Best Practices in Statewide Articulation and Transfer Systems

Research Literature Overview

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INTRODUCTION

Lumina Foundation For Education has funded many efforts to improve the educational outcomes of students, institutions and agencies in higher education. In addressing systemic issues in education achievement—and specifically college completion—Lumina has been a leading organization supporting initiatives to understand and overcome the many, varied challenges to college-going and baccalaureate degree completion, especially among disadvantaged people. Through projects such as KnowHow2Go, promoting strategies for college-going among poor and minority youth, and Achieving the Dream, helping community college students to succeed, Lumina has provided both thought and strategic leadership. This research project has been supported by Lumina with the purpose of identifying and promulgating best practices in statewide transfer and articulation systems in public higher education.

This literature review is intended to serve as an overview of the studies that are relevant to our research. It is not, however, a comprehensive literature review of all areas of articulation and transfer, nor does it include many interesting topics that, while somewhat related to the topic of the present research, are beyond its scope.

OVERVIEW

In difficult economic times, enrollments in higher education traditionally increase, especially in public colleges and universities. This is particularly true for community colleges. Their geographic locations, open admissions policies and lower costs, as compared to other sectors in higher education, make them more accessible to a wider range of learners, especially those groups generally absent, (i.e., people of color, first generation college students, and adult learners). While record numbers are enrolling, however, degree completion rates have stagnated. This has serious economic and civic implications for our nation, according to the academic and popular literature alike.

As Townsend, Bragg and Ruud (2008) recently wrote "As states' primary engine for workforce development, public higher education must develop degree pathways and infrastructures that ensure adult learners receive postsecondary education, including to the baccalaureate level (p.1)." In an earlier article Wellman (2002) revealed a similar position, emphasizing the critical role of community college to four-year institution transfer. Assuming that the baccalaureate is increasingly the "entry point to the workforce for the majority of 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 since more minorities enter higher education through community colleges (p. v)."

The volume of literature on the topics of student transfer and persistence reflects the magnitude of the problem. In the last ten years alone, many authors have contributed thousands of articles on the topic. Beyond attracting the attention of independent scholars, major national foundations and educational associations have commissioned several national studies to understand and improve college student success rates. Recently, the Bill and Melinda Gates Foundation announced a new funding initiative focused specifically on increasing the college completion rates of college students, especially those of community college students. Placing the disappointing completion rates in a global context, Melinda Gates observed "We were once first in the world in postsecondary completion rates. We now rank tenth. That's a danger for the nation's economy, and it's a tragedy for our citizens." (Jaschik, 2008).

Community College Student Enrollment and Demographic Trends

Studies of enrollment data reveal the importance of articulation and transfer as a topic of study. Trends in community college student enrollment and the related impact on student transfer—and the studies around those topics--reveal much that is important to this research. Most of the literature uses data from the U.S. Department of Education National Center for Educational Statistics' (NCES) data, specifically, from the Integrated Postsecondary Educational Data System (IPEDS), National Education Longitudinal Study (NELS) and the Beginning Postsecondary Students Longitudinal Study (BPS).

According to these sources, a total of 6.2 million students were enrolled in community colleges in Fall 2006. While the majority of community college students are Caucasian, "community colleges frequently enroll relatively larger percentages of minority students compared with public and private non-for-profit 4-year institutions. (NCES, 2008, p. 5)."

These sources also report that 35 percent of community college students in 2003-2004 were over 30 years old and another 18 percent ranged in age from 24 to 29. In comparison, 13 percent of students in public four-year institutions were 30 years and older, while 16 percent were ages 24 to 29.

In terms of gender, 59 percent of community college students in 2003-2004 were female, compared to 54 percent of students in public four-year institutions. Finally, first time enrollees in community colleges are generally poorer than in public four-year institutions. Individuals who fall in the "lowest 24 percent of income" category constitute 44 percent of community college students as compared to 35 percent of students in four-year public institutions.

Overall, community college students are more likely than their counterparts at public four-year institutions to be persons of color, female and part-time, and are generally older and poorer. There is disagreement in the literature, however, about what effect, if any, these factors have on student rates of persistence and degree completion. The exception is socioeconomic status, which has been found to have a slight impact on degree completion rates (Adelman, 2006, *xxiii*).

According to NCES, 35 percent of all postsecondary students are enrolled in community colleges (NCES, 2008, p. *iii*). The rate at which community college students persist and complete their bachelor's degrees, however, is much lower than that of students who began their studies at four-year public colleges and universities: 17 percent as compared to 45 percent as reported in the *Community Colleges: Special Supplement to the Condition of Education 2008* report (ibid., p. 22).[i] Hence the obvious and ongoing concern of the states and higher education's professional community in helping more community college students move efficiently or seamlessly to public four-year institutions to complete their degrees.

Having sketched out the importance of the overall topic area, we turn our attention to a key subtopic, that of student transfer.

STUDENT TRANSFER

The literature on statewide transfer and articulation systems generally include some discussion of the phenomenon of student mobility, i.e., the patterns and rate of student transfer, of enrollment statistics and trends, including student demographics, of efforts to address the issue of community college student persistence, and of course, of the definition of the essential terms, "transfer" and "articulation." This is certainly central to the work of those addressing the issue of transfer from two-year to four-year public institutions of higher education.

While there are some minor differences in the literature on the definition of the term "transfer," most define it as the process of moving a student's credits across different institutions. Very closely related to this term, so much so that they are almost always used as a single concept, is that of "articulation" which is generally understood to mean the institutional policies or other structures that are implemented to encourage, facilitate and monitor the student transfer process. Ignash and Townsend (2000) provide a succinct distinction, "The difference between the two terms is perhaps most easily perceived as one between the 'who' and the 'what' (p. 174)."

Effect of Student Academic Behavior on Transfer

Under the heading of academic factors that affect community college students' transfer eligibility, there are discussions in the literature concerning the practices and policies of required placement testing and remediation for incoming students. Here, as in other areas, there are different rates reported. One source reported that "42 percent of all first-year community college students were taking remediation" (Parsad & Lewis as cited by Dougherty and Reid, 2007, p.14). According to NCES' *Special Supplement to the Condition of Education 2008* report, remediation in the fundamentals of college reading, writing and mathematics was required for approximately 29 percent of first generation community college students entering in 2004 as compared to 19 percent of first generation students entering public four-year institutions that same year. The actual numbers are probably higher, according to NCES, because they are based on self-reported data from first-term students only.[ii]

Questions are raised in the literature concerning the effect of remediation on baccalaureate degree completion rates and time-to-degree rates. According to Adelman's comprehensive study (2006), *Toolbox Revisited: Paths to Degree Completion from High School through College*, "sufficient numbers of students who took remedial classes successfully moved through them so that remediation did not make a strategic difference in degree completion" (p. *xxiii*). Other researchers were less assuring. Citing multiple previous studies that support their findings, Dougherty and Reid (2007) write, "Unfortunately, the research on remediation has not reached definitive conclusions on what kind of remediation works best with what kinds of students and what is the most effective role for state policy in fostering effective remediation" (p.14).

However, other types of student academic behavior are also significant for those interested in improving degree completion rates. Systems which allow excessive course repeats incur Adelman's sharp criticism as impediments to their students' "academic momentum."[iii] Systems that allow students to repeat any course for a grade innumerable times clearly obstruct timely graduation rates, which is an accountability issue for policymakers and higher education administrators alike. As Adelman points out, such lax policies also impinge on another critical policy issue in higher education, that of equitable access. Students who are permitted excessive course repeats may prevent other students from enrolling in these classes (Adelman, 2006).

According to the literature, other academic factors that are positively associated with student transfer and baccalaureate completion rates include full-time rather than part-time enrollment , continuous enrollment, dual enrollment,[iv] completing a minimum of 20 credits during the student's first year, and the use of summer sessions to acquire credits towards graduation (Adelman, 2006).

Certain factors have an impact on a community college student's "academic momentum" towards his/her achievement of a bachelor's degree. According to one recent study "… successful completion of intermediate outcomes-such as passing college-level math and writing courses, meeting specific credit thresholds, and earning an associate degree-enhances students' probability of transfer" (Roksa & Calcagno, 2008, [p. 2]).

Both course load and grade point average have been shown to impact the likelihood of community college student transfer. Driscoll (2007) shows that community college students who enroll full time in transfer

eligible courses in their first semester, and who earn a C average or better in these classes plan to transfer more often than do other students. Similarly, Eddy, Christie, and Rao (2006) provide further support that full time enrollment in the first semester coupled with the completion of an associate's degree are determinants of transfer in traditional age community college students (2006). Gao, Hughes, O'Rear, and Fendley (2002) found that transfer students with 32 or more transferred credits are more likely to earn a bachelor's degree within four years of transferring to a four year institution than are native students (2002). Gao et al. also found that the first term performance of both native and transfer students was the largest determining factor of their subsequent academic performance and ultimate graduation.

Though the three previously cited studies were conducted using either national data sets or quantitative data available to institutional researchers, a study completed by Hagedorn, Lester, Garcia, McLain, and May (2004) used qualitative methods and focused on potential transfer student experiences and perceptions. Perhaps these findings come as cold comfort to transfer students, but they do corroborate the importance of academic performance as a prerequisite to transfer. Many of the students stated that they recognized the necessity of performing well in transfer courses, and feared that these courses (especially math) would prevent them from transferring. Two factors appear to contribute to these fears: a lack of knowledge about support services available at their community college and the strain of paying for tuition and supporting their households while attending college.

Another study, with direct implications for statewide policies on transfer and articulation, was completed by Townsend in 2002. Findings indicate that students who transfer with A.A. degrees tend to have lower grade point averages (3.12) than do students who transfer with either A.S. or A.A.S degrees (3.18). However, students with A.A. degrees tend to graduate at a rate that is much higher and statistically significant compared to students who earned either an A.S. or an A.A.S. Interestingly, the author compares these findings to those from the states of Florida and Georgia and finds that the same pattern is apparent in those states both in terms of grade point average and in graduation rates. These apparently robust findings may have implications for statewide policy, and appear to indicate that requiring an A.A degree prior to transfer may positively influence graduation rates.

A 2007 evaluation of Arizona's statewide articulation and transfer system conducted by Hezel Associates found conflicting evidence regarding the impact on graduation rates of completing an associate's degree. Hezel Associates found that possession of an A.A.S. or A.G.S. was associated with increased likelihood of graduating only when a student also possessed an AGEC – Arizona's general education curriculum. Students with an associate's degree but no AGEC, on the other hand, were no more likely to graduate within two or three years than those who transferred with credits only (Hezel Associates, 2007).

The literature on student transfer also includes a great deal about the need for ongoing statewide data collection and evaluation, comprehensive and accessible transfer and degree completion advising tools for students, as well as special financial incentives to encourage students to continue their education and to complete their four-year degree programs (Anderson, Sun & Alfonso, 2006). Other recommendations from the literature will be discussed below in a section of the components of statewide transfer and articulation systems.

TRANSFER DIRECTIONS

Another prominent topic in the literature concerns the increasingly diverse transfer patterns among college students. While the conventional upward or vertical transfer remains the single most common type, students are increasingly using other options. The next section on transfer rates will discuss the deceptively simple and pivotal metric. The various patterns recognized in a 2001 BPS report demonstrate quickly how dynamic the current student transfer scene has become:

- 25 percent of beginning community college students transferred to a four-year institution (vertical transfer)
- 13 percent of beginning community college students transferred to another two-year institution (lateral transfer)
- 11 percent of beginning four-year college students transferred to a less than four-year institution (reverse transfer)[v]

Another category of student transfer, known as "swirlers," alternate between two-and four-year institutions and alternate frequently. Some claim that as many as eight percent of enrolled college students follow this pattern, though others believe the rate is much higher (Adelman, 2006, p. *xvi*)[vi]

As to the effect of various patterns on degree completion rates, Adelman's statistical modeling reveals that, even after allowing up to 8.5 years for bachelor's degree completion, "Both the classic community college transfer variable [vertical pattern] and the four-year-to-four-year transfer variable stay in the model with positive contributions to the probability of degree completion of 18 percent and 15 percent respectively, even as the multi-institutional variable [swirling pattern] strengthens with a negative parameter estimate and a restraining influence of 22 percent on the probability of degree completion (Adelman, 2006, p. 72-73)." In short, vertical transfer and lateral transfer are both associated with increased probability of degree completion, but swirling is shown to have a negative influence.

MEASURING STUDENT TRANSFER AND DEGREE COMPLETION

While there are many areas of contention in the literature on transfer and articulation, none is more prevalent than that of a key performance metric, the transfer rate. This is because different numerators have been and are used to calculate the rate itself. This results in differing assessments of the actual transfer performance of the community colleges and their students (Roksa & Keith, 2008).[vii]

The alternative numerators include the following:

- Students who transfer after attaining their associates' degrees
- Students who transfer after completing a minimum number of credits but prior to attaining their associates' degrees
- Students who enroll for a second year
- First-time students who enroll full-time
- Students who intend to transfer to a four-year institution as stated prior to their enrollment in the community college
- Students who intend to transfer to a four-year institution as indicated by their enrollment in academic courses or programs (versus occupational or workforce development programs)

The recent work by Doyle (2006) is particularly helpful in examining the effect of the various numerators on the transfer rate. Using 2001 BPS data, which are based on the six-year timeframe for measuring goal achievement, Doyle calculated the transfer rates for students who had the attainment of a bachelor's degree as their goal (66 percent transferred), for students who enrolled in academic coursework (62 percent transferred), for those who enrolled in a second year (63 percent transferred), and for those students who were enrolled full-time in their first college term (72 percent transferred).

These percentages differ from the lower statistics given on community college transfer rates. For example, Roksa and Calcagno (2008) recently reported "Transfer rates can vary from a low of 25 percent for all first-time community college students to a high of 52 percent for students who enroll in an academic major and take courses toward a bachelor's degree" (p.6).

Another aspect of Doyle's findings is particularly salient for the purposes of this study. Comparing the degree completion rates for students who had transferred all of their credits to a four-year institution with those who had only some of their credits transferred, Doyle (2006) found that 82 percent of the first group graduated within six years of starting college versus 42 percent in the second group. Furthermore, of those in the second group, another 36 percent were still enrolled and 19 percent had left higher education without a degree.

The Hezel Associates evaluation of Arizona's transfer and articulation system also found that over the five year period after which Arizona's transfer system was put into effect, "…students from each succeeding year graduated with almost two and a half fewer credits than those from the year before, holding all other variables constant." Thus, over the five year period the Arizona transfer and articulation system helped transfer students to decrease the number of credits at graduation by approximately 12 credits – or nearly one full semester (Hezel Associates 2007).

The literature recognizes that to increase the number of credits transferred by community college students to public four-year institutions more is required than diligence on the part of individual students and their colleges and universities. As stated in the introduction, states have an interest in having an educated workforce and citizenry. As such, states have a responsibility to improve the process of transfer of student credit. The American Association of Community Colleges and the American Association of State Colleges and Universities (2004) issued a joint report, "Improving Access to the Baccalaureate," which acknowledges that "the troubling aspect for many educational leaders …is finding ways to bridge the gap between the community college and the university (p.11)."

The mechanism used most often by states to bridge this gap is a statewide transfer and articulation agreement. Citing Adelman, Townsend and Ignash (2000) acknowledge that "Given the likelihood that the majority of today's college students will transfer two or more times, it is imperative that states have articulation agreements that facilitate this transfer (p.4)."

PREVIOUS STATE-BY-STATE STUDIES OF TRANSFER AND ARTICULATION SYSTEMS

There have been several major research studies done on statewide transfer and articulation agreements, documenting their various aspects. Insofar as these works are foundational for this study, a review of their basic approach and key findings is in order here.

An early study, done by Ignash and Townsend (2000), surveyed leaders at the state educational agencies and local community college levels concerning the directions of student transfer, the segments involved, the components of the transfer agreements and the degree of faculty involvement in creating and maintaining the agreements. The survey results were assessed in light of "seven guiding principles for establishing strong statewide articulation agreements …identified from the literature and from state-level policies during the pilot phase of this research [p.3]."

The core principles, to which much of the subsequent scholarship literature makes reference, are as follows (Ignash & Townsend, 2000, p. 176-179):

- Associate and baccalaureate degree-granting institutions are equal partners in providing the first two years of baccalaureate degree programs.
- Transfer students should be treated comparably to 'native' students by the receiving institutions.
- Faculty from both the two-year and four-year institutions have primary responsibility for developing and maintaining statewide articulation agreements.
- Statewide articulation agreements should accommodate those students who complete a significant block of coursework (such as the general education requirements) but who transfer before completing the associate degree.
- Articulation agreements should be developed for specific program majors.
- A state's private institutions should be included in statewide articulation agreements.
- A statewide evaluation system should monitor the progress and completion of transfer students.

Applying these criteria or principles, the authors found at that time that "only about half of agreements reflect awareness that students transfer in several directions, not just upwardly vertical,...that almost three-quarters (71 percent) of states had developed agreements for transfer of a general education core," and that few states' agreements included private institutions or articulation agreements for academic program majors.

The following year, ECS (2001) published its own survey of transfer and articulation policies, documenting the authorizing legislation (if any), type of statewide cooperative agreements (if any),[viii] transfer data reporting mechanism, availability of student transfer incentives and rewards,[ix] and the existence of statewide articulation guides, common general education cores and common course number systems. The last five parameters are frequently mentioned in the literature as helpful ways to achieve the statewide transfer and articulation agreement's main purpose of facilitating and preserving student transfer credit.

In summarizing their research results, ECS (2001) found that

- Thirty states have legislation on transfer
- Forty states have cooperation agreements in place
- Thirty-three states reported transfer data
- Eighteen states offered transfer incentive and rewards
- Twenty-six states offer statewide articulation guides
- Twenty-three states have a common core curriculum
- Eight states have a common course numbering system.

In 2007, the Alliance for Equity in Higher Education and the Institute for Higher Education Policy launched the National Articulation and Transfer Network (NATN), an information clearinghouse containing a "matrix" of statewide articulation and transfer policies as well as other resources for educational researchers, policymakers and students.[x] As described on the website (www.natn.org), the NATN includes "the identification of legislation pertaining to student and credit transfer, highlights of how some state policies have translated into practice, and brief descriptions with web addresses for each state's articulation and

transfer websites, where identified. Finally the matrix includes recent relevant actions and/or reports where applicable."

The final study done on each state's transfer and articulation system is provided on the current website of the American Association of Collegiate Registrars and Admissions Officers. The website contains its own listing of individual states' transfer and articulation websites and information on authorizing legislation, if any, as well as other items of interest such as information on online and course articulation tools.

COMPONENTS OF STATEWIDE TRANSFER AND ARTICULATION SYSTEMS

The literature on statewide transfer and articulation systems discusses some or all of the following as recommended components:

- General education common core curriculum
- Common course numbering system
- Statewide transfer and articulation agencies or committee whose members include faculty representatives from both two- and four-year institutions as well as state governing boards "to ensure that state and institutional policies work together (SREB, 2007, p. 3)
- Transfer guides and other web-based tools such as online course catalogs and degree audit tools which allow students, advisors, faculty and others easy access
- Integrated student unit record data system that enables the tracking of student's progress across different institutions in the state
- Specific performance goals and measurements for student transfers that apply to both two- and four-year institutions and that link institutional funding to performance outcomes (Anderson, Sun & Alfonso, 2006, 278)
- Use of financial aid as a tool to promote vertical transfer (Wellman, 2002, 45-46)
- Academic program articulation agreements, including those that focus on high demand careers
- Designated transfer advising service centers at both sending and receiving institutions (Daun-Barnett and Overton-Atkins, 2006)

OVERVIEW OF STATEWIDE TRANSFER AND ARTICULATION AGREEMENTS

Though initially such agreements were voluntary arrangements between individual community colleges and universities, states have gradually assumed a major role in formulating and formalizing statewide policy agreements. As chronicled by Roksa and Keith (2008): "Notably, although no state statutes contained information regarding articulation in 1960, 30 states had some legislation regarding the movement of students between higher education institutions by 2004. Twenty-five of these 30 states enacted legislation that codifies and/or references the establishment of statewide plans to ensure the transfer of course credits for academic work completed at public colleges pursuant to the requirements of the first two years of college (p. 236)."

Generally, the main purpose of statewide transfer and articulation agreements are "to facilitate students' transitions across state higher education institutions by preventing the loss of credits within specified parameters (Roksa & Keith, p. 236)." Here too one finds a great deal of variety in the type of agreements and

in the parameters selected. Some agreements are not legislatively mandated; others are. Some apply to only certain transfer directions while others encompass the widest range of student mobility patterns described above. Some agreements pertain only to students who obtained a specific type of associate degree while others make no such distinction. There is some evidence that significant numbers of community colleges students who transfer do so before earning their associates degrees.[xi]

Most statewide transfer and articulation agreements apply to only public higher education institutions, though some do include four-year private institutions and for-profit institutions. Another distinguishing and important feature of these agreements concerns the locus of administrative oversight and governance structures. Some states use an institutional structure, with individual boards for each state college and university. Others use a segmented approach, with separate statewide boards for four-year public institutions and for two-year public institutions. At times, there are local community college boards as well. Some states have taken an integrated approach with a single entity governing all of the state's institutions to which the different segment's coordinating entities report (Wellman, 2002, p. 39).

Content of the legislated policies can differ dramatically from state to state. Some state- level policies (those of California[xii] and Florida[xiii]) are extremely detailed in scope and scale, with clearly defined procedures at every level of the transfer process. Some states' (Colorado,[xiv] Kansas,[xv] Kentucky,[xvi] Missouri,[xvii] Virginia,[xviii] and Wisconsin[xix]) policies call for the implementation of transfer and/or articulation policies, but place authority for the development and implementation of the policies with another state level authority such as a board of regents, board of governors, higher education commission, or some other organization. Some states (Illinois,[xx] New York,[xxi] and Wyoming[xxii]) simply call for the development of transfer and/or articulation policies but define very few requirements, and do not specify an organizing body to further develop these policies. There are states (Alaska, Delaware, Georgia, Hawaii, Idaho, Iowa, Montana, North Dakota, and Vermont[xxiii]) which have no legislated transfer or articulation policy, and states (Indiana, possibly Michigan, and Mississippi[xxiv]) which appear to have recently repealed related legislation.

With the exception of Delaware, Mississippi, and Vermont, all of the states with no legislated policy have some other type of agreement in place covering articulation and/or transfer. Within Vermont, some individual institutions and academic departments in have created agreements among themselves.[1] All of the states address the issue of transfer and articulation in some way; although the level of mandate ranges from legislation to departmental agreements and the level of specificity ranges from detailed to vague.

CONCLUSIONS

The scholarly studies on statewide transfer and articulation agreements did not find evidence of the agreements' effectiveness on student transfer rates, retention rates or rates of and time-to-degree completion (Adelman, 2006, p. 85; Anderson, Sun & Alfonso, 2006, p.265; Hagedorn, [2005], 9; Roksa & Keith, 2008, [p.249]).

These authors do acknowledge that such agreements take time to take effect and that the data used to evaluate the performance of the agreements are themselves flawed. As mentioned earlier, national databases limit who gets counted. With so many part-time students in the public higher education system and sizable numbers of first-time college students over 26 years old, data collection that excludes these populations or fails to factor their non-traditional attendance patterns in their formulas can and has been criticized as misleading.

[1] Education Commission of the States (2001) retrieved January 19, 2009 from http://www.ecs.org/clearinghouse/23/75/2375.htm

Another limitation of the existing data results from the practice of counting only 'native' students in the calculation of graduation rates of four-year public institutions. The exclusion of transfer students from the calculation of this important performance metric also raises questions about the validity of institutional, state-level or national databases that rely solely on this information.

As mentioned in a previous section, academic strategies have been incorporated into statewide transfer and articulation systems. But as encouraging as the research is on their effectiveness, neither these strategies nor the statewide transfer and articulation policy agreements that include them have been sufficient to raise either community college student retention or degree completion rates to satisfactory levels. One explanation is that despite these structural interventions, "…students weigh current labor market conditions, their own propensity for schooling, and their financial, personal and family needs when making enrollment decisions (Goldhaber, Gross & DeBurgomastor, p. 21)."

Wellman's study (2002) offers a different perspective on the issue: "To focus on statewide performance as well as accountability, the state needs policies that relate funding and accountability to academic strategies (p. 45)." Based on her research, Wellman (p. *vi-vii*) argues

> The research shows that there is not much difference between the high-performing and low-performing states in many of their basic approaches to transfer policy. All have paid a good deal of attention to the academic policy aspects of transfer, and have comparable policies in place concerning core curriculum, articulation agreements, transfer of credit, and statewide transfer guides (including web-based catalogues). The key difference between the three high-performing states and the others seems to lie in the statewide governance structure for higher education. Arkansas, New Mexico, and Texas [low-performers] have institutional governing structures, whereas Florida, New York, and North Carolina [high-performers] have stronger statewide governance capacities. All three of the high-performing states also do a better job of using data as a tool to improve transfer performance, including state-level feedback to campuses about their performance relative to others.

However, there is some indication in the literature that that does not happen. One recent study reported that of the 50 states surveyed, no state-level official reported "a high degree of use of community college performance data by state government." Furthermore, community college leaders also did not make much use of state-level data contrary to the expectations of state higher education officials and policymakers (Dougherty & Reid, 2007, p.28).

With this in mind, the present study of statewide transfer and articulation systems is undertaken with the expectation that our findings will improve state policymakers' understanding and use of best practices in this area.

ENDNOTES

[i] It should be noted that the formula used by NCES to calculate graduation rates is based on the expectation that students will complete their degree in 150% of standard program length, i.e. within six years of starting coursework towards a bachelor's degree. Given that 62 percent of community college students and 27 percent of public four-year students are enrolled part-time (NCES, 2008), questions have been raised about the value of the current time-to-degree formula to which institutional funding is pegged by many states.

[ii] Another reason to treat these remediation numbers with caution is the fact that, in some states, all remediation work is offered only at two-year institutions (NCES, 2008, p.11).

[iii] Academic momentum refers to those educational milestones or transition points in a student's career that propel a student towards their academic goal attainment, including degree completion.

[iv] Although there is some recent evidence that "the persistence or attainment rate for students who alternated between full- and part-time attendance was higher than either those for full-time and part-time students (NCES, 2008, p.22)."

[v] These statistics were cited on the Education Commission of the States website, www.communitycollegepolicy.org/html/toolkit/articulation/facts.asp. Retrieved December 2, 2008.

[vi] Adelman's data exclude adults who enroll after age 26 who, arguably, would increase the number of swirlers.

[vii] The lack of uniformity in this critical matter is a serious impediment to institutions, researchers and the states who attempt to evaluate the effectiveness of different institutions and segments within higher education as well of the various student success initiatives within and across states (Wellman, 2002, p. 3)

[viii] ECS' website on Transfer and Articulation defined cooperative agreements as "agreements that can sometime take the place of legislation if there is no official policy towards transfer and articulation. Commonly, these agreements are formulated on a course-by-course, department-to-department, or institution-to-institution basis"

[ix] The examples of these incentives and rewards given on the website were "financial aid, guaranteed transfer of credit or priority admission as a transfer student."

[x] Particularly noteworthy is the NATN Student Portal, described as "an educational online tool designed to address the needs and concerns of all students." The Portal provides basic information on the basics of the transfer process and on the general education core curriculum.

[xi] Based on 1996 NCES data, the Education Commission of the States reports that "65 percent of all community college students transfer prior to earning their associates' degrees." http//www.ecs.org/html/issue.asp?print=true&issueID=220&subIssueID=0. Retrieved December 4, 2008.

[xii] California Statutes retrieved on January 19, 2009 from http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=edc&codebody=&hits=20

[xiii] Florida Statutes retrieved on January 20, 2009 from http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&URL=Ch1007/titl1007.htm&StatuteYear=2008&Title=%2D%3E2008%2D%3EChapter%201007

[xiv] Colorado Statutes retrieved on January 19, 2009 from http://www.michie.com/colorado/lpext.dll?f=templates&fn=main-h.htm&cp

[xv] Kansas Statutes retrieved on January 21, 2009 from http://www.kslegislature.org/legsrv-statutes/getStatute.do

[xvi] Kentucky Statutes retrieved on January 21, 2009 from http://www.lrc.ky.gov/KRS/164-00/296.PDF

[xvii] Missouri Statutes retrieved January 22, 2009 from http://www.moga.mo.gov/statutes/C100-199/1730000005.HTM

[xviii] Virginia Statutes retrieved January 22, 2009 from http://legis.state.va.us/Laws/CodeofVa.htm

[xix] Wisconsin Statutes retrieved January 22, 2009 from http://nxt.legis.state.wi.us/nxt/gateway.dll?f=templates&fn=default.htm&d=stats&jd=ch.%2036

[xx] Illinois Statutes retrieved January 21, 2009 from http://www.ilga.gov/legislation/ilcs/ilcs4.asp?DocName=011008050HArt%2E+II&ActID=1150&ChapAct=110%26nbsp%3BILCS%26nbsp%3B805%2F&ChapterID=18&ChapterName=HIGHER+EDUCATION&SectionID=50185&SeqStart=600000&SeqEnd=4200000&ActName=Public+Community+College+Act%2E

[xxi] New York Statutes retrieved January 22, 2009 from http://public.leginfo.state.ny.us/menugetf.cgi?COMMONQUERY=LAWS

[xxii] Wyoming Statutes retrieved January 23, 2009 from http://legisweb.state.wy.us/statutes/statutes.aspx?file=titles/Title21/Title21.htm

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