confusion between transfer requirements and associate's degree requirements (Cooper et al., 2012a).

Accounting students also had problems with universities not accepting units for transfer once students were accepted (Cooper et al., 2012a), whereas engineering students often ended up taking several lower division courses after transfer because the community colleges did not offer the courses they needed (Blash et al., 2012b). Nursing students, in addition to the above issues encountered by engineering and accounting students, had to "swirl" and took more time to transfer because of limited course offerings at the community colleges (Cooper et al., 2012b).

Effective Strategies

Students in all disciplines cited a detailed education plan, prepared with the help of an advisor or ASSIST.ORG, as extremely helpful in reaching their educational goals. More than 80% of successful post-transfer students and graduates reported having a detailed education plan. Students who met with advisors, counselors, or faculty to develop their education plan reported that doing so was very helpful in helping them establish and make progress on their goals (Blash et al., 2012a, 2012b; Cooper et al., 2012a, 2012b, 2012c).

Engineering students particularly took advantage of math labs and science and math tutors offered at their community colleges, and cited their help as important to their success. The MESA (Math, Engineering, Science Achievement) program, offering targeted advising, tutoring, and peer mentoring, was also seen as helpful by the engineering students (Blash et al., 2012b). Accounting students reported that personal networks of family, friends, classmates, and alumni provided encouragement and guidance. Unique to the accounting field was respondents' emphasis on clubs and networking as key factors in helping them reach their goals (Cooper et al., 2012a). Nursing students particularly appreciated foundational science courses that were specifically designed for future nurses, reporting that these courses helped them put their knowledge in context (Cooper et al., 2012b).

Students greatly appreciated transfer agreements with universities when they were offered, and wanted them when they were not offered (Blash et al., 2012a, 2012b; Cooper et al., 2012a, 2012b, 2012c). Teacher education students appreciated and used their community college's teacher preparation programs (Cooper et al., 2012c). Students in both administration of justice and teacher education programs said that their college's transfer center gave them useful guidance (Blash et al., 2012a; Cooper et al., 2012c).

Students in most disciplines reported feeling as well as or better prepared for upper division university courses as their classmates who started as freshmen at the university (Blash et al., 2012a, 2012b; Cooper et al., 2012b, 2012c). However, accounting students felt that a "culture of low expectations" at the community college led to a shock during their first term at a university (Cooper, 2012a).

Financial aid recipients took about 4-6 months longer to transfer than those who didn't receive financial aid while at the community college; no reasons were offered for this finding (Cooper, Willett, & Pellegrin, 2012).

EOPS (Extended Opportunity Programs and Services) participants transferred faster in engineering and nursing, and at the same rate as non-EOPS students in the other disciplines (Cooper, Willett, & Pellegrin, 2012). Administration of justice students were most likely to use EOPS services, with 26% reporting that they participated (Blash et al., 2012a).

References

Blash, L., Cooper, D., Karandjeff, K., Pellegrin, N., Purnell, R., Rodriguez-Kiino, D., Schiorring, E. and Willett, T. (2012a). Transfer intelligence: How community college transfer students work toward a bachelor's in criminal justice. The Research and Planning Group for California Community Colleges, Spring 2012. http://www.rpgroup.org/sites/default/files/Criminal%20Justice%20Brief%20FINAL.pdf

Blash, L., Cooper, D., Karandjeff, K., Pellegrin, N., Purnell, R., Schiorring, E. and Willett, T. (2012b). A long and leaky pipeline: Improving transfer pathways for engineering students. The Research and Planning Group for California Community Colleges, Spring 2012. http://www.rpgroup.org/sites/default/files/Engineering%20Brief%20FINAL.pdf

Cooper, D., Karandjeff, K., Pellegrin, N., Purnell, R., Schiorring, E. and Willett, T. (2012a). 2 + 2 = 6? Making community college transfer pathways add up for accounting students. The Research and Planning Group for California Community Colleges, Summer 2012. http://www.rpgroup.org/sites/default/files/Accounting%20Brief%20FINAL.pdf

Cooper, D., Karandjeff, K., Pellegrin, N., Purnell, R., Schiorring, E. and Willett, T. (2012b). Destination BSN: How California community college transfer students work toward a bachelor's degree in nursing. The Research and Planning Group for California Community Colleges, Summer 2012. http://www.rpgroup.org/sites/default/files/Nursing%20Brief%20FINAL.pdf

Cooper, D., Karandjeff, K., Pellegrin, N., Purnell, R., Rodriguez-Kiino, D., Schiorring, E. and Willett, T. (2012c). From student to teacher: How community college transfer students work toward a baccalaureate and teaching credential. The Research and Planning Group for California Community Colleges, Spring 2012. http://www.rpgroup.org/sites/default/files/Teacher%20Education%20Brief%20FINAL.pdf

Cooper, D., Willett, T., and Pellegrin, N. (2012). Traveling the transfer path: Quantitative findings on community college transfers who complete professional degrees (2nd ed.). The Research and Planning Group for California Community Colleges, Summer 2012. http://www.rpgroup.org/sites/default/files/Traveling%20the%20Transfer%20Path%20(2nd%20Edition)%20FINAL.pdf