TRANSFER ISSUES AND EFFECTIVE PRACTICES
A REVIEW OF THE LITERATURE

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Executive Summary

Transfer has been a central mission in American community colleges since their inception. Understanding the success of the transfer mission as it relates to student academic preparation; institutional and organizational structures, strategies and practices; intersegmental programs; and state policies has been a continuing quest over the several past decades. This document presents the findings of an extensive review of literature on transfer issues and practices spanning over 100 references. The main purpose for this project is to identify practices that enhance the successful transfer of students from community colleges to four-year institutions.

Included in this summary are highlights of the most salient findings of the literature review. They are grouped under several major categories:

- Community college programs and strategies that affect transfer
- Intersegmental strategies and policies for transfer and the role of the state
- Transfer outcomes by student characteristics and behaviors

Community College Programs and Strategies that Affect Transfer

Creation of a "Transfer Culture"

Many studies identify "transfer culture" as an omnipresent characteristic of colleges with high transfer rates. Colleges with a transfer culture have implemented elements such as the following:

- Transfer is seen as a high institutional priority
- Transfer is seen by students as expected and attainable
- Rigorous curriculum for all students that includes writing, critical thinking, mathematics, and the sciences
- High quality instruction, including innovative and research-based pedagogies
- Intensive academic support programs based on models of "academic excellence" (e.g. academic counseling, peer tutoring, and reciprocal learning techniques)
- Environment of belonging in which students feel stimulated to achieve at high academic levels
- Strong community and family linkages that foster intellectually stimulating, secure and culturally rich environments for students on and off campus

Role of the President

The literature is clear that the President of the college plays a critical role in establishing and sustaining a transfer culture. Presidents can set the agenda for their colleges, and in doing so, they can raise expectations for transfer. These expectations need to permeate the advising and admissions processes and faculty roles. It must be clear that it is not enough to assist only students who enter with a declared intent to transfer but rather that the college must expand the

horizons for students who may not know that a four-year degree is a reasonable goal for them to consider.

If Presidents have transfer as a priority, they need to:

- Raise expectations for transfer
- Support and use research to measure progress towards the goal and identify ways to improve it
- Ensure that institutional policies and practices are regularly reviewed to see if they aggressively support transfer
- Build relationships with four-year institutions by building relationships with their presidents and by supporting faculty relationships and providing incentives for faculty members to work together on grants and other programs of mutual interest
- Encourage and support programs and services that enhance transfer
- Provide visibility for college's transfer programs, students and faculty members.

College Programs and Strategies that Enhance Transfer

The literature identifies the following as programs and strategies that enhance the transfer function of community colleges:

- Articulation agreements with high schools, especially dual enrollment and middle college high schools
- Arrangements between community colleges and universities that allow universities to offer upper division courses at the community college
- Targeted transfer programs for underrepresented and at risk students – Puente; Math, Engineering, Science Achievement (MESA)
- Improved student awareness about transfer requirements and more "human contact" – faculty to faculty communication; more and effective counseling for students
- Well-resourced transfer centers
- Keeping students connected during a stop-out semester
- Outreach to high schools, communities and families to inform them about transfer requirements

Intersegmental Strategies and Policies for Transfer and the Role of the State

The literature points to the following as significant obstacles to transfer:

- Transferability of community college credits - single greatest barrier to transfer
  - Only about half of students transferring from community colleges receive full credit for all their community college course work upon transfer
  - Of the students who had all community college credits accepted, 82% attained bachelor's degree
  - Of the students who had only some community college credits accepted, only 42% attained bachelor's degree
- Curricular/impacted majors
- Admission and registration

- Housing
- Post-transfer adjustment and support needed

The following strategies and practices have been found as effective in enhancing transfer:

- Statewide articulation agreements
- Community college branch campuses of state universities
- Policies that give priority to community college student transfers over other transfer students
- Common core curriculum
- Guaranteed admissions of students meeting specified criteria
- Financial aid programs targeted specifically for community college transfer students
- Four-year institutions hold regular office hours at the community colleges
- Faculty from universities collaborate with community college faculty
- Peer-advising
- Transfer opportunity and summer programs
- Honors programs
- Niche transfer programs

Transfer Outcomes by Student Characteristics and Behaviors

The intersection between student choice/behaviors and the "structures of opportunity" provided by the colleges is an area that is discussed in a numerous studies. Among the factors that appear to increase transfer success are the following:

- First year credit generation – making sure students end their first community college year with 20 or more credits
- Addressing the problem of excessive no-penalty withdrawals and repeats
- Use of summer terms
- No delay of entry into higher education following high school
- Adequacy of preparatory high school curriculum

Strong predictors for transfer are:

- Completion of a transfer math course by the end of the second community college year
- Full-time enrollment
- Non-rural setting of the community college
- Younger
- Higher socioeconomic status

Transfer ready versus transferred:

- Transfer-ready students take more time to complete educational requirements and enroll in fewer courses that prepare them for transfer than the transfer-enrolled
- Community college transfer-ready students are generally older than University of California transfer-enrolled students

- There are differences in self-reported ethnicity between the groups, with transfer-ready populations containing more students from underrepresented ethnic groups as compared to the transfer-enrolled students
- University of California transfer-enrolled students earned higher overall GPAs during their attendance at California community colleges than the transfer ready students

The Background and Context for Community College Transfer

Numerous reports highlight the importance of a baccalaureate education in preparing students for the jobs of the 21st century (Cuseo, 2001) and for enabling them to earn higher salaries. According to the American Council on Education, today's four-year graduate can expect to earn 61% more annually than a high school graduate. An associate degree holder can expect to earn 25% more than a high school graduate (Dicroce, 2005). For many students, particularly first-generation, low-income, rural, and ethnic and racial minority students (Brooks, Conley, and Freeman, 2005; Hagedorn et al, 2003; Rendon, 1995; Wellman, 2002) the road to a bachelor's degree begins at the community college, which is more affordable and less restrictive in its admissions policies. In 2004, community colleges accounted for 45% of all first-time freshmen enrolled in higher education (Dicroce, 2005), and student enrollment at two-year institutions is increasing at a faster rate than at four-year institutions (Cuseo, 2001).

Since the founding of Joliet Junior College in 1901, transfer has been a primary focus of the community college. Dicroce (2005) and others estimate that somewhere between 40% and 50% of community college students indicate a goal of attaining a bachelor's degree (Phillippe, 2000). The likelihood of students achieving that goal and understanding what factors are most important in determining whether students transfer have been the source of much research and discussion. Wassmer, Moore, and Shulock (2003) remind us of some of the challenges in measuring students' success in transferring:

> "The calculation of transfer rate would seem to be relatively straightforward: the number of students who transfer to a four-year institution divided by the number of potential transfer students. However, there are many possible specifications of this denominator. For example, should it include: (1) all entering students, (2) only students indicating an intent to transfer, (3) only students enrolled in a degree-granting program, (4) students completing a specific number of course credits, or (5) a combination of two of these possibilities?" (p.12-13).

Yet another level of complexity is added because transfer does not always proceed in an orderly and linear fashion, with all students beginning at a community college and moving on to a single four-year college or university. Students' enrollment behaviors follow a range of patterns. "In many cases, transfer is convoluted, zig-zag, or flows in the opposite direction" (Hagedorn et al, 2003, p. 7). Townsend (2001) defines six distinct categories of transfer students, including those who start at a university before entering a community college, and those who "swirl" among different higher education institutions, enrolling when and where it is convenient for them. Given these methodological challenges in measuring transfer, it is not surprising that researchers come to different conclusions regarding the effectiveness of community colleges as a starting point for a bachelor's degree.

One type of studies looks at the likelihood of making the transition from community college to a four-year institution. Typical findings, such as those from Pascarella and Terrenzini (1991), assert that students who begin at four-year colleges are more likely to complete bachelors. Similarly, Cuseo (2001) found that students who begin college at two-year institutions earn 15% fewer bachelor's degrees than students who begin at four-year institutions, even when

controlling for students background, academic ability, high school achievement, and educational aspirations. A recent study of California community college students showed that one-third of a cohort of students who completed University of California (UC) or California State University System (CSU) minimum transfer requirements had not transferred to any four-year college within six years of initial community college enrollment. About half of them earned a degree or certificate, but the remaining 5,000 neither transferred nor earned a degree (Horn & Lew, 2007b, p.9).

On the other hand, studies that look at the outcomes of community college transfer students after they reach the four-year institution tell a different story, often revealing that the success of transfer students matches or even surpasses those of native students. In Florida's State University System, when compared to first-time in college students, AA transfer students exceed retention and graduation rates at all 11 universities (Sandiford, Lynch, and Bliss, 2003). In California, "in the last decade four-year graduation rates for community college transfer students ranged from 75% to 79%. These rates of completion are comparable, and sometimes exceed, the graduation rates of students who began at the UC as first-year students" (Handel, 2006, p. 7). Quanty (2001) used a computerized tracking system to compare the subsequent success rates for students who complete pre-requisite courses at either a Virginia community college or a state university. "The data clearly indicate that, in the vast majority of cases, community college courses provide comparable preparation. . . in only 5.8% of the comparisons did we find students who completed prerequisite at the university performing significantly better" (p. 3). Schmidtke and Eimers (2004) studied 17,226 transfer students who entered the University of Missouri system from the local community colleges between fall 1991and fall 1997 to determine factors influencing graduation rate within six years of entry to the university system. They found that overall graduation rates were very similar for two- and four-year transfers (51% and 52%). Cuseo (2001) found that transfer students who go on to earn baccalaureate degrees have been shown to have comparable economic benefits as students who start and finish at four-year colleges, both in terms of salary levels and measures of job satisfaction.

Cohen (2003) reminds us that community colleges already play a significant role in preparing students for baccalaureate studies. "Over 300,000 of the 2.2 million students who begin postsecondary studies each year in a two-year college transfer to a baccalaureate-granting institution within four years of original matriculation. Seen from the other direction, at least 40% of the students receiving bachelor's degrees each year have some community college credits on their transcripts" (p. 1). The challenge, therefore, is for community colleges to continue to provide strong preparation for transfer and for the two- and four-year educational institutions to work together to increase the number of students who transfer.

It should be noted that the research of transfers and the results regarding transfer rates have improved considerably with the availability of matching student records to the National Student Clearinghouse (NSC) database. The use of NSC data doubled the number of transfer students tracked in research studies. Transfer rates, regardless of methodology, were found to have been underestimated by 25% in past studies once NSC data was examined (Romano & Wisniewski, 2003).

Community College Programs and Policies that Affect Transfer

The comprehensive community college serves many masters: general education, transfer preparation, career training and economic development, remedial education, and non-credit personal enrichment. This multiplicity of missions prevents most community colleges from focusing exclusively on the needs of transfer students. As a result, resources must be allocated among these different objectives, and colleges may not always be able to implement and support worthwhile programs and services.

The literature on transfer includes a number of studies that attempt to analyze the institutional factors that contribute to high transfer rates. The complexity of the transfer process makes it difficult for researchers to find evidence to support the value of specific practices in promoting transfer. Student background and motivational variables; community colleges' structural, academic, and financial situations; and a number of uncontrollable factors (such as the college's distance from a four-year university and the local unemployment rate) can all affect the success of a college's transfer programs. Therefore, a number of the studies make general recommendations that are consistent with other literature on student success and pass a "common sense" test for usefulness, but may overstep the empirical findings from their particular research project, or may be based on correlational findings rather than causal relationships. Finally, a number of researchers, such as Cohen (2003), have emphasized the difficulties of changing transfer rates at a college. "In general, along with many aspects of college culture and outcomes, transfer rates at individual institutions change little from year to year. They are embedded in institutional histories and circumstances" (p. 8). Therefore, the colleges must be realistic in weighing the potential costs and benefits of recommended programs and practices. Cohen, in fact, suggested that the most promising policies for community college to use to increase transfer are articulation agreements with high schools, especially dual enrollment programs and middle college high schools, because of the appeal to more serious students, and arrangements between community colleges and universities that allow universities to offer upper division courses at the community colleges (Cohen, 2003).

Creation of a "Transfer Culture"

Why do transfer rates vary? A study conducted by Cohen and Brawer (1996a) investigated pairs of colleges in seven states that had been identified as high-transfer colleges (rates above 25%) and low transfer-rate colleges (rates below 15%). Data were gathered from faculty and administrator interviews and student surveys.

Major findings included:

- Administrators at high-transfer colleges were much more likely to indicate that transfer was the college's number one function (88% vs. 45%) and much less likely to identify job entry or career update as the number one function (12% vs. 41%).
- Faculty at the low-transfer colleges were more likely to indicate the importance of students gaining knowledge and skills applicable to careers, and were considerably less likely to say that academic advising was helpful in preparing students for transfer or that their institution had a strong relationship with the local universities.

- Low-transfer college students were more likely to enroll in non-liberal arts classes, 48% of total enrollment vs. 41% at high-transfer colleges.
- High-transfer college students were more likely to indicate their primary reason as transfer (63% vs. 54%) and less likely to be interested in entering a new occupation (29% vs. 39%) compared to students at a low-transfer college.

Other studies (Ornelas, 2002, cited in Rivas, Perez, Alvarez, & Solorzano, 2007, p. 2; Shaw & London, 1995, cited in Wassmer, Moore, & Shulock, 2003, p. 14) used this same phrase – "transfer culture" – to signify the priorities of a college likely to demonstrate transfer success. Jaschik (2007) urges the faculty and administrators at both community colleges and four-year institutions that enroll two-year transfers to embrace this emphasis. Handel (2006), who studied the effects of a transfer partnership developed in 1998-99 between the University of California and the California Community College System recommends the following elements to be implemented at community colleges that want to establish a "transfer-going" culture:

- Establish transfer to a four-year institution as a high institutional priority
- Ensure that transfer is seen by students as expected and attainable
- Offer a rigorous curriculum for all students that includes writing, critical thinking, mathematics, and the sciences
- Provide high quality instruction, including innovative and research-based pedagogies
- Develop intensive academic support programs based on models of "academic excellence" (e.g. academic counseling, peer tutoring, and reciprocal learning techniques)
- Create an environment of belonging in which students feel stimulated to achieve at high academic levels
- Establish strong community and family linkages that foster intellectually stimulating, secure and culturally rich environments for students on and off campus (p. 11)

Other researchers reflect Handel's call for a rigorous curriculum by talking about the importance of a "more 'academic curriculum, higher faculty involvement in transfer issues" (Cuseo, 1998, cited in Wassmer, Moore, & Shulock, 2003, p. 14) or an "appropriate curriculum" (Rivas, Perez, Alvarez, & Solorzano, 2007, p. 2) that could encourage undecided students to pursue a baccalaureate degree. Yang (2005) found that colleges with lower per full-time equivalent student (FTES) expenses, resulting from a greater emphasis on transfer-track academic subjects rather than higher-cost vocational/technical programs had higher transfer rates.

Importance of Strong Academic Preparation

Student performance at the community college, not unexpectedly, is strongly related to transfer. Wassmer, Moore, & Shulock (2003) concluded that academic preparedness exerted the greatest positive influence on transfer rates in their study of California transfer rates. Earning an associate's degree (Seppanen, 2000; Townsend, 2001; Yang, 2005) or a substantial number of credits at the community college (Schmidtke & Eimers, 2004; Seppanen, 2000; Yang, 2005) were directly related to the likelihood of transfer and/or baccalaureate completion, as was a high undergraduate GPA (Schmidtke & Eimers, 2004; Yang, 2005).

The importance of an associate's degree in predicting transfer may be of interest in a state like California where most transfer students do not earn a degree before transferring (Horn & Lew, 2007a). In fact, Handel et al (2002) compared "transfer ready" students to those who successfully transferred ("transfer enrolled"), and noted the following differences:

- Transfer-ready students take more time to complete educational requirements and enroll in fewer courses that prepare them for transfer than the transfer-enrolled
- Community college transfer-ready students are generally older than UC transfer-enrolled students
- There are differences in self-reported ethnicity between the groups, with transfer-ready populations containing more students from underrepresented ethnic groups as compared to the transfer-enrolled students
- UC transfer-enrolled students earned higher overall GPAs during their attendance at California community colleges that the transfer ready students

Performance in particular courses, particularly math and science classes, was also found to be a relevant indicator of transfer potential. Horn and Lew (2007b) found that completion of a transfer math course is a "clear predictor of transfer within six years" (p. 9). Chae (2000) stated that one semester of community college math or science increases the probability of transfer by 12 to 16% (Chae, 2000). Finally, Hagedorn's transcript-based study of students in the Los Angeles Community College District uncovered the following: while more than half of all students taking less than transfer level English progress to the next level, many fewer are able to progress in mathematics. "For example, the progress level from intermediate to transfer level math was only 37.1%. Thus progress is frequently impeded and blocked when students cannot successfully master lower level courses" (Hagedorn et al, 2003, p. 15).

Adelman (2006) in his extensive study of a national cohort of students who were in eighth grade in 1988 and whose academic paths were followed through December 2000, found the following:

- Academic intensity of a students' high school curriculum is the most important predictor of bachelor's attainment in the pre-college phase. This becomes an issue of access and equity in preparation, since not all high schools provide adequate opportunity to access appropriate college preparatory courses. Latino students and those from the lowest socio-economic status quintile were specifically mentioned as being much less likely to attend schools where adequate curriculum was available (p. xviii).
- The highest level of math reached in high school was confirmed as a key factor in preparing for baccalaureate work. The completion of a college-level math course by the end of the second year in college is also strongly correlated with eventual degree completion. There are also correlations with a variety of other "gateway" courses within this same time frame (American Literature, General Chemistry, Introduction to Philosophy, World Civilization, etc.) Adelman (2006) advocates strongly for making expectations of these gateway courses public and prominent to high school students, teachers, parents, and new college applicants via display of actual assignments, examinations, etc. "There is no better way to enhance articulation and preparedness than to display what students can expect" (p. xix)
- Earning less than 20 credits by end of the first year of postsecondary enrollment was a strongly negative correlate to bachelor's degree completion. Adelman suggests a

stronger push for dual enrollment programs in high schools to give momentum and give students a "six credit minimum" head start on college (Adelman, 2006, p. xx).

- More than 60 percent of students in the sample for this study enrolled in undergraduate summer terms. Earning more than 4 credits during summer terms yielded a consistently positive relationship with degree completion, and was a particularly strong boost for African-American students in particular (p. xx).
- There is a significant relationship between timing of entry to postsecondary education and degree completion. The longer students wait after high school to enter college, the less likely they will finish a degree.
- This study identified students who, at any point in their college enrollment, fell into part-time status (less than 12 credits per semester). Results showed that part-time attendance, "by whatever means", puts students in jeopardy of failing to complete a degree (p. xxi).
- Over the 8.5 year timeframe of the cohort in the study, students are allowed one stop-out of a single semester (not counting summer terms) in order to still be considered as "continuously enrolled." By this definition, continuous enrollment increases the probability of degree completion by 43 percent (p. xxi).
- Formal transfer from a community college to a four-year college was positively associated with degree completion, while wandering between schools was not. In fact, "swirling" was shown to be negatively correlated with degree completion (p. xxi).
- Factors demonstrating "quality-of-student-effort" are also associated with degree completion (e.g. getting good grades, as reflected by GPA in first college year) (p. xxii).
- Excessive withdrawals/repeats show a particularly striking negative correlation. "…one of the most degree-crippling features of undergraduate histories is an excessive volume of courses from which the student withdrew *without penalty* and those the student repeated. We set this up as a ratio, and marked those who withdrew from or repeated 20 percent or more of their course attempts. Doing so cuts the probability of completing a degree in half" (p. xxii)

The conclusions in Adelman's 2006 study emphasize the intersection between student choice/behaviors and the "structures of opportunity" provided by the colleges. The " five factors" that stand out are: 1.) first year credit generation – making sure students end their first year with 20 or more credits, 2.) addressing the problem of excessive no-penalty withdrawals and repeats, 3.) use of summer terms, 4.) no delay of entry into higher education following high school, and 5.) adequacy of preparatory high school curriculum. "Virtually every one of these factors contributed to closing degree completion gaps, but none more than high school academic curriculum participation" (p. xxvi). Adelman's conclusions also emphasize that these same factors, if addressed, would have a dramatic affect on closing outcome gaps particularly among underrepresented groups.

Whitfield's (2005) comparison of the performance of transfer students in organic chemistry and biochemistry – two key gatekeeper courses – at the university after transfer with that of native university students revealed that transfer students in the sciences experience significant and important declines of GPA upon transfer to the senior institution, which do not necessarily improve as they progress. These findings underscore the importance of ensuring that the curricula at the two- and four-year institutions are "aligned and cohesive" (Whitfield, 2005, p. 540). Whitfield (2005) recommended that "at the state level, leadership is needed to ensure that

colleges make meaningful efforts toward aligning their curricula. Faculty from the community colleges should be included as partners in this decision-making process, rather than being forced to react to changes that are implemented unilaterally at the university level" (p. 542).

Johnson's (2005) study of students transferring into natural resources and sciences found no statistical difference between the academic performance of transfer and native students. Johnson (2005) hypothesized that this may be due to small class sizes, which ease adjustment of transfer students, and/or the geographical isolation of the campus, thus facilitating assimilation of transfer students into the college community.

Targeted transfer programs, such as Puente and MESA, "are typically successful in promoting transfer for the students who participate in them. However, the numbers are too small to have much effect on the overall transfer ratio" (Cohen, 2003, p. 6).

An unusual proposal was presented by Leader and Passaro (2006) to strengthen students' academic preparation for transfer: replace traditional course-based general education requirements with a general education learning outcomes matrix that defines specific student learning outcomes for each area of general education (i.e., math, social sciences, natural sciences, etc.). This proposal is based on the high level of mobility that students have in completing general education requirements at various institutions and the difficulty of developing adequate articulation agreements. The authors recognize that this is a radical departure from traditional modes of general education and conclude this proposal is not for the faint of heart.

Role of Counseling and Dissemination of Transfer Information

Another institutional factor that was identified as being of great importance in the transfer process is the role of the counseling department (CPEC, 2007; Cuseo, 1998, cited in Wassmer, Moore, & Shulock, 2003, p.14).

> "For most community college students, counseling is key to obtaining the college knowledge that will lead them through the community colleges. Unfortunately, counseling is a rare commodity. Interviews at the campuses reveal that the student to counselor ratio is approximately 1000:1. Furthermore, recent state level budget cuts have been especially cruel to the community college system and are threatening to increase the ratio even more. If policy makers truly want to increase student access to higher education at the baccalaureate level, increased attention to the number and quality of counseling services at community colleges is necessary" (Hagedorn et al, 2003, p.18).

Improved student awareness and more 'human contact' (faculty-to-faculty communication and more counseling for students) increase student transfer. However, a survey indicated that 47.5% of California community colleges have an articulation officer less than half-time, and many have transfer center directors less than full-time (Community College League of California, 2000). Dowd and Cheslock (2006) found that critical relationships between transfer counselors and students at community colleges have a haphazard, 'accidental' quality which suggests the need for greater institutionalization of the perspectives and experiences of transfer students in

recruitment, admissions, and financial aid offices. “Without structured interventions and active faculty involvement, students must rely on being in the right place at the right time to connect with trusted advisors who can help them" (Dowd & Cheslock, 2006, p.5).

Gabbard et al. (2006) describes how at one exemplary institution, “all staff members, not just the transfer counselors, work with the program chairs to keep them informed of transfer requirements. In return, the faculty members discuss any new initiatives or outreach in which they are involved with four-year institutions” (p. 39). Henry and Knight’s (2003) examination of what affects the university graduation of transfer students notes the importance of students’ understanding of the bachelor’s degree requirements at the receiving institution and a realistic timetable for achieving the goals. Kerr (2006) indicates that one of the most frustrating issues for students in navigating the transfer process is inaccurate or unavailable academic advising.

Berger and Malaney (2001) surveyed 319 transfer students at the University of Massachusetts who had started at one of five community colleges in an effort to determine the impact of demographic characteristics, perceptions of transfer readiness, and levels of involvement influenced satisfaction at the university. They concluded that the block of variables measuring transfer readiness accounted for more explained variance than did any of the other block of variables (Berger and Malaney, 2001, p. 13). The researchers recommend that community colleges make sure transfer students are actively engaged in learning the requirements of the transfer process and requirements for graduation at the four-year institutions. They concluded that the level of a student’s involvement at community college had almost no effect on students’ satisfaction with and academic achievement in the university setting, although these did increase students’ likelihood of transferring.

Cantrell et al (1996) describes a study to determine the effectiveness of transfer guides developed by the College of Education and Human Services at Montana State University – Billings for students at several regional colleges. The guides, which were developed with input from the faculty, contain information about course transferability, university academic programs, child care, and housing, as well as informing students about implications of “transfer shock” with respect to cultural and academic adaptations and support systems available. Attempts to assess the impact of the guides on student GPA and persistence after transfer were inconclusive.

Transfer Centers

At many community colleges, transfer centers have been established to help centralize information about the transfer process. Poisel and Stinard (2005) reviewed the effects of a comprehensive Transfer Services Center at the University of Central Florida focusing on three elements:

- Preparation: delivery of appropriate and timely information prior to student’s enrollment, including an online transfer guide for students, walk-in service, online instant messaging)..
- Transition: Highly networked, coordinated, and decentralized advising system for student prior to and after transfer (including a counseling manual, workshops, and monthly e-mails to community college counselors; and specialized advising for students undecided about their major)

- Progression: an advocacy system that refers students for support services and a peer mentor program with students trained to provide first-level advising.

They found substantial increases in the use of services and resources, especially online resources, but it is difficult to directly attribute increases in retention and graduation rates to the use of the Center resources.

Henry and Knight (2003) found that transfer centers and designated transfer advisers can serve a valuable function in keeping students connected during a "stop-out" semester, whether students take a break for personal or academic reasons. "Keeping students connected during a stop-out semester may also be critical to their re-enrollment and ultimate persistence to degree attainment" (p. 15).

In California, "in the late 1980's and early 1990's, major legislative and education system initiatives established the framework for implementing transfer and articulation in California. Two major pieces of legislation with this focus resulted in the development of a comprehensive system of transfer, including an intersegmental general education core curriculum (SB 121), and transfer center funding (AB 1725). A complementary antecedent to these efforts was the establishment of the Transfer Center Pilot Program in 1985" (California Community Colleges System Office & California Community College Transfer Center Directors Association, 2006, p.4). The 1985 State Budget included 3.37 million dollars to fund the first year of a three year pilot program in which the California Community Colleges (CCC), University of California (UC) and the California State University (CSU) would cooperate to establish up to twenty Transfer Centers. In 1985-86, an Intersegmental Transfer Center Pilot Program was initiated at twenty community colleges and universities. Transfer Centers were originally established to strengthen the transfer function and to increase the number of California Community College students prepared for transfer to baccalaureate-level institutions through the coordination of college transfer efforts. Berman-Weiler found that the Transfer Centers had fulfilled their objectives in terms of the goals and expectations of the project's intersegmental implementation plan. Berman-Weiler concluded that there was a significant increase in the number of students transferring to the UC in the fall of 1989, but more specifically, state-funded Transfer Center colleges were estimated to have increased the number of students transferring to UC that fall by approximately 30 percent (p.5).

In October of 1990, the California Community College Chancellor's Office published *A plan for Implementing Transfer Center—Recommended Program Guidelines,* which recommended a minimum annual budget of $115,000 for Transfer Center at all California Community Colleges (p.5). Using inflation conversion factors, the equivalent 2004 dollar amounts would be $51,450 for small colleges and $89,098 for medium to large colleges (p. 5). Currently, there is no uniform or minimum level of funding dedicated to Transfer Centers and/or the mission of transfer in the community college system.

In July of 1991, the Minimum Standard for Transfer Centers (section 51027 of Title 5) were adopted by the Board of Governors. Minimum program standards required the governing board of each community college district to recognize transfer as one of its primary missions, and to place an emphasis on the preparation and transfer of underrepresented students.

Intersegmental Strategies and Policies for Transfer

There is wide-spread agreement that articulation agreements between two- and four-year colleges and universities are critical to assisting community college students in overcoming the variety of obstacles that can impede the transfer process (CPEC, 2007; Kerr, 2006; Seppanen, 2001; Wellman, 2002). For some, the state should play a central role in coordinating these agreements. For others, the community colleges and four-year institutions can shape the agreements to fit the needs of their students. Growing attention is being paid to the issue of the transferability of vocational degrees, and to the effects of financial aid on transfer, especially among low-income and ethnic minority students. A number of niche programs have been developed, such as efforts to attract community college students to elite colleges and universities.

Obstacles to Transfer

Cuseo (2001) lays out a series of institutional barriers faced by students interested in transfer to a four-year institution:

- Curricular barriers: multiple missions of a community college means that many courses are non-transferable; lack of a transfer articulation officer at either two- or four-year school; curricular rigidity on the part of the four-year school (not accepting courses, or awarding only elective credit); curricular changes made by the four-year school without consideration or notification to two-year feeder schools; inter-institutional transfer agreements not adhered to by deans or department chairs at four-year institutions
- Admissions and registration barriers: having transfer students register last after native students or incoming freshmen
- Housing barriers: little or no on-campus residential opportunities for transfer students; little or no special assistance for transfer students in securing off-campus housing
- Post-transfer adjustment and support needed: students experience a different institutional culture than they are used to, often less personal/nurturing, more research-oriented, more likely to emphasize selectivity than equal access, more likely to have higher academic expectations but less academic support, more likely to assume that transfer students do not need special assistance because they already have collegiate experience

Cohen (2003) adds the following factors as negatively affecting transfer:

- Large numbers of students transferring to independent institutions, if these are not included in transfer rate calculations
- Impacted majors and programs that limit transfer admissions
- Limited acceptance of community college credits earned in vocational/non-liberal arts courses
- Limited night course offerings at universities.

Transferability of community college credits probably creates the single biggest barrier to transfer for students. Doyle (2006) attempted to examine why the overall baccalaureate attainment of community college transfer students was so low compared to the rate of students who began their studies at four-year institutions. A key finding was that acceptance of transferable units was a key correlate to degree attainment. Only about half of the students

transferring from community colleges receive full credit for all of their courses upon transfer. Of those transfer students who had all of their community college credits accepted, 82% attained the bachelor's degree (7.2% were still enrolled) within the study timeframe. This rate compares favorably with that of four-year native students. However, among transfer students who had "some" of their credits accepted, only 42% attained a bachelor's degree (36% were still enrolled.) Since the transfer of course credit is largely an inter- or intra-institutional responsibility, "eventual baccalaureate degree completion may have more to do with issues outside of [the students'] control than their own choices" (Doyle, 2006, p. 58).

A study of Washington state transfer students (Kinnick et al, 1997) who entered the system through a community college and then moved directly to the university as admitted undergraduates and submitted transcripts to the university showed that 80% of these students were able to transfer more than 75% of the credits they earned at the community college. Credits were not accepted for transfer due to the following reasons: developmental classes (affected 65% of students), low grades (32%), professional/technical courses (31%), above the maximum number of credits allowed (21%), or a duplicate course (5%).

Role of the State

Gabbard et al. (2006) asserts that successful transfer is driven by statewide articulation agreements that guarantee community college transfer students with an AA degree a place at one of the state universities (p. 42). Townsend (2001) recommends states recognize these various transfer patterns in statewide articulation agreements. "Of the 33 statewide articulation agreements in effect in 1999, one third did not cover any pattern of transfer besides upward vertical" (p. 6, ref. Ignash and Townsend, 2000). Dicroce (2005) argues that an associate degree transfer program only makes sense if accompanied by state policy guaranteeing that it meets the requirements of the first two years of baccalaureate study and has translatable value in the context of the four-year general education core curriculum. Instead of this ideal, most two- and four-year colleges still achieve articulation program-by-program, course-by-course (Dicroce, 2005).

Cohen (2003) identifies a number of factors that can positively affect transfer as being the result of state-coordinated action:

- Organizational structures that make community colleges branch campuses of the state universities
- Universities with more flexible admission standards
- State policies that give priority to community college student transfers over other transfer students
- Widespread availability of articulation agreements (either on a course-by-course basis or institution-to-institution)
- Common curriculum core
- Common course numbering
- Guaranteed admission for students meeting specified criteria

Wyoming's community college system has cultivated strong partnerships with its in-state four-year institutions and has seen an increase in successful transfer. Methods included: common course numbering, articulation agreements, university regional centers, remedial education

referrals, active transfer student recruitment, cooperative agency agreements, and 'birth to five' early childhood endorsement program (Ash, 2007).

One of the arguments for state coordination of articulation agreements is the wide-ranging movement of students through several colleges. In the state of Washington, researchers looking at transfer students found that "students moved among the three community colleges and the university as if they were part of a single complex educational system, despite the fact that the institutions are entities of four separate governments, with entirely separate financial processes and curriculum structures. We found students who were concurrently enrolled during the same term at three community colleges, at two community colleges, and at one or more community colleges and the university" (Kinnick et al, 1997, p. 8-9). Slightly more than half the students made only one switch of category (between community college and university or vice-versa), 22% made two switches, and 27% made three or more switches. Institution-to-institution agreements might fail to take into account the different offerings at each of these institutions.

Wellman (2002) looked at how state policy influences transfer patterns. Six states were selected based on grades received on Measuring Up 2000, the state-by-state report card for higher education released by the National Center for Public Policy and Higher Education (2000). Three high performance states (in terms of retention and degree completion) examined were Florida, New York and North Carolina, while the three lower performing states selected were Arkansas, New Mexico and Texas. This study examined dimensions of state policies affecting transfer including governance, enrollment planning, academic policies affecting transfer, data collection, and accountability.

The research found that there was not much difference between high- and low-performing states in their general approaches to transfer policy. The states have comparable policies in terms of core curriculum, articulation, transfer of credit and accessible statewide transfer guides. The one difference noted was in governance structure: the low-performing states have institutional governing structures, whereas the high-performing states have stronger statewide governance. All three of the high-performing states also made better use of data, including feedback to campuses about their performance relative to others.

The authors conclude that none of the six states examined maximized the potential of state policy to stimulate transfer. None had clear goals for 2/4 transfer performance for all institutions or for the state as a whole. Most states included only public institutions in their reporting, neglecting the role of private schools in acceptance of transfer students. In general, the states have very few mechanisms for rewarding institutions that demonstrate high transfer performance. Five of the six states do not have student financial aid programs targeted specifically for transfer students (Texas has a small incentive program). Although the three high performing states do a better job of retaining and graduating students of color, none of the states focus on equity aspects of transfer performance, either in policy or in data reporting. Although research shows that associate degree recipients are more likely to obtain a baccalaureate degree, none of the states provide students with tuition structures or financial aid encouraging them to follow this pattern; most state financial aid is aimed at full-time students in the four-year schools.

Wellman (2005, p. 45-48) concludes with state policy recommendations for energizing two-year to four-year transfer:

- Develop baseline information about statewide transfer performance. Tracking should be student-based, include in-state private institutions, and should seek to understand and incorporate out-of-state transfer patterns where these are common.
- Clarify state policy and plans for two-year to four-year transfer, and set goals and measures for performance. Performance measures should target both two- and four-year institutions, be based on multiple indicators of transfer performance, not be limited to full-time students, and should address disparities in baccalaureate attainments among racial and ethnic groups.
- Identify and invest in core resources for transfer at the institutional level. States should identify campuses with weak transfer programs and either improve these programs or ensure that transfer-potential students have their needs met elsewhere.
- Perform statewide transfer policy audits, to ensure that policies are consistent and that performance measures do not inadvertently discourage transfer. The policy audit should address both academic policies and statewide policies including reporting for time to degree, remediation, financial aid, enrollment planning, tuition, funding, and accountability.
- Make sure that articulation and credit transfer agreements are in place. States should establish common agreements between public two- and four-year colleges about the transfer core curriculum, extending articulation agreements to disciplines and majors as well.
- Focus state policy change on low-performing institutions. Beginning with an objective analysis of factors inhibiting transfer performance at these institutions, create transfer improvement models using cooperative partnerships between community colleges, four-year institutions, and student mentoring programs.
- Use financial aid as a tool to promote two-year to four-year transfer. Ensure that financial aid programs do not exclude large numbers of transfer students through limits on years of enrollment or reduction in awards for part-time students. Create financial aid incentives for enrollment paths most likely to lead to degree completion for transfer students, such as providing stipends or tuition relief at four-year campuses for students who enter with an associate degree.
- Include private institutions in transfer planning and performance accountability.

Systemwide partnerships, such as those developed in California higher education, provide benefits to large numbers of transfer students. Handel et al (2002) discussed the initial effects of a partnership developed in 1997 between California community colleges and the University of California (UC) to increase transfer. Strategies employed by the UC to increase transfer included outreach via printed materials (academic planner, transfer student financing plan), counselor training (Ensuring Transfer Success Counseling Institute, counselor conferences), work with community college instructional faculty, efforts to increase the number of articulation agreements in place, and support for ASSIST, a web-based repository of articulation agreements.

Handel (2006) looked at the changes in transfer numbers between California community colleges and the University of California campuses, focusing on the effects of a partnership developed in

1998-99 between the University of California and the Community College System. The partnership was designed to prepare the needed number of transfer-ready students and to increase the UC's enrollment of transfer students by 50%. From 1998-99 through 2004-05, the number of community college transfer students increased by 29%. Transfer numbers have increased at eight of the nine UC campuses, including Berkeley (13%), UCLA (39%), and UC San Diego (47%).

Washington has a 30-year tradition of the Direct Transfer Agreement (DTA) guaranteeing junior status for transfer students who complete a prescribed course of study. These students have completed general education, and four-year public institutions put a priority on accepting DTA students with an appropriate GPA. About half of all transfer students have completed the DTA and receive the benefits of this statewide articulation agreement (Seppanen, 2001, p. 1).

Articulation Agreements

Beyond legislative policy, the institutions themselves must develop trust and openness to work together collegially to ensure educational quality and student success (Dicroce, 2005). Seppanen (2001) recommends the following strategies for successful articulation agreements: ensuring faculty review at both institutions; stating the number of credits and specific courses to be accepted in the general education requirements and in the major; identifying the number of credits and, if possible, specific courses required after transfer; having the registrar's office at the receiving institution review the agreement; and securing the signatures of several administrators/faculty members at each institution

Exemplary institutional partnership efforts described in Gabbard et al (2006) include:

- Four-year colleges hold office hours at the community college to meet with students, faculty, or staff.
- Faculty from elite four-year institutions meet with community college faculty to discuss gatekeeper courses and curriculum.
- Peer advising at the four-year institutions includes tips for navigating the community college.
- Transfer opportunity programs offer intensive five-week summer residential programs held at four-year universities. Both four-year and community college faculty participate and team-teach.
- Transfer summer programs orient African American and Latino/a students to a new culture and provide ongoing support to help students "handle issues as they come up". This assists students with their adjustment to college life (Gabbard et al, 2006, p. 47).
- Four-year universities offer Science Transfer Associations that "help undergraduate students from diverse social, cultural and economic backgrounds to succeed in the biological sciences and become competitively qualified for admission into medical schools and graduate programs that lead to science careers" (Gabbard et al, 2006, p. 41). Competitive research fellowships are available to students in the program.
- Regional statewide conferences for community colleges and University student services address student development issues related to transfer.
- Community College advisory boards include faculty members from four-year institutions.

- Guaranteed Transfer agreements allow students admission to a four-year college once they complete requirements with at least a 3.0 GPA.
- Honors Programs work in networks and hold "accreditation-like" reviews in order to be certified. Students who participate in the program receive priority for admission to the College of Arts and Sciences at the four-year university.
- "Well-resourced transfer centers employ multiple methods, including websites, transfer fairs, and one-on-one counseling to reach potential transfer students. Often these centers work in collaboration with four-year institutions" (Gabbard et al, 2006, p. 45).
- Transfers Together Program pairs 20 current community college students with peers at the four-year university. "Peer mentors communicate with the transfer student over the summer, welcome them at orientation, and meet with them periodically during their first semester. A transfer student panel at orientation also provides staff members with important feedback about programs and services" (Gabbard et al, 2006, p.53).
- A teaching and learning center at one of the community college provides faculty writing specialists, quantitative specialists, and tutors, many of whom are students of color.

Cuseo (2001) makes recommendations for Institutional Research offices to follow in tracking and strengthening transfer:

- Develop systems for accurately assessing the educational objectives of two-year students at entry and if/how these change.
- Develop systems for tracking transfer students for purposes of assessing their retention and academic performance (without violating the Family Educational Rights and Privacy Act -FERPA).
- Develop accurate indices/measures of successful transfer (e.g. acceptance rates, subsequent retention, academic performance, time to graduation).
- Develop effective entry testing and placement procedures for transfer students.
- Assess transfer rates of student sub-populations (e.g. vocational/technical track students).
- Assess transfer and retention rates of students transferring in different majors or academic disciplines.
- Assess the impact of new student seminars ("student success courses") on two-year students' likelihood of transfer to, and subsequent success in, four-year institutions.
- Assess the impact of transfer orientation courses or seminars at four-year colleges (e.g. impact on transfer student retention, academic performance, time to graduation).

Transfer of Vocational/Occupational Courses and Degrees

Ignash and Kotun (2005) identified a number of reasons for states to encourage transfer of occupational degrees: it is good for the states' economic well-being; it is good for the students' economic well-being because it increases their income and management possibilities; it enhances the efficiency of the postsecondary educational systems because it reduces duplication of coursework; and it follows recent trends in accreditation standards that encourage transferability of occupational degrees. Additional studies (Woodman, 1995; Rice & Beckmann, 1995) further indicate that substantial numbers of two-year college students in terminal degree or certificate programs eventually enroll in additional postsecondary education following completion of their

programs. However, students transferring from non-liberal arts degree programs (e.g., A.A.S.) frequently have to make up course work, lengthening their time to degree (Townsend, 2001).

A survey of 40 state higher education agencies (Ignash and Kotun, 2005) found that 90% of them indicated that occupational transfer was an important or very important issue in their state. However, only 22 of the 40 had developed any statewide agreements in occupational fields, and many of these covered only one field, typically nursing. Most of the states had developed policies that addressed at least one aspect of occupational transfer, such as specifying a core of general education coursework for the AAS degree or creating "inverse" occupational degrees (Ignash and Kotun, 2005, p. 115) that allowed transfer students to take their general education courses during their junior and senior years. While acknowledging the logistical challenges of occupational transfer, the researchers concluded that "today's students may well be right to expect greater transfer opportunities in occupational areas and to question the former 'terminal' nature of these degrees" (Ignash and Kotun, 2005, p. 116).

Townsend and Barnes (2001) examined the relationship between type of associate degree earned (AA vs. AAS and other) on baccalaureate attainment and baccalaureate exit GPA. The population consisted of the 1,585 students who graduated from a community college with an associate degree during the 1995-96 academic year, had enrolled in a public four-year institution by summer 1997, and had earned a baccalaureate degree by the end of spring 2000. They found that 41% of those receiving an A.A. degree transferred, compared to 9% of those receiving other associate degrees. Almost 63% of those who transferred with an A.A. degree earned a baccalaureate by spring 2000, compared to 54% of those with another type of associate degree (a statistically significant difference). No statistically significant difference was found to exist between the baccalaureate graduating GPA of the A.A. degree holders and that of the other associate degree holders. "Because less than 10% of those who received another (non A.A.) kind of associate degree transferred, it may be that they are the 'cream of the crop' among students with these kinds of degrees and thus might be expected to do well at a senior institution" (Townsend and Barnes, 2001, p. 131). They conclude that "leaders of many four-year colleges and universities would be well advised to encourage the transfer of associate degree holders, regardless of type of degree" (Townsend and Barnes, 2001, p. 132).

Pitter (1999) describes articulation activities between higher education sectors in Florida as a result of legislation passed in 1998 requiring articulation of Associate in Science degree programs with baccalaureate programs at the state's universities. Articulating technical associate degrees was a difficult task, since these degrees were originally designed as terminal degrees with a goal of entry-level workforce preparation. The ideal articulation envisioned full transferability of credit hours earned in the Associate in Science degree toward a Bachelor of Science (BS) or Bachelor of Arts (BA), rather than to a Bachelor of Technology (B.Tech) degree as exists in some other states.

In order to achieve this, a statewide committee of administrators from several community colleges and universities was established. The major challenge addressed was how to preserve the "go to work" nature of the AS programs, which often lacked significant credit hours in general education, while addressing the integrity and accreditation requirements of the baccalaureate degrees within a relatively low number of credit hours. The two models explored

were the "career ladder" approach, a statewide framework wherein both the AS and the baccalaureate could be accomplished within 124 to 128 credit hours, and the "capstone" model, in which individual universities accepted AS graduates meeting some minimum entry criteria, and with the baccalaureate portion "sitting on top" of the AS degree (Pitter, 1999).

Some of the obstacles to articulation included:

- Substantially lower general education credit hour requirement for AS degrees (15 hours) vs. baccalaureate (36 hours).
- AS students had not been required to meet cut-off placement scores for mathematics that AA transfer students were held to.
- Faculty teaching AS courses did not always possess the credentials required of baccalaureate level instruction by the regional accrediting association (Pitter, 1999).

Based on the experience of the Florida institutions, Pitter (1999) concludes with important considerations in designing articulation for technical degrees:

- Ensuring that the technical courses within the AS degree are of college level (rather than vocational school level)
- Establishing appropriate credentials of faculty teaching in the AS, which would further guarantee that the courses were taught at a level consistent with baccalaureate education
- Preserving the integrity of both the AS degree (in preparing an individual for a technical occupation) and the bachelor's degree
- Preserving the regional accreditation of the four-year institutions and any relevant specialized accreditation requirements
- Limiting the total number of credit hours required to a reasonable level so that the agreement would in fact provide the student an efficient pathway to both an early technical job, through the AS degree, and a bachelor's degree.

Many of Washington's vocational students transfer under local program-to-program articulations, and more are taking advantage of the alternative bachelor's degrees (such as B.A.S., B.T.) BAS is typically designed for students who have already completed a degree at a community or technical college. This degree is completed by taking general education in liberal arts areas, and additional courses in a minor in a broad area of specialty such as organizational behavior. Most BAS and BT degrees are based on local transfer agreements, but efforts are underway to ensure that the "transferable" technical degrees include college-level general education classes. A proposed transferable technical degree would require a minimum of 20 credits identical to those required in the DTA (Sepannen, 2001, p. 2-3).

Deng (2006) compared 8,746 students from career-oriented and liberal arts oriented programs transferring from the Borough of Manhattan CC (BMCC) to the City University of New York (CUNY) between June 1994 and February 2002. The dependent variable was the GPA for the student's last semester, and the three blocks of independent variables were academic performance prior to transfer, demographic variables, and other variables (such as educational or economic disadvantages). The results of this study indicate the transfer rates for BMCC students who graduate from career-oriented programs are very close to graduates from liberal arts programs and that the mean GPA for career-oriented students was significantly higher than the

mean for liberal arts students at both BMCC and CUNY. However, the senior college graduation rates for both groups were about equal.

Niche Transfer Programs

A qualitative study of students who had transferred from two Hispanic-serving community colleges to Smith College, an elite women's institution, as the result of specially developed articulation agreements revealed that these agreements had substantially raised the students' aspirations. Students had initially enrolled in community college primarily to develop their job skills. "These women, many of whom are non-traditional aged students, were given a second chance to discover their potential" (Wolf-Wendel et al, 2004, p. 222).

Dowd et al (2006) investigated the degree to which low-income community college students have access to the most highly selective institutions in the United States, and documented attitudes and practices that facilitated or hindered this access. The study found that community college access to elite institutions has been shrinking over time. Between 1984 and 2002, the share of transfer students at the most elite private schools declined from 10.5% to 5.7%, accompanied by a similar decline from 22.2% to 18.8% at highly selective public institutions over the same time frame. Among the few community college students who did manage to transfer, only 20% were from low-income households (Dowd, et al., 2006, p. 6). Co-investigators on this project (Gabbard et al, 2006) also identified eight exemplary transfer access programs at selective four-year institutions, both public and private. The study then collected information from these institutions and their community college feeder school to describe practices employed in recruiting, enrolling, and supporting the community college transfer students.

Programs and practices identified at the eight exemplary institutions included:

- Variety of programs designed to recruit and orient low-income and minority students, including peer mentoring, summer residential programs, transfer-related events at the community colleges, and one-on-one counseling
- Financial aid policies that are tailored specifically to the unique circumstances of community college transfer students, including institutional reallocation of funds to support increased availability of aid for low-income transfer students
- Dedicated resources for transfer student support that are maintained over time, including sufficient numbers of line staff and funding directed solely toward active ongoing recruitment, advising and support functions for transfer students
- Use of a variety of internet-based technologies such as online student transfer information systems (transfer websites, online articulation information), online support for matriculated transfer students, and student tracking applications.
- Key roles played by "peer advisors" (students who have transferred and who provide counsel and insight to assist incoming transfer students in overcoming informational and cultural barriers), "transfer agents" (authority figures at both two-year and four-year colleges who assist students in navigating complex academic requirements and application procedures), and "transfer champions" (faculty and administrators who actively advocate for their institutions to adopt policies and practices that promote transfer access and success).

Financial Aid Issues in Transfer

Cuseo (2001) identified the following financial-aid-related problems as having a negative effect on student transfer: little or no portability of financial aid for transferring students, few or no scholarships designated for transfer students, and acceptance letters sent to transfer students after financial aid application deadline dates (Cuseo, 2001, p. 5). Brooks, Conley and Freeman (2005) note a student's ability to continue receiving financial aid, specifically the Pell grant, is an important ingredient in baccalaureate degree attainment for students who begin their education in a community college. Grants impact low-income students more positively than loans. Dicroce (2005) recommends that legislative and state policy makers should incorporate price incentives into state's public policy, including tuition cuts at four-year institutions for transfer students who graduate from community colleges, and scholarships for students beginning their baccalaureate path at a community college.

Yang (2005) found that for every $1,000 increase in four-year tuition over two-year tuition, the probability of transfer decreases by 2.6%. The higher the initial tuition at the community college, the higher is the likelihood of transfer. Together, these findings support the conclusion that tuition gap represents a major barrier to transfer for disadvantaged students sensitive to price change. Because Black and Hispanic students, on average, selected community colleges with lower tuition than Whites or Asians, they were much more subject to effects of rising tuition costs at public four-year colleges, with consequently negative affects on transfer (Yang, 2005, p. 156). For state policy makers, the author notes that "the direct implication from this study is to lower the net tuition gap between two- and four-year institutions through offering direct financial aid to minority transfer-oriented students. The disadvantaged or minority students will benefit more from targeting aid for transfer than from an across–the-board reduction in tuition and fees for all community college students" (Yang, 2005, p. 158).

Transfer Outcomes by Student Characteristics and Behaviors

Much of the transfer research focuses on student characteristics and behaviors, particularly student demographics (findings related to the transfer of underrepresented ethnic minority students are detailed below). To the extent that the colleges can use these findings to remedy problems and develop responsive programs that address concerns, the research can be directly helpful (Kozeracki, 2001), but not all of these findings provide practical assistance. At the least, they can help to make administrators and counselors aware of the general effects of these factors on transfer.

As noted earlier, Schmidtke and Eimers (2004) studied 17,226 transfer students who entered the University of Missouri system from the local community colleges between fall 1991and fall 1997. They determined that two-year transfers did better at urban institutions and four-years did better at residential institutions. The researchers hypothesized that two-year transfers are more successful than four-year transfers at urban institutions because the students come from similar urban institutions and may face "less culture shock than the students who transfer from the urban two-year institution to the residential institution" (p. 16).

A study of 50,000 students with a transfer goal who left the community college system in Washington after the 1997-98 year (Seppanen, 2000) found 23% enrolled at another postsecondary institution within a year; 5% returned after two years; 54% were employed; and the status of 18% was unknown. The likelihood of transferring within a year was found to be related to the students' work status while enrolled at the community college. One-third (32%) of those that did not work or were not seeking work transferred within a year. Similarly, 30% of those working part-time transferred within a year. However, only 16% of those working full-time transferred within a year.

Doyle (2006) used data from the 2001 Beginning Postsecondary Students Survey (NCES) which includes students who began in 1995-96 and were followed for six years. The author looked at different ways to determine the denominator for transfer. Doyle (2006) concluded: "some actions trump intentions: students who are in a position to choose full-time enrollment were the most successful in eventually transferring to a four-year institution" (p. 57.)

Brooks, Conley, and Freeman (2005) discuss the impact of geography on transfer, and state, "most studies indicate that students from rural areas have lower transfer and attainment rates than students from non-rural areas. An implicit assumption of these studies is that students attend community college in the same area where they attend high school" (p. 10). Obstacles for rural students may be distance to a four-year institution and the inability or desire to move away from home.

Wassmer, Moore, and Shulock's review of California transfer practices (2003) identified factors that consistently increase transfer rates: younger student populations, higher socioeconomic status, and better academic preparation in high school; and factors that that increase transfer rate in some studies: students with high expectations for educational attainment and fewer commitments outside school availability of financial aid, citizenship status, and an academic orientation at the college. Similarly, Cohen and Brawer's (1996a) study of high transfer colleges

supported the findings that "traditional" students – younger and more likely to be enrolled full-time – have higher transfer rates. They also identified female, white students as more transfer-oriented.

Using data from the 1998 – 2000 National Education Longitudinal Study, Yang (2005) identified factors showing a positive effect on transfer: being male (slight), having bachelor's degree expectation, enrollment in an academic major, possessing an associate's degree, earning more credits in the first academic year of college, and having higher undergraduate GPAs. The identification of being male with an increased likelihood of transfer is unusual (at least in recent years).

Transfer Opportunities for Underrepresented Minorities

Approximately 50% of all minority students begin higher education at a two-year college (Carter & Wilson, 1995), as do the majority of first-generation college students (Rendon, 1995). The number of ethnic and racial minority students who begin higher education at community colleges is increasing. Factors contributing to this trend include: 1) shifting demographic profiles, indicating that minority students will comprise a growing number of high school seniors over the next two decades, and 2) cutbacks in scholarships and grants, forcing more of these students who are disproportionately in low-income brackets to seek less expensive options at community colleges (Cuseo, 2001). In addition, four-year institutions are more likely to aim their minority recruitment/marketing efforts at high schools rather than at two-year colleges. This is unfortunate since minority students who are ready to transfer from community colleges display postsecondary persistence and achievement which is much more likely to predict their future college success than standard admissions criteria such as standardized test scores (Cuseo, 2001, p. 4).

Wellman, in her study of state policies affecting transfer, states that, "While the baccalaureate degree may not be the best or only goal for all students, there is no public policy rationale for why it should be a lesser goal for students of color than for white students. Improving the effectiveness of 2/4 transfer will be the key to national progress in closing the gap among racial groups in degree attainment—and it will affect far more students than affirmative action policy." (Wellman, 2002, p. v).

Yang (2005) uses data from the 1988 –2000 National Education Longitudinal Study to investigate variables affecting transfer. He states that previous studies of transfer have often lacked controls taking into account student self-selection into different types of colleges after high school. The author concludes that the large disparity in transfer rates that is observed when comparing racial/ethnic groups disappears once other student characteristics, college experience variables, institutional factors, and financial considerations are controlled. This method suggests that the tuition gap between two- and four-year colleges may negatively affect transfer, especially for black and Hispanic students.

Special attention has been paid to the differential transfer rates by ethnicity in California. Wassmer, Moore, & Shulock (2003) report that there is compelling evidence of racial/ethnic disparity in rates of transfer in California Community Colleges. The California Postsecondary

Education Commission studied a cohort of community college students' academic outcomes for five years. "Latino students accounted for one-third of the degree earners but less than a quarter of transfers, despite representing one-third of this group of community college students. Blacks attained degrees and certificates at only two-thirds the rate of their proportion of the students studied and transferred at only half this rate. Asian/Pacific Islanders acquired degree/certificates at just over three-quarters of its share of the students studied, but accounted for nearly twice as many transfers as their proportion of the student population" (CPEC, 2007, p. 2).

Hagedorn and Cepeda (2004) describe a number of programs targeted toward underrepresented students in the Los Angeles Community College District that elicited positive comments from interviewed students:

- East L.A. College specializes in district-wide program for pre-engineering students. The Society of Hispanic Professional Engineers (SHPE) provides a student club that sponsors social and educational events and sponsors student attendance at conferences.
- L.A. Trade Technical College sponsors a robust Middle College High School program that focuses on students taking college courses when their high school program is not in session. Students receive counseling, textbook loans, transportation tokens, and may receive high school honors or AP credit as well as workshops on SATs, mentoring, etc.
- Puente Project and Club. A UC sponsored English and support services program for Latino students intending to transfer. The Club is open to all students whether or not they are in the Puente program.

San Jose City College's ADELANTE Program seeks to engender a social, cultural, and political consciousness to increase pride in Latino identity and a commitment to endeavors contributing to lifelong success. The program serves 30 students. ADELANTE classes that were offered from fall 1990 through spring 1993 were basic writing, career planning, and transfer composition. The overall success rate of ADELANTE students over the first six semesters of the program was 67%, compared to 53% for Latino students in non-ADELANTE sections, and 57% for all other students. Over six semesters, ADELANTE students had higher success rates than other Latino students; however, most ADELANTE sections had small numbers of students so caution should be used in generalizing data (Kangas, 1994).

"The apparent gap in success between African American and other students [in achieving transfer readiness at the Los Angeles Community College District] points to the need for programs designed to help all students succeed. It may be that African Americans in the district that is heavily Latino may feel less welcome or invited to special programs. For example, many of the campuses operate strong and successful Puente Programs that are open to students of all races, but focus specifically on the needs of Latino students. Perhaps a program modeled after the successful Puente should be designed with the needs of African American students in mind" (Hagedorn et al, 2003, p. 18).

Ornelas and Solorzano's (2004) study of the transfer culture at a Hispanic Serving Institution led to the creation of a number of recommendations for administrators, counselors, and faculty:

- Colleges should offer learning communities so "students can experience the transfer process in cohorts" (p. 245), a model followed by the Puente Project

- Students and their parents should have the opportunity to receive financial aid information in Spanish
- Colleges should establish bridge and partnership summer programs with universities and require community college students to enroll in transferable courses at the university
- All students should be required to visit a counselor and develop an educational plan, preferably one that can be accessed online
- Develop creative strategies for disseminating essential transfer information to students, including classroom visits and through student organizations
- Preparation for the transfer process should begin with community college counselor visits to local high schools to inform high school students about college and transfer requirements
- Counselors should reach out to communities and families to inform them about the transfer process and opportunities available at the community college

Finally, they insist on the centrality of the faculty in inspiring and motivating these students:

> "Faculty must implement innovative teaching strategies (critical thinking skills, cooperative learning, learning communities, interactive classroom, and so forth) to engage their students. Faculty members are the first in line within the college to serve as role models and can best motivate their students to excel and eventually transfer. Faculty must be involved at all stages of instituting a transfer process including curricula, recommending policy, and establishing student focus groups to learn how students are doing and feeling about their academic progress and involvement in college" (Ornelas and Solorzano, 2004, p. 246-247).

Handel (2006) looked at the changes in transfer numbers between California community colleges and the University of California campuses, focusing on the effects of a partnership developed in 1998-99 between the University of California and the Community College System. Enrollments by underrepresented minorities grew at the following rates from 1998-99 through 2004-05:

- American Indians: 21.7%
- African Americans: 56.1%
- Chicanos: 49.1%
- Latinos: 52.8%
- Non-underrepresented minorities: 25.4%

While the transfer rates have been impressive for underrepresented minority students, the absolute number of American Indians and African Americans at these campuses are still "extremely small" (Handel, 2006, p. 7).

Several researchers conducted a qualitative study of specially designed articulation agreements between Smith College, an elite women's institution, and two Hispanic-serving community colleges designed to increase the likelihood of women from underrepresented groups transferring to Smith. Results suggest that these programs were successful in raising the aspirations of the students. "It is important to note that these types of transfer agreements are not about improving the transfer rate for community colleges or for students of color. The numbers involved are too small to make a dent in national or even institutional statistics. Rather, these agreements offer new options for student transfer, particularly for those groups of students who have historically

been underrepresented at places like Smith" (Wolf-Wendel et al, 2004, p. 226). Elite colleges that are interested in these types of agreements need to ensure that the proper support services are in place, such as the summer bridge program and an existing Latino community at the receiving institution to make the transition easier for new students.

Transfer Opportunities for Other Nontraditional Students

Striplin (1999) reported that families of first generation college attendees sometimes discourage "educational pioneers" (i.e., first generation college attendees) and this can lead to alienation from familial support; that poor academic preparation presents a persistent obstacle to academic achievement; and that first generation students, in particular, receive poor counseling and advising.

Hagedorn et al's (2003) study of community college students attaining transfer readiness found that older students who expressed an interest in transfer were less successful in completing many of the required IGETC requirements. "It may be that older students were less successful due to discomfort in asking for academic assistance from tutoring centers or other walk-in programs on the campus. Or, it may also be that due to busy lives, older students find it more difficulty to add tutoring or other forms of additional academic assistance to their lives. . . While many policymakers rely on daycare as the sole answer to involvement of nontraditional students, they may ignore the fact that older students likely have families that have outgrown the day care environment. These students may be more likely to be burdened with the needs of school aged children, teenaged children, and aging parents. Programs to assist older students should consider the specific, 'pull factors' that are prominent in these students' lives" (p.17).

Older students' access to classes has been affected more by budget cuts in California, which tend to result in decreased evening and weekend vocational and nontransferable classes. Adult students are more likely than younger students to take these types of courses because their daytime hours are more constrained by work and family obligations. Thus, they are more likely to be affected by a drop in course offerings" (Sengupta and Jepsen, 2007, p.9).

Methodological and Research Approaches to Studying Transfer

As indicated at the outset, assessing transfer, especially calculating a transfer rate for a college, a system, or a state, is extremely difficult (Horn & Lew, 2007b). Definitions about how to calculate a transfer rate "vary depending on the point that the analysts want to make" (Cohen, 2003, p. 2). For example, many states use different definitions in defining transfer rates. Cohen cites:

1. Florida requires at least one-quarter hour of credit at a community college before enrolling in a four-year institution
2. Maryland counts any work at another college or university after leaving the community college as a transfer
3. New York includes first-time enrollees at a state university who attended any other college or university before enrolling at the state university
4. New Jersey requires one or more credits from the sending college to count as a transfer to a four-year university
5. The California Postsecondary Education Commission includes students who earned at least 12 credits from a community college before transferring to a four-year university

The Center for the Study of Community Colleges (CSCC) developed the following definition for calculating a transfer rate in 1989, which has been adopted by the National Center for Education Statistics: "All students entering the community college in a given year who have no prior college experience and who complete at least 12 college credit units within four years, divided into the number of that group who take one or more classes at a public, in-state university or college within four years" (Cohen, 2003, p. 2).

Using this definition, transfer rates have been calculated by CSCC to range from 21.5% to 25.2%, with Cohen stating that "Because of the four-year cut-off and because data from independent universities and out-of-state transfers are not readily available, that definition yields an undercount" (Cohen, 2003, p. 2). While transfer rates nationally hover at around 25%, the range is from 11 to 40%.

The process of determining student intent to transfer relies on careful wording of the question. "When students in degree-credit classes are asked their primary reason for attending, the proportion of bachelor's degree aspirants approximates one-third. . . But a NCES report indicated that in response to the question, 'What is the highest level of education you even expect to complete?' 71% indicated 'bachelor's degree or higher'" (Cohen, 2003, p. 3).

The question of which group of students to use in the denominator of the transfer rate continues to be debated. Wassmer, Moore & Shulock (2003) argue for a more conservative definition. If studies are limited to students who intend to transfer, discrepancies that warrant the attention of policy-makers are found. Results show that, "in determining the factors affecting transfer and in monitoring the transfer function of community colleges, including all students in the transfer rate calculation obscures important information" (p. 30). Hagedorn (2003) hesitates to use a more restrictive definition that excludes students who will make some progress toward transfer. "Most transfer rate formulas seek to eliminate those students who may aspire to transfer but will likely not be able to do so. Thus, we posit, that the restrictive nature of the definitions and use of a

strict dichotomous gauge serve to obfuscate the reality that many students aspire to transfer and will make some progress toward the goal" (p. 7).

Even coming to agreement on a definition of transfer can be complicated. Although most discussion focuses on "vertical" transfer, Townsend (2001) defines six distinct categories of transfer students:

- Transfers to 4-year before completing A.A. Degree
- Transfers with non-liberal arts courses or non-transfer degree (typically a vocationally oriented degree)
- Transfer "swirls" (labeled by de los Santos and Wright, 1989) who attend multiple colleges, sometimes going back and forth between 2- and 4-year institutions. This group includes reverse transfer students, who move from 4-year to 2-year colleges.
- High school students transferring high school dual credit courses offered by community colleges to 4-year schools.
- Four-year students taking courses at a community college in summer, but returning to a 4-year school for regular academic year
- Concurrently enrolled students taking community college and 4-year courses at the same time, usually to speed up or make up work at 4-year institution.

Despite these complexities, the vast majority of published studies use quantitative approaches to describing and evaluating transfer (Kozeracki, 2001), usually drawing on campus, system, state, or national data in an attempt to identify factors that increase the likelihood of transfer and baccalaureate degree attainment. While individual colleges and universities may be conducting interviews or focus groups with students to gain a more nuanced understanding of the effects of specific policies or programs on students, these findings are generally not accessible.

Schmidtke and Eimers (2004) studied 17,226 transfer students who entered the University of Missouri system between fall 1991and fall 1997 to determine factors influencing graduation rate within six years of entry to the university system. They identified three types of transfer students: from 2 year, from 4 year (not within system), from 4 year within system. Independent variables included the type of transfer source institution (2-year, 4-year outside system, 4-year within system), transfer GPA, number of transfer hours/units, type of institution transferred to (urban non residential vs. residential), gender, age, and ethnicity. Analysis used logistic regression.

Horn and Lew (2007a) examined a cohort of 514,376 students who entered a California community college for the first time in 2000-01 and followed them for six years. They found that 17% of them had transferred by 2006 and that 6% of them had become transfer-ready. Two-thirds of the transfer-ready group actually transferred to a four-year university ("articulated transfers"), but they constituted only 23% of the total transfer students. Therefore, two-thirds of the transferring students, known as bridge transfers, took transferred without meeting the minimum requirements for transfer at a UC or CSU.

Wassmer, Moore, and Shulock (2003) used three statistical models to explain differences in transfer rates across colleges, two different methods of calculating transfer rates and two different time spans to observe transfer. The first model was a broad inclusive transfer rate

measured over three years; the second model used the same rate, but calculated over six years, and the third model used a narrower set of criteria to determine the transfer rate and used six years as the period of measurement.

Yang (2005) uses data from the 1988 –2000 National Education Longitudinal Study to investigate variables affecting transfer. The large disparity in transfer rates that is observed when comparing racial/ethnic groups disappears once other student characteristics, college experience variables, institutional factors, and financial considerations are controlled. This method suggests that the tuition gap between 2- and 4-year colleges may negatively affect transfer, especially for black and Hispanic students.

Brooks, Conley, and Freeman (2005) used information from the National Center for Education Statistics (NCES) 1996/01 Beginning Postsecondary Students Longitudinal Study to determine if student characteristics, location of the institutions, and continuity of Pell were related to baccalaureate completion for students who started in a community college.

Hagedorn et al (2003) examined the transcripts of approximately 3300 students included in the Transfer and Retention of Urban Community College Students (TRUCCS) study who indicated an intention to transfer. They tracked students' progress along the IGETC transfer path using a baseball metaphor in which each step of four steps represented movement from first to second to third base and then onto home plate (transfer readiness). The four steps to be completed (in any order) were: 1) meeting the IGETC English requirement, 2) meeting the IGETC Mathematical Concepts requirement, 3) completing any two of the remaining four modules (physical/biological sciences; history, constitution, and American ideals; arts and humanities; and social and behavioral sciences), and 4) completing the last two modules. They found differences in outcomes by ethnicity, but few to no differences based on age or English as a primary language. They also identified the completion of a transfer math class to be a significant stumbling block to achieving transfer readiness for a substantial number of students.

Quanty (2001) developed the Course-Based Model of Transfer Success (CBMTS). The author found that using students and student characteristics as the "unit of analysis" in transfer studies did not produce data with clear implications for improved outcomes; it only identified the problem. CBMTS is designed compare the subsequent success rates for students who complete pre-requisite courses at either a community college or 4-year institution. Quanty (2001) used a FIPSE grant to develop a sophisticated computerized tracking system to generate data among 23 community colleges and 6 universities in Virginia. He found that in the vast majority of cases, community college courses provide comparable preparation.

Berger and Malaney (2001) studied transition to the University of Massachusetts from 5 community colleges. They conducted a random telephone survey of 319 transfer students to explore the relationship between several measures of student satisfaction and a range of demographic variables, involvement measures at the two- and four-year institutions, and perceptions related to preparation for transfer. They used blocked hierarchical regression for each dependent variable, and concluded that factors related to transfer readiness were more influential in student satisfaction than issues related to demographic variables or involvement at either the community college or university.

Deng (2006) compared 8,746 students from career-oriented and liberal arts oriented programs transferring from the Borough of Manhattan CC (BMCC) to the City University of New York (CUNY) between June 1994 and February 2002. The total sample was 8,746 (68% from career-oriented programs). Almost 90% of BMCC students are minority (African-American, Hispanic, or Asian). The dependent variable was the GPA for the student's last semester, and the three blocks of independent variables were academic performance prior to transfer, demographic variables, and other variables (such as educational or economic disadvantages). Stepwise multiple regression was used for analysis. The results of this study indicate the transfer rates for BMCC students who graduate from career-oriented programs are very close to graduates from liberal arts programs and that the mean GPA for career-oriented students was significantly higher than the mean for liberal arts students at both BMCC and CUNY. However, the senior college graduation rates for both groups were about equal.

A number of the researchers used qualitative approaches to explore students' perceptions of the transfer process. Wolf-Wendel et al (2004) studied the adjustment process of women who transferred from two Hispanic-serving community colleges to Smith College, an elite, private women's college, under articulation agreements designed specifically to stimulate interest among non-traditional and underrepresented groups in Smith College. Kerr (2006) conducted interviews and a content analysis of university documents to investigate the factors that transfer students identify as significant in shaping their transfer experience and to better understand how transfer students' expectations of their university experience align with their actual experience. Fourteen students at one university were interviewed using a protocol consisting of 12 open-ended questions related to their expectations, experiences, and adjustment. Results focused on the importance of accurate and easily available advising.

Finally, Gabbard, et al. (2006) used a combination of quantitative and qualitative methods to look at how highly selective universities reach out to low-income students. They started with multivariate regression analysis of data from the Annual Survey of Colleges of the College Board ("College Board Survey") to identify 60 four-year, highly selective institutions whose overall transfer rate was higher than those of institutions with similar characteristics. The selection controlled for factors such as geographic proximity to feeder schools. Document analysis, including reviews of literature, news reports, national reports and institutional websites, and interviews with national transfer experts, was then conducted to delineate a list of specific features, policies and practices associated with successful transfer. Institutional profiles of the 60 colleges identified as high-transfer institutions were then compared to the effective features outlined from the document analysis, and eight exemplary institutions were selected for further field research and case study analysis. Research teams spent two days at each of the four-year institutions and one or two days at their respective community college feeders conducting interviews with key personnel, and employing a Transfer Capacity Self-Assessment Inventory to examine informational and cultural barriers to transfer access.

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APPENDIX A. Articulation and Transfer Resources

Articulation-related Organizations within California

1. CIAC: California Intersegmental Articulation Council: http://ciac.csusb.edu/ciac/
2. IMPAC: http://www.cal-impac.org/
3. OSCAR Advisory Committee: http://info.assist.org/oscar_advisory_members.html

Transfer-related Organizations within California

1. Transfer Center Director's Association: http://www.cccco.edu/divisions/esed/aa_ir/transfer/transfer_links.htm

California Statewide Advisory Boards Related to Transfer and/or Articulation

1. UC-CCC Transfer Advisory Board: www.ucop.edu/tab/documents/membercontacts.pdf
2. CSU-CCC Transfer Advisory Board
3. CCC Academic Senate Transfer and Articulation Ad Hoc Committee: http://www.asccc.org/ExecCom/AdHoc.htm
4. CSU LDTP Transfer Advisory Committee: http://www.calstate.edu/AcadSen/Committees/LDTP/agendas.shtml
5. ASSIST Board of Directors: http://info.assist.org/
6. California Postsecondary Education Commission: http://www.cpec.ca.gov/SecondPages/TheCommission.asp
7. ICAS Transfer Discussion Report: http://www.universityofcalifornia.edu/senate/news/source/ICAS.Transfer.Docmnt.0505.pdf

Other Transfer and Articulation-related Organizations

1. National Articulation and Transfer Network: http://www.natn.org
2. Institute for the Study of Transfer: http://www.unt.edu/transferinstitute/index.html
3. Western Undergraduate Exchange: Western Interstate Commission on Higher Education: http://wue.wiche.edu/
4. California Colleges.edu: http://www.californiacolleges.edu/
5. UC Transfer.org: http://www.uctransfer.org/
6. CSU mentor: http://www.csumentor.edu/
7. Urban Transfer Research Network: http://utrn.coedu.usf.edu/
8. ASCCC Curriculum (Primarily Transfer Curriculum) Resources: http://www.curriculum.cc.ca.us/
9. California Roundtable/ICC/Committee on Transfer: http://www.certicc.org/abouticc.aspx
10. Servicemembers Opportunity Colleges (military transfer): http://www.soc.aascu.org/
11. AACRAO: http://www.aacrao.org/pro_development/transfer.cfm
12. New England Transfer Association: http://www.ne-transfer.org/
13. Education Commission of the States—*Improving Articulation Policy to Increase Transfer* (1998) www.communitycollegepolicy.org/pdf/2265_articulation.Pdf
14. National Center for Public Policy and Higher Education and the Institute for Higher Education Policy—*State Policy and Community College-Baccalaureate Transfer* (2002) www.highereducation.org/reports/transfer/transfer.shtml
15. Western Interstate Commission for Higher Education—*State Financial Aid: Policies to*

Enhance Articulation and Transfer
www.wiche.edu/Policy/Changing_Direction/documents/Financial_Aid_and_Articulation_000.pdf
16. Education Commission of the States—*Transfer and Articulation Policies* (2001) www.ecs.org/ecsmain.asp?page=/html/issuesPS.asp
17. Western Interstate Commission for Higher Education—*State Policy Issues Database Online (SPIDO): Articulation and Alignment* www.wiche.edu/policy/SPIDO/index.asp
18. The National Center for Education Statistics offers transfer data: *Community College Transfer Rates to 4-year Institutions Using Alternative Definitions of Transfer* (2001) http://nces.ed.gov/pubs2001/2001197.pdf
19. *The Road Less Traveled? Students Who Enroll in Multiple Institutions* (2005) http://www.nces.ed.gov/pubs2005/2005157.pdf
20. American Council on Education, Council on Higher Education Accreditation, and American Association of Collegiate Registrars and Admissions Officers—*Joint Statement on the Transfer and Award of Credit* (2001) www.acenet.edu/AM/Template.cfm?Section=CLLL&Template=/CM/HTMLDisplay.cfm&ContentID=7837
21. U.S. House of Representatives Committee on Education and the Workforce—Hearing on "College Credit Mobility: Can Transfer of Credit Policies be Improved?"(May 5, 2005)

APPENDIX B. California Articulation and Transfer Statewide Partnerships/Initiatives

California Intersegmental Articulation Council (CIAC)
Created in 1993, this is a group of articulation professionals from all four segments of higher education in California: California Community Colleges (CCC), California State University (CSU), University of California (UC) and the private institutions, primarily those from the Association of Independent Colleges and Universities. CIAC sponsors regional meetings, hosts an annual conference, maintains a handbook of articulation policies, serves as a liaison to important boards, influences legislation, and more.

Intersegmental Major Preparation Articulated Curriculum (IMPAC) project
Begun through a 5 million dollar grant, this project brought together faculty from the UC, CSU, and CCC to discuss curricular issues by discipline. More than 167 descriptors of common course preparation were created and revised through IMPAC. Work accomplished by IMPAC served as a foundation for subsequent statewide initiatives.

ASSIST/OSCAR
www.assist.org
These state-funded programs serve as the online repositories for all articulation information for publicly funded higher education institutions. ASSIST *(Articulation Systems Stimulating Inter-institutional Student Transfer)* is available to the public and generates more than 1 million hits per month. OSCAR *(Online Services for Curriculum and Articulation Review)* is the online database for community college course outlines submitted for transfer approval.

CSU Lower Division Transfer Pattern (LDTP) Project
This was CSU's response to a legislative mandate to articulate all lower division major preparation transfer courses. CSU faculty created a common set of major preparation courses (and many corresponding course descriptors) for the most popular transfer majors. CCC discipline faculty and articulation officers participated in some LDTP committees.

UC Streamlining
Still in the formative stages, this project will create statewide transfer preparation grids for UC's 20 most popular transfer majors.

California – ID Project
This new initiative intends to build on existing projects to develop a super-numbering system that will link comparable courses in and between CCC, UC and CSU campuses, particularly in relation to major preparation.