Student Success:
What Research Suggests for
Policy and Practice

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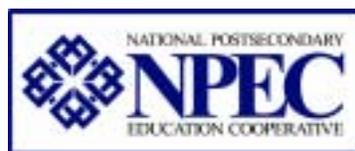
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EXECUTIVE SUMMARY

Policymakers and educational leaders increasingly seek answers to a pressing question: how best to ensure that the nation's colleges and universities are effectively addressing their most critical responsibility, the education of undergraduate students. The attention to student success reflects more than a personal concern for students—it also reflects a growing sense that the nation itself is faced with fiscal, demographic, and competitive challenges demanding the best educational system possible.

This essay addresses the findings and implications of five reports commissioned by the National Postsecondary Education Cooperative (NPEC) and scheduled for presentation and discussion at a national symposium in November 2006. The reports were each aimed toward reviewing and synthesizing the diverse research literature on student success, articulating a persuasive, inclusive theory-informed perspective on success and its correlates, identifying significant issues and problems in the literature, and incorporating multilevel perspectives on the research and its application.

Some themes are common to the authors' conclusions in these five reports.

- Student success in postsecondary education has roots in students' lives far earlier than the postsecondary years, through the influences of families, peers, teachers, counselors, cultural factors, and K–12 school curricula and extracurricula.

- Specific on-campus factors important for postsecondary success include high expectations (as manifested in curriculum, climate, and teaching practices); coherence in the curriculum (i.e., in required courses and sequencing of courses); integration of experiences, knowledge, and skills; opportunities for active learning; assessment and frequent feedback; collaborative learning opportunities; time on task; respect for diversity (race/ethnicity/cultures, talents and abilities, ways of knowing and learning); frequent contact with faculty; emphasis on the first-year experience; and the development of connections between classroom work and learning opportunities outside the classroom.

- Classrooms and teaching faculty provide the most direct organizational influences on postsecondary student success, with governmental and institutional policies and practices playing notable indirect roles.

- Policy integration and coordination across and within postsecondary programs, departments, institutions, and systems facilitates student success.

- Policy integration and coordination between the postsecondary and K–12 education levels facilitates student success.

- Programs, institutions, systems, and states should engage in significant, continuous information gathering, measurement, and assessment relating to student success.

- Policymakers and institutions should support research and theory development targeted at student success, including its multiple aspects, the various theoretical perspectives on it, ways to measure and assess it, the factors that shape it, differences among student backgrounds as precursors to it, and programmatic approaches to achieving it for all students.

Beyond these common conclusions, the reports exhibited some notable differences in emphasis. Among the topics addressed in detail by some but not all of the reports were state financing policies for institutions, governments' need-based student financial aid programs, the state role in ensuring academic quality, the special role of institutional leaders in creating a climate for success, faculty hiring and reward systems, the optimal approach to counseling students on major choices, the central role of academic major programs, approaches to dealing with group-level student differences in success policies, the appropriateness of narrow vs. wide definitions of student success, the role of campus learning communities in success, and the value of comprehensive theoretical visualizations of the development of student success.

Several topics were covered only in limited ways in the five reports, no doubt largely because of the absence or inferiority of available data and prior research. Clearly, these limitations should not take these topics off of researchers' and policymakers' agendas.

Perhaps most fundamental of all the topics meriting continuing emphasis and attention is the question of effectively defining and measuring student success. Graduating with a desired degree is unquestionably an appropriate indicator of a student's success, and aggregated institutional and system rates of graduation can be a significant indicator of an institution's or system's performance. Simple and straightforward, graduation rates are very much on the minds of policymakers, educational leaders, the public, and students themselves.

But institutions differ in the capabilities of their students to do college work. A focus on raw graduation rates runs the risk of embellishing the reputations of selective schools while tarnishing the perceptions of those serving a wider range of students. There are other limitations to graduation rates, as well. Notably, student intent does not always coincide with the assumptions behind focusing on graduation rates. Some students attend only to build academic credits toward transferring to another

institution or to obtain job-related competencies, laudable academic goals that, if pursued in large numbers, might threaten institutions' degree-completion rates.

Policymakers wanting to avoid simplistic public assessment of institutional and systemwide performance need thoughtful supplements to the obvious choice of graduation rates. These new choices must be understandable, measurable, cost-effective, and reflective of core policymaker concerns. Among the new success indicators are measures of the intellectual qualities of those who have obtained or are about to obtain the degree. There is debate, however, over whether assessments targeting critical thinking are more appropriate than assessments targeting the factual knowledge gained in courses. Whatever the answer, with appropriate funding and designs, these approaches can take into account the entering characteristics of students at institutions, and thus reduce biases toward finding only the most selective institutions meritorious.

New student success indicators might also focus on the extent to which students, regardless of degree attainment, are prepared for jobs with solid prospects and earnings potential, enter jobs serving society's needs, find employment after attendance, achieve financial literacy, gain understanding of social, economic, and political issues, become civically engaged, have the basic understanding of science and technology necessary for contemporary citizenship, acquire appropriate certification or licensure for employment, develop intercultural and global understanding, and appreciate and pursue lifelong learning. Each of these indicators could be estimated for students who have completed any amount of study, and thus could lessen the focus on degree attainment and graduation rates.

Another tack might build upon quantitative measurement of students' intent and satisfaction. Did students meet their initial goals in entering the institution? Are they satisfied with their learning experiences? While some might see such data as "soft," they would address the converse problem with "hard" graduation data: the temptation to assume that we understand the reasons for students' choices to stay on campus or leave. Considering soft and hard data *in concert* seems preferable to relying solely on graduation-rate data, and thereby implicitly assuming that students not graduating from their initial institution represent failures on that institution's part.

Realistically, all of these supplemental approaches face two hurdles. First, the various factors may not all be amenable to the development of indicators meeting the criteria of being understandable, measurable, cost-effective, and reflective of core policy concerns. Second, assuming that acceptable indicators of various supplemental domains of success can be devised and implemented, how can any institutional and systemic assessment system take into account not only the diverse entering characteristics of each institution's students but also the unique history and mission of the institution

itself? That is, each of the alternative definitions proposed above is vulnerable to the criticism that it may privilege certain kinds of institutions and missions over others. What seems readily apparent, though, is that considering a varied array of indicators, even with the inevitable imperfections of each, is preferable to focusing on only one imperfect indicator.

Beyond these questions of definitions and indicators, the reports do not delve intensively into some other important issues:

- The specific ways student motivations, aspirations, and values develop and shape success in postsecondary education;

- The influences of broad societal structures on students' chances for success;

- The challenges of implementing student success policies;

- State and federal politics;

- Institutional financial aid policies;

- State mission-differentiation efforts;

- Success among students in for-profit and online programs;

- Success among commuting and part-time students;

- Differences in educational achievement processes among students from varied socioeconomic, ethnic, racial, cultural, and age populations;

- Information and emerging information technologies as factors in student success; and

- The potential role of integrated, longitudinal student-record databases in providing supplemental indicators of student success.

There is obviously much still to learn concerning student success. What is more, the development of productive dialogue and the consequent implementation of effective policies and programs to improve rates of student success are not likely to be easy matters. With the goal of further spurring movement from research to action, NPEC invited written responses to the five commissioned papers from leading educational researchers, leaders, and policymakers. Reviewing the reports and corresponding responses as a whole, one can identify a number of potential nontrivial challenges awaiting those who wish to move ahead intelligently in improving students' odds of success.

A first, critical challenge involves dealing with the deceptive allure of efficiency. Reducing attrition rates at the system and institutional levels represents a clear-cut achievement toward greater student success, for example, but approaches to that goal may require de-emphasizing other goals, such as expanding access for students disadvantaged by prior educational experiences. Awareness of the multiple, and sometimes conflicting, goals of postsecondary institutions is central to a measured approach to success.

Another likely challenge in discussions of student success involves the potential appeal to governmental, accreditation, and association officials of pursuing the "one best solution." In the midst of all the attention to student success nationwide, there may be a natural tendency to try to identify "the best" approach for achieving student success. Such efforts may be laudable and useful, but there is reason to be cautious about any hints of universal applicability and effectiveness. It may not be a bad thing that no single policy approach appears to be emerging as dominant. In fact, it is clear that complicated and diverse problems of student success are likely to require complicated and diverse solutions, fitted to the complicated and diverse individual institutional settings of postsecondary education in this country. There are unquestionably better and worse ideas afloat, and public evaluation should always work toward ensuring that good ideas drive out the bad. Nonetheless, the notion that any one policy idea is unequivocally best is shortsighted. There are unlikely to be any "magic bullets" awaiting those seeking to raise students' chances of success.

A further threat to productive dialogue and action involves glibness. For example, it is far easier to support, in the abstract, integrative policy development across levels of the education system than to achieve that integration in reality. The most productive dialogue on success will be realistic concerning the difficulties of achieving some desired structural and political outcomes.

It is especially important to guard against any tendency to speak about the desirability of student success abstractly rather than as an area of potential investment of scarce resources, to be analyzed rigorously like any other area of potential investment. The proper questions to be asked are not abstract: to achieve real improvement in student success, and not just rhetorical victories, it is imperative that questions of cost-effectiveness be addressed. Which outcomes may be achieved at what level of costs? What are the opportunity costs of choosing x rather than y? What would be the return to reforming or discarding certain existing policies and practices? Asking tough questions about costs and effects is critical, especially in times of tight resources at both the institutional and system levels.

As the preceding observations suggest, the challenges to effective action on student success are daunting. The complexity of the problem might deter taking any action at all, out of fear of waste or,

worse, of harm. Yet inaction also represents a clear danger. Sometimes, it makes good sense to act rather than simply to await the definitive, final piece of information. Often, by the time all the "necessary" information is available, the opportunity for productive action has passed. To simply recommend more research as the answer to questions regarding student success may be to deny current students opportunities for improved campus experiences and outcomes.

Thus, the best dialogue on student success is going to be dialogue that incorporates research knowledge but also goes beyond arguments regarding the limits and fringes of that knowledge. Ultimately, the best dialogue will move policymakers and institutional leaders toward active commitment to applying existing knowledge to the benefit of all students.

STUDENT SUCCESS:
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Policymakers and educational leaders increasingly seek answers to a pressing issue: how best to ensure that the nation's colleges and universities are effectively addressing their most critical responsibility, the education of undergraduate students. This attention to student success reflects more than a personal concern for students—it also reflects a growing sense that the nation itself is faced with fiscal, demographic, and competitive challenges demanding the best educational system possible.

The simplest response to these challenges is for policymakers and leaders to impose aggressive measurement and assessment techniques, as well as the strict discipline of the marketplace, to promote the flow of funding toward institutions and academic units performing well on success indicators such as student graduation rates and test scores. That approach might ultimately pay off, but it reflects a narrow conception of the problem. Importantly, appropriate standards for success may vary across different kinds of students and different kinds of educational settings.

Thus, defining student success and effectively measuring it at the student and institutional levels is not nearly as straightforward as it might seem. For example, comparing institutions' undergraduate graduation rates and rewarding those with the highest rates may disadvantage certain kinds of students and certain kinds of institutions. Ultimately, this approach could lessen the chances for effective policy development favoring all students' success. Consider an open-admissions institution: in welcoming all students to its campus, the institution must deal with the students as they come, even though its graduation rates might well improve if it required its students to have greater educational readiness out of high school. Are the institution's low graduation rates de facto evidence that the institution itself is failing, or should our thinking on institutions' roles in student success take into account the quality of students' preparation prior to entering postsecondary education? Perhaps the "value-added" by the efforts of the open institution is actually greater than the value added by some more selective institutions with higher graduation rates.[1]

Such considerations have led some policymakers and leaders to realize that the answers to seemingly straightforward educational questions, such as "How can we promote student success?" turn out not to be so straightforward after all. One might not instinctively turn to academic researchers to simplify such a complex issue, but one might indeed turn to researchers to learn more about the magnitude of the issue, alternative perspectives on the issue, applicable knowledge regarding the issue,

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[1] A recent *New York Times* article highlighted the controversies surrounding institutional graduation rates (Finder, 2006).

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gaps in our knowledge about the issue, and, perhaps, even possible solutions to the issue. With that rationale as a foundation, the National Postsecondary Education Cooperative (NPEC) solicited proposals in 2004 for comprehensive reviews and analyses of the literature on student success in postsecondary education.

Context for the Commissioned Reports

A number of parallel developments made NPEC's student success initiative timely and important for decisionmakers at the federal, state, and institutional levels. Notably, escalating accountability pressures requiring colleges and universities to demonstrate student success, the increasing size and diversity of student populations in times of scarce resources, the shift in the financing of postsecondary education toward students and their families, and dramatic changes in global labor markets each point toward a need for greater attention to student success. Clearly, student success as a policy issue encompasses not only grades and degree attainment but also the nature of students' preparation for postsecondary education, student access, the support that institutions and others provide to students, and preparation for careers after postsecondary education.[2]

A major objective of NPEC's success initiative has been to help ensure innovative, effective, and ongoing attention to postsecondary student success.[3] Thus, NPEC solicited the commissioned reports to develop persuasive, inclusive, and theory-informed perspectives on student success in postsecondary education, acknowledging that success may be variously defined in different institutions and among different students. Specifically, each commissioned report would:

- Review and synthesize relevant research, practice, and policy literature relating to student success in postsecondary education, with the goals of articulating a persuasive, inclusive, and theory-informed perspective on student success and identifying student and institutional characteristics associated with different definitions of success.

- Identify relevant major domains and themes in this literature.

- Identify significant issues, problems, and gaps in the literature's assumptions, core concepts, theories and hypotheses, measurement approaches, research activity and findings, and applications to practice and policy.

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[2] This broad view of student success, and U.S. postsecondary quality, was adopted by the recent Commission on the Future of Higher Education, formed by the U.S. Secretary of Education (see http://www.ed.gov/about/bdscomm/list/hiedfuture/index.html).

[3] NPEC's student success initiative also features competitively awarded focused-research grants and other activities.

- Incorporate federal, state, institutional, and student perspectives in developing approaches for addressing these issues, problems, and gaps.

- Include attention to further developing definitions and understanding of student success, and examining the implications of the various definitions for improving practitioner and policymaker decisions relating to student success in postsecondary education and for future research and theory.

In response to this solicitation, the Cooperative received numerous high-quality proposals. Using the above criteria, the NPEC review team selected four proposals for funding. The winning proposals came from John Braxton of Vanderbilt University, from George Kuh and colleagues from Indiana University, from Scott Thomas of the University of Georgia and Laura Perna of the University of Maryland (Perna subsequently moved to the University of Pennsylvania), and from Vincent Tinto of Syracuse University and Brian Pusser of the University of Virginia. As additional resources became available, NPEC selected for funding a fifth, more specialized, proposal from John Smart of the University of Memphis, Kenneth Feldman of SUNY at Stony Brook, and Corinna Ethington of the University of Memphis.

In November 2006, these authors' commissioned reports will be featured at a national symposium in Washington, DC. A prominent feature of the symposium will be invited responses to the commissioned reports prepared by leading educational researchers, leaders, and policymakers, including Donna Alvarado of Aguila University, Thomas Bailey of Columbia University, William Demmert of Western Washington University, Bridget Terry Long of Harvard University, Laura Rendón of Iowa State University, Earl Richardson of Morgan State University, and Piedad Robertson, formerly of the Education Commission of the States.[4]

Ideally, the five commissioned reports and the invited responses to them will encourage attention, dialogue, and informed decisionmaking regarding postsecondary student success. The appendix to this essay provides summaries of the five reports. In the essay itself, I will highlight some common themes across the reports, identify some differences among the reports, note some areas meriting more research emphasis, address challenges to achieving student success, and close with some suggestions for making the ensuing dialogue and policy action as productive as possible.

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[4] In this essay, I refer frequently to the respondents' comments on the five commissioned papers. As are the reports themselves, these papers are available online on the symposium website: http://nces.ed.gov/npec/symposium.asp.

Discerning Common Themes Across the Five Reports

The principal investigators for each of the commissioned projects were already respected contributors to the published knowledge concerning student success. It is not surprising, therefore, that the four comprehensive reports share some common sources in the literature, take some parallel perspectives on student success, and draw some similar conclusions regarding next steps for policy, practice, and research. What is more, the specialized report by Smart, Feldman, and Ethington, shares much with the other four. This notable overlap may comfort those worried that there might be no consensually established knowledge base in this area. Indeed, a broad consensus is apparent along several dimensions.

First, although each report took a different tack on the overall topic, all acknowledged that *student success in postsecondary education has roots in students' lives far earlier than the postsecondary years,* through the influences of families, peers, teachers, counselors, cultural factors, and K–12 school curricula and extracurricula. The evidence for this perspective is incontrovertible.[5] Students come to postsecondary education differing in their socioeconomic resources, cultural backgrounds, levels of academic preparation, capabilities, experiences with families and peers, intellectual and social orientations, expectations and aspirations, and personality types. These personal and contextual differences affect whether students are likely to enroll in postsecondary education, the kinds of institutions students are likely to consider, and the institutions students will enter.

Indeed, the reports agree that social, cultural, economic, and psychological factors rooted in earlier years continue to affect student success in the postsecondary years. Contrary to the popular view of postsecondary education as a powerful assimilating and mediating force in the lives of Americans, capable of removing the influences of youthful circumstances, the fact is that such influences rarely disappear into the background during the postsecondary years. Thus, success initiatives that treat all students exactly the same (e.g., living-learning communities for all first-year students), as well as success initiatives based entirely on students' academic characteristics (e.g., summer preparation programs for incoming first-year students identified as "at-risk"), may fail if they are insensitive to these enduring nonacademic differences.

Second, the authors consistently noted that specific on-campus factors important for postsecondary success include high expectations (as manifested in curriculum, climate, and teaching practices); coherence in the curriculum (i.e., in required courses and sequencing of courses); integration

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[5] See the review by Tierney, Corwin, and Colyar (2005).

of student experiences, knowledge, and skills; opportunities for active learning; assessment and frequent feedback; collaborative learning opportunities; time on task; respect for diversity (race/ethnicity/cultures, talents and abilities, ways of knowing and learning); frequent contact with faculty; emphasis on the first-year experience; and the development of connections between classroom work and learning opportunities outside the classroom.[6]   In reaching this conclusion, the authors paralleled themes identified in earlier work on factors contributing to student success.

In particular, the reports each emphasize the importance of campuses developing shared understandings and expectations that success for every undergraduate is a primary aim of the institution. To the authors of the commissioned papers, this is not simply a matter of policy integration and coordination, but rather a matter of communicating one message regularly and energetically to students and all those in contact with them. This, in itself, is likely to have favorable impacts on students' chances for success.

Third, the reports each suggest that classrooms and teaching faculty provide the most direct organizational influences on postsecondary student success, with governmental and institutional policies and practices playing notable indirect roles.[7]   In the end, each report emphasizes that postsecondary education most immediately affects students when they are with teaching faculty in postsecondary classrooms. Because of their professional preparation and status, postsecondary instructors tend to cherish autonomy from direct control by administrative authorities. Classrooms thus remain well buffered from such control. In that context, policymakers and institutional leaders can effectively contribute to success by devising incentives that encourage faculty to pursue success-oriented classroom practices, and by implementing policies and practices that support those practices outside the classroom.

Fourth, the reports each emphasize that policy integration and coordination across and within postsecondary programs, departments, institution, and systems facilitates student success. Although attention to students' subenvironments on campus (major departments, residence halls, and so forth) is highly worthwhile, several of the reports stress that a focus on student success needs to be campuswide, and not simply a matter of isolated attention in individual offices or departments.   While many institutions, especially the larger ones, tend to be "loosely coupled" enterprises, it is clear that success is best achieved when all parties to students' academic lives are aware of each others' efforts and work together to the extent possible.

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[6] For prominent examples of significant earlier work, see Chickering and Gamson (1987, 1991), Cross (1990), Pascarella and Terenzini (2005), Jones and Ewell (1993), Feldman and Paulsen (1994), and McGuinness (1994).

[7] See Hearn and Holdsworth (2002) for a lengthy review of some of these indirect mechanisms.

The same point relates to system-level integration. For example, effective articulation between two- and four-year institutions and between different four-year institutions can be an important element in student success. With the growing prevalence of students "stopping-out" and "swirling" among different institutions, it is useful to develop ways to facilitate transfer and eventual attainment by mobile students.[8]

Fifth, the reports agree that *policy integration and coordination between the postsecondary and K–12 education levels facilitates student success.*[9] Although not all of the reports use P–16 or K–16 terminology, each references the need for the systems at different levels to work together to facilitate solid preparation for postsecondary education as a precursor to students' success once enrolled. Notably, state and local governments and systems can work together to ensure appropriate coursetaking patterns in high school, counseling regarding postsecondary attendance, and extracurricular and summer programs focused on postsecondary attendance.

Sixth, each of the reports stresses that programs, institutions, systems, and states should engage in significant, continuous information gathering, measurement, and assessment relating to student success. The authors favor ongoing, aggressive monitoring directed toward self-improvement at the program, institution, system, and state levels. Reading through the reports as a whole gives one a sense that the authors favor the reflective-practitioner model and the "self-regarding" institution model, in which ongoing analysis of factors promoting student success is thoroughly engrained in the way faculty and their institutions do business.[10]

Finally, the reports agree that *policymakers and institutions should support research and theory development targeted on student success,* including its multiple aspects, the various theoretical perspectives on it, ways to measure and assess it, the factors that shape it, differences among student backgrounds as precursors to it, and programmatic approaches to achieving it for all students.

In many ways, the research recommendations of the commissioned authors parallel those of other recent national projects, such as those of the Pathways to College Network (2004) and the Social Science Research Council (2005). Pursuing dialogue among the many consortia, initiatives, institutions,

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[8] See Goldrick-Rab (2006).

[9] See Hechinger Institute et al. (2002), SHEEO (2003), Kirst and Venezia (2004), Pathways to College Network (2004), and Venezia et al. (2005).

[10] For more extended discussions of this approach, see Ewell (1984), Hearn and Corcoran (1988), and Hearn (1992).

foundations, and associations currently reviewing and investing in research on student success seems an efficient and effective next step for developing understanding in this arena.

Identifying Distinctive Themes in Individual Reports

A number of themes were discussed at length by some but not all of the commissioned reports. Among those was *state financing policies for institutions*. Braxton, in particular, emphasizes the importance of states designing performance funding and budgeting policies in ways that spark faculty to new actions, rather than simply encourage maintenance of ongoing efforts. Braxton also stresses the importance of states explicitly earmarking funds for faculty-development efforts. Continuing a trend noted several years ago by Jones and Ewell (1993), several states already pursue categorical and incentive-funding programs designed to improve undergraduate education (e.g., the Faculty Development in Georgia program), but many do not. Braxton suggests that there is good reason to further consider these options.

Governments' need-based financial aid programs for students were a topic of special concern for the reports by Thomas and Perna and by Tinto and Pusser. Both sets of authors suggest that states develop innovative financing policies with particular attention to devoting resources to the students most in need. As they suggest, students facing the specter of unmet need and increasing debt burdens in their undergraduate years may be more vulnerable to academic failure than those with more assured sources of funding. Several responders to the commissioned reports, including Bridget Terry Long, Earl Richardson, and Piedad Robertson, also emphasized financing themes. Long, commenting on the five commissioned reports, argues that "ensuring the adequacy and timeliness of need-based student financial aid is perhaps the most important policy advice provided by the researchers to federal and state officials."

The *state role in ensuring academic quality* was mentioned by all the reports, but only some went into detail. Braxton, in particular, argues that state program reviews and performance indicators should focus more explicitly on encouraging faculty to make professional choices that can effectively promote student learning.

The special *role of institutional leaders in creating a climate for success* was emphasized by some of the authors. Kuh and colleagues[11] and Braxton direct recommendations toward creating a climate that targets success very visibly for all faculty, staff, and students. Braxton highlights the role of

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[11] The point is made in both their report here and in Kuh et al.'s book *Student Success in College* (2005).

the president and chief academic officers in setting the tone of the institution through the words and phrases they use, the topics they choose to pursue, the kinds of events at which they appear, the faculty and student behaviors they single out for praise and reward, and the values they model.

Each of the reports alludes to faculty incentives and values, but *faculty hiring and reward systems* are a major focus for Braxton. He argues that faculty searches should always include a requirement that finalist candidates exhibit their teaching skills and philosophies. Relatedly, in keeping with the views of the late Ernest Boyer (1990), Braxton notes that attention to successful teaching is itself a form of scholarship worthy of explicit institutional support in promotion and tenure decisions, in annual salary reviews, and in the allocation of funding for faculty leaves and special projects.

The report from Smart et al. struck the most distinctive note of all the reports regarding institutional policies and practices. Two recommendations were largely unparalleled by any of the other reports. First, Smart and colleagues argue that institutions have historically paid too much attention to ensuring a close fit between students' measured aptitudes and past performance and their prospective academic programs. Instead, they argue, the *optimal approach to counseling students on major choices* requires more institutional attention to students' entering goals and aspirations. Second, Smart and colleagues emphasize that the real life of academic institutions, and the real locus of action for student success, centers on teaching and learning within *academic programs,* not institutions as a whole. Because of this, they suggest, there is no one best approach for a given campus as a whole to take in improving the success of its students. Campuswide integration of policies is surely desirable, but that integration must include some deference to the specific approaches, values, and climates of different academic areas.

While all report authors agree that student background characteristics are important predictors, even determinants, of some aspects of success, the reports appear to differ in the weight they place on the need for aggressive policymaker and institutional attention to *group-level student differences*. While all the authors agree on the potential importance of group differences (e.g., those among different ethnic groups), Tinto and Pusser argue that we have to be careful about generalizing to individuals in groups on the basis of groupwide differences, and are especially concerned about institutions rejecting or expecting less of students whose background characteristics suggest poor probabilities of success. Clearly, there is a fine line between appropriate levels of attention to students likely to be educationally vulnerable and the development of a limiting set of expectations toward these students.

The reports also differ somewhat in their chosen *definitions of student success.* For example, Tinto and Pusser focus almost exclusively on persistence to the undergraduate degree, arguing that, in the end, this is the heart of the issue, while Perna and Thomas, address success holistically as a multistage

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process beginning before the undergraduate years and extending beyond them. Braxton proposes eight critical components of success, including graduation but also including the development of cognitive skills, preparation for adulthood, and various aspects of personal accomplishment and development. Here, the trade-offs are clear: what one approach gains in precise focus it loses in scope, and vice versa. The authors do not disagree over the longitudinal nature of success, but they do appear to disagree to some extent on where, exactly, the focus should be in order to best consider the topic and address it practically.

The importance of *campus learning communities* is a substantive focus for two of the reports. Research has repeatedly suggested a general law: the more intensively students are integrated academically and socially into their institution, the more likely they are to succeed there.[12] This finding is usually highlighted by pointing to the favorable learning effects of attending full-time at intensive liberal arts colleges, but the same principle can apply in building within larger institutions intendedly small learning and living-learning communities (e.g., the "residential college" approach).[13]

Finally, while all the reports consider the multiple factors influencing students' success, only a few attempt to provide comprehensive *theoretical visualizations*. These graphics encompass the chronological and multilevel processes of attaining success. Although these visualizations are undeniably complex, they are provocative and highlight not only areas of increasing research evidence and policy action, but also areas needing more research and, eventually, policy attention. To the extent the visualizations are causal (suggesting that "x promotes y"), these figures are especially useful points of entry for understanding influences on success.

Important Topics Meriting More Emphasis

Several topics were covered only in limited ways in the five reports, no doubt largely because of the absence or inferiority of available data and prior research. Clearly, these limitations should not take these topics off of researchers' and policymakers' agendas.

Perhaps most fundamental of all the topics meriting additional emphasis and attention is the question of *effectively defining and measuring student success*. As noted earlier, the dominant definition of student success is, as George Kuh and his colleagues put it, "getting through." Graduating with a

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[12] For example, see Pascarella and Terenzini (2005).

[13] See Price (2005).

desired degree is unquestionably an appropriate indicator of a student's success, and aggregated institutional and system rates of graduation can be a significant indicator of an institution's or system's performance. Simple and straightforward, graduation rates are very much on the minds of policymakers, educational leaders, the public, and students themselves.

But, as noted earlier, institutions differ in the capabilities of their students to do college work. A focus on raw graduation rates runs the risk of embellishing the reputations of selective schools while tarnishing the perceptions of those serving a wider range of students (AASCU, 2006). There are other limitations to graduation rates, as well. Importantly, student intent does not always coincide with the assumptions behind focusing on graduation rates (AASCU, 2006). Coletta Hassell, Assistant Vice President for Educational Affairs at Georgia Perimeter College, addressed this issue of special importance to her urban, two-year institution in Atlanta (personal e-mail communication, September 26, 2006):

> One of the challenges we have with quantifying student success, particularly in the two-year sector of higher education, is that we don't begin by measuring student intent. We all know that when students enter a four-year institution, they enter with the goal of graduating. We assume that all of our students come to us for the same reason, when this is in fact not the case. Students come to us from a myriad of backgrounds as well as for a myriad of reasons. Some come for professional growth and development. If this is their intent, they may leave once they feel this goal has been met—even if they do not complete their degree. If we have met the individual need of this student, shouldn't we count that as a success?

Hassell goes on add that many students attend her two-year institution only to amass a set number of credits in core courses, then transfer to a senior institution. Obtaining that number of credits is not equivalent to graduating, but it is a laudable academic goal. That such students' choices might penalize their initial institution in accountability systems seems inappropriate. When such students transfer out of a public institution like hers into institutions in other states, the limitations of graduation rates are exacerbated: the students disappear from state records entirely. By hinting at systemic failure, such enrollment patterns can make institutional and system "scorecards" on graduation rates especially misleading. The problem of transfers and success is not limited to two-year institutions—transferring from one four-year school to another may in fact represent sound educational decisionmaking by students, but could be interpreted as an institutional failure under a strict graduation-rate focus. Indeed, even ceasing enrollment for a number of months or years may not always justifiably be counted an institutional or system failure: life events may bring the former students back to campus later, thankful rather than resentful regarding their initial experiences in college.

Policymakers wanting to avoid simplistic public assessment of institutional and systemwide performance need thoughtful supplements to the obvious choice of graduation rates. These new choices must be of a nature that can be quantified or, at least, expressed in an easily understood form. Indicators also need to be cost-effective, i.e., based on available, reliable data that can be obtained on a regular basis without extraordinary expense. Finally, indicators need to be reflective of core policymaker concerns, that is, believable in policy circles as representing the most important aspects of student and institutional performance. What exactly might such new indicators be? The reports prepared for the symposium each endorse the idea of student success being more than a simple matter of degree attainment; they stress the long time span underlying student success, from K–12 schooling years to post-college employment, and some of the reports proffer specific domains for focusing new indicators. Nonetheless, the reports do not extensively dwell on developing an array of operational definitions that are understandable, measurable, cost-effective, and reflective of core policymaker concerns.

Some proposed new indicators focus on the intellectual qualities of those who have obtained or are about to obtain the degree. Several recent policy recommendations focus on cognitive gains, emphasizing the importance of efforts to measure what graduates learn in their postsecondary years (e.g., see Arenson, 2006).[14] In this vein, there is debate over whether assessments targeting critical thinking are more appropriate than assessments targeting the factual knowledge gained in courses. Whatever the answer, with appropriate funding and designs, these approaches can take into account the entering characteristics of students at institutions, and thus reduce biases toward finding only the most selective institutions meritorious. Such approaches focus on "value-added," i.e., what institutions do with the particular kinds of students who come to study there.

New student success indicators might also focus on the extent to which students, regardless of degree attainment, are prepared for jobs with solid prospects and earnings potential, enter jobs serving society's needs, find employment after attendance, achieve financial literacy, gain understanding of social, economic, and political issues, become civically engaged, have the basic understanding of science and technology necessary for contemporary citizenship, acquire appropriate certification or licensure for employment, develop intercultural and global understanding, and appreciate and pursue lifelong learning. These outcome factors are staples in decades of research on college impacts on students (Pascarella and Terenzini, 2005).[15] Each of these assessments could be undertaken on students having completed any amount of study, and thus could be implemented without focusing on graduation.

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[14] In this context, some controversy centers on whether the best outcome assessments are multiple choice or essay based (Matthews, 2004)

[15] Some of these indicators have been targeted in state efforts to tie institutional budgets to performance, with mixed success (Burke, 2002).

Another tack, suggested by the Hassell quotation above, might build upon quantitative measurement of students' intent and satisfaction. Did students meet their initial goals in entering the institution? Are they satisfied with their learning experiences? While some might see such data as "soft," they would address the converse problem with "hard" graduation data: the temptation to assume that we understand the reasons for students' choices to stay on campus or leave. Considering soft and hard data *in concert* seems preferable to relying solely on graduation-rate data, and thereby implicitly assuming that students not graduating from their initial institution represent failures on that institution's part.

Realistically, all of these supplemental approaches face two hurdles. First, the various factors may not all be amenable to the development of indicators meeting the criteria of being understandable, measurable, cost-effective, and reflective of core policy concerns. Without major investments in follow-up data collection, for example, how can we ascertain for large numbers of people and institutions students' success in employment markets? And, assuming such data collection is possible, should the focus simply be on employment as success, or is success better defined as employment matched to one's college major? Similarly, can widespread acceptance and budgetary support be built for large-scale surveys of, say, current and former students' citizenship and civic engagement? The answers are unclear.

Second, assuming that acceptable indicators of various supplemental domains of success can be devised and implemented, how can any institutional and systemic assessment system take into account not only the diverse entering characteristics of each institution's students but also the unique history and mission of each institution? Any of the indicators could be productively pursued at the level of individual institutions, with comparisons made over time to chart institutional progress, but the same indicators can become problematic when used across varied institutions. That is, each of the alternative definitions proposed above is vulnerable to the criticism that it may privilege certain kinds of institutions and missions over others. For example, vocational-technical institutions pay relatively little attention to building political understanding, while liberal-arts colleges offer few chances for professional certification or licensure. Before educational leaders and policymakers adopt any alternative success indicators or success "report cards," further examination of these constraints is critical. What seems readily apparent, though, is that considering a varied array of indicators, even with the inevitable imperfections of each, is preferable to focusing on only one imperfect indicator.

Beyond these questions of definitions and indicators, the reports do not delve intensively into questions of exactly how *student motivations, aspirations, and values* develop and shape success. Students' distinctive individual mental states and orientations are clearly important, but they are operationally difficult to study and draw upon as a guide for policy. In the aggregate, high levels of

student success are a resource for states, regions, and the nation and should be sought at all those levels, but student success is ultimately achieved one student at a time. It is an individual outcome and, assuming fair and accurate assessments, its achievement is most directly the product of efforts by the student. All else, including all of the diverse contextual factors outlined by each of the authors, is preliminary and formative toward the student achieving his or her own best outcome. It is perhaps inevitable that researchers are reluctant to speculate regarding the many unknowns and ambiguities of students' mentalities, but all success flows through mental structures and processes. As the Tinto and Pusser report and the Smart et al. report, in particular, emphasize, both social systems and individual cognitive and personality systems determine student success, and evidence of the strength of various social structures and processes should not preclude serious attention to the distinctively individual elements in success.

The reports also did not, and in truth could not, fully address the magnitude of the converse challenge: capturing the full influences of *societal structures* in the broadest sense. It is possible to study how students' background characteristics correlate with success, and how specific organizational factors on campus, such as faculty's willingness to engage in discussions and meetings with students outside of class, correlate with success, while missing entirely any deep understanding of the larger social forces at work in the "distribution" of student success among U.S. students from varied backgrounds. That distribution is certainly not random: there are patterns in the ways students, educational experiences, K–12 schools, and postsecondary institutions are matched, and we have limited understandings of the processes at work in placing certain students on less successful paths. For example, what, exactly, does it mean to know from correlational studies that lower income students tend to get lower grades relative to middle and higher income students in high school, and tend to attend less resource-rich postsecondary institutions as well, even after statistical controls for academic qualifications and a variety of other factors (Hearn, 1991; Anderson and Hearn, 1992; Hearn, 2001; Hearn and Holdsworth, 2005)? In policy terms, the optimally precise target for ameliorating such a problem is difficult to discern. If the problem were simply a question of money, we as a nation would have come a long way toward solving it already. We have not: socioeconomic factors continue to constrain success, and this limitation in our "apply-able" knowledge demands further attention.

Although the reports each suggest policy approaches, only some of them deal with questions of *policy implementation*, and then rather sparingly. Many management analysts argue that implementation issues and decisions are far more influential in reform outcomes than the actual decisions themselves.[16] Drawing on the policy-implementation literature, success-oriented policymakers and

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[16] For example, see Pfeffer (1992).

leaders might consider the following guidelines: 1) involve stakeholders from the beginning in policy design, 2) eliminate ineffective policies and policies that counteract those favoring student success, to place resources more squarely behind more effective student-success initiatives, 3) respect institutional autonomy and allow appropriate degrees of flexibility, because an overemphasis of uniformity and consistency may lower policy effectiveness, 4) avoid the disempowering of informed professionals on campuses, 5) favor inducements and enhancements over mandates to institutions and units, 6) monitor outcomes consistently and well, and 7) attend to street-level actors at the departmental levels.[17]

Relatedly, the question of *state and federal politics*, as opposed to policies themselves, merits close attention. In her response to the commissioned papers, Donna Alvarado laments the "preponderance of turf battles and funding silos" throughout the education system. Any time student success and related issues rise to the attention of policymakers and their political advisors, early clarity gives way to waves of negotiation, compromise, and crafting of nuanced language, with indeterminant effects on eventual policy development. The commissioned authors were not asked to undertake comprehensive analysis of the political context for student-success action and cannot be faulted for not doing so. Still, as Tinto and Pusser emphasize, nothing will be accomplished without attention to politics. As they suggest, policies designed to enhance student success should not only be structurally and financially viable but also in keeping with prevailing political contexts and values, so that they can be sustained year to year through broad coalitions of interest groups and supporters. Alvarado suggests that in the end, "policymakers and education leaders alike must be able to look to the constituency that matters most—in George Bernard Shaw's words, 'the posterity that has no vote.'"

Institutional financial-aid policies were addressed rather sparingly in the reports. Kuh and colleagues stressed the importance of providing emergency funding to meet student needs as they arise, and several authors noted that it was important to design aid packages to support student success. Some difficult issues concerning student aid and tuition and their connections to success remain, however. For example, how should student success goals be integrated with the growing use of tuition discounting? What are the pros and cons of institutions choosing to "front-load" grants on first-year and sophomore students? Providing students loans mainly in their junior and senior years, when students have proven that they are on track academically, can avoid the negative influences of loan-debt accumulation in the early postsecondary years of educationally vulnerable students, but it may also seem like false advertising or "bait and switch."[18]

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[17] These guidelines are drawn from work by McDonnell (1991), Folger and Jones (1993), Colbeck (2002), and McGuinness (1994).

[18] See McPherson and Schapiro (1998) and Kane (1999) for discussion of the academic and financial aspects of tuition discounting and front-loading aid.

Several of the reports mention institutional missions, but the possible benefits of *mission-differentiation* efforts for student success in public institutions received inconsistent attention in the reports. Notably, state guidance in mission differentiation allows particular institutions (e.g., community colleges) to focus directly and effectively on developmental and remedial education efforts and allows others to pursue other agendas[19]—ideally, this specialization promotes all students' chances for success. Jones and Ewell (1993, p. 23) stress that state-level institutional mission definition allows states to "assign excellence and innovation in undergraduate education as primary missions for specific institutions" and note that teaching and learning may suffer if an institution is "vague and non-specific about roles and priorities" or is allowed to "self-select its own mission without guidance or coordination in terms of state needs."[20]

Relatedly, questions of student success in *for-profit and online programs* have been little investigated and thus were little mentioned in the commissioned reports. Yet, as Laura Rendón has noted in commenting on the reports, students in such programs may be likely to differ from students in other institutions in gender, ethnic, and socioeconomic backgrounds. To the extent that providing chances for student success to all students in all contexts of postsecondary education is a goal, it is important that further research be conducted on these often ignored, understudied organizations.

None of the reports dealt in great detail with the special circumstances of *commuting and part-time students*. Kuh and his colleagues emphasize the need for institutions to find ways for part-time and commuting students to engage with their fellow students and become more involved with role models and supportive activities on campus. There has been appreciably less research on these populations than on full-time, residential students, and this lack likely influenced what the commissioned authors felt comfortable saying empirically about these students. Nonetheless, the sizable body of students in these circumstances demands bold research and policy consideration.

Similarly, the particular features of, and barriers to, student *success in different socioeconomic, ethnic, racial, cultural, and age populations* merit more attention. Each of the reports commented upon the potential importance of these differences for theory, research, and policy, yet several note that the research literature is insufficient. This nation is far more diverse than it was when much of the foundational research on student success was done, and population diversity is growing by the year.

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[19] Spann (2000).

[20] Also see Rifkin (1998).

A failure to build our research base to reflect the emerging face of the country will unquestionably harm our ability to achieve greater national levels of student success.

Perhaps no comprehensive review of existing published research can capture the many considerations in student success in particular populations. In responding to the five commissioned reports, for example, William Demmert comments that the reports and the research they reviewed do not adequately address Native American students' needs for a curriculum and campus climate compatible with tribal contexts, values, and notions of sovereignty. Extending the point further, Laura Rendón stresses that improved understanding and action on underserved students' success requires new methodological approaches, new theoretical foundations, and greater attention to the distinctively insightful contributions of scholars of color.

The role of *information and emerging information technologies* was not consistently emphasized by the authors. For many years, analysts have stressed the importance of providing students information on college costs and attendance early in their high school years, or even before. It is likely that useful information about college-going flows disproportionately to K–12 students in more advantaged educational and family environments, as Bridget Terry Long observes. It seems critical to examine whether public initiatives to widely disseminate college information, such as the longstanding efforts by the state of Indiana, have especially favorable impacts on lower income students' rates of college attendance.

New technologies can play an important role in spreading information on college possibilities. The absence of much attention in the reports to information technologies most likely stems from the absence of solid research on the effective use of technology in promoting student learning. Given the dramatic changes associated with new technologies on campuses, this topic clearly merits more attention. Of particular importance is whether the students whose prior academic records suggest they are especially vulnerable to not succeeding in postsecondary settings overlap appreciably with the students least prepared to understand and use new technologies. Backgrounds in lower resource secondary schools, for example, could contribute to both risk factors.

More consideration should also be given to the potential utility of *integrated, longitudinal student-record databases* for providing supplemental indicators of student success. As Thomas Bailey has noted in reflecting on the five commissioned reports, many states as well as the federal government are moving toward the integration of data sources at the student level to allow more effective and efficient tracking and analysis of patterns of student enrollment, achievement, and attainment. This "unit record" movement receives little attention in the five reports, but is important. To the extent privacy concerns can

be mitigated and bureaucratic and financial hurdles surmounted, these integrative initiatives can provide major analytic and policy benefits.

For Bailey, comprehensively linking institutional records for students to state unit-record data systems, as well as to national datasets such as the National Survey of Student Engagement (NSSE) would greatly strengthen analyses of the effects of particular programs and policies on student success. As it is, far too much research on student success necessarily relies on purely descriptive or correlational analyses, and the challenge for researchers and policymakers alike is to untangle what is merely artifactual and what is truly an effect of some program or policy. As Bridget Terry Long astutely observes in reviewing the five reports, "it is especially critical to distinguish between correlation and causation in a policy or practice environment. If a policy is based on research that really only documents a correlation between two factors, then the policy may not fulfill the original intent of improving student outcomes." Improving data sources improves the chances of getting policies and practices right.

Challenges in Achieving Student Success

The development of productive dialogue, and the consequent implementation of effective policies and programs to improve rates of student success, are not likely to be easy matters. Awaiting those who wish to move ahead intelligently are a number of potential nontrivial challenges.

A first, critical challenge involves dealing with the deceptive allure of efficiency. Who would disagree that organizations and systems should identify their goals and pursue them with as little waste as possible? Doing so is the operational definition of efficiency. If postsecondary education institutions' primary goal is success among their admitted and enrolled students, then outcomes like student dropout represent waste to be avoided assiduously. And, it would follow, the most straightforward way to avoid students dropping out is to not allow vulnerable students into institutions in the first place, or at least to ensure that what they encounter when they arrive is not so trying as to prompt thoughts of departure.

For institutions with robust applicant pools or the capability to shrink in size without major penalties, achieving high retention rates is really not such a big challenge. If student success as indicated by retention and, ultimately, graduation rates is an institution's primary goal, it can achieve both efficiency and widespread success simply by admitting only the applicants most likely to succeed. Such students would tend, on average, to be high-achieving young people from middle and upper income families and from strong high schools. A well-positioned school could reject students whose many risk

factors suggest statistically they would be unlikely to graduate. As simply as that, and even without any changes in campus educational practices, institutions could find themselves in the highest ranks regarding efficiency (lower attrition, steadier student progress, etc.) and thus, ultimately, among the strongest institutions in graduation rates.

Of course, postsecondary education lags business in emphasizing goal clarity and efficiency, and probably for the good reason that most postsecondary institutions pursue multiple goals, and some goals conflict with others. Few institutions adopt policies allowing them to admit only academically talented students, because their leaders and key stakeholders insist that raising selectivity to achieve high graduation rates is not the institution's only goal. Many institutions admit students who, on paper, may be less likely to graduate because these institutions believe that extending opportunities to those who have been academically or otherwise disadvantaged is an important goal that is essential to their mission.

Any institution's efforts to focus on achieving high graduation rates are understandable and may be defensible, but those efforts must inevitably be pursued in the context of the institution's other goals. Therein lies a tough question for policymakers, educational leaders, and researchers alike: how to incorporate most effectively a specifically operationalized success orientation (e.g., a focus on measured graduation rates) into the other legitimate orientations of institutions, and into the often "messy" student careers of undergraduates. Efficiency is desirable for both institutions and students, but in neither case is it all that is desired from undergraduate education.[21]

Another likely challenge in discussions of student success involves the potential appeal to governmental, accreditation, and association officials of pursuing the "one best solution." Across the country, states and their postsecondary systems are rapidly increasing their attention to ensuring student success (AASCU, 2006). The details of those efforts are strikingly diverse. There are trends toward centralization, but there are also trends toward decentralization and using market-based approaches such as competitive and incentive-based funding, and there are trends toward building new central coordinating structures as well as trends toward using private-sector organizations as delivery mechanisms.[22] New partnerships, cooperative ventures, and strategic alliances are being formed to deliver more effective postsecondary education to students. National and state leaders in this context must be attentive to various choices being made around the country to improve undergraduate success. In this context, there may be a natural tendency to try to identify "the best" approach for achieving success. For example,

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[21] For a somewhat dated, but remarkably apropos and delightfully insightful discussion of the debatable place of efficiency in postsecondary education, see the 1978 essay by Nobel-winning economist Kenneth Boulding, titled "In Praise of Inefficiency."

[22] See McLendon (2003). Along these lines, Mingle and Epper (1997) have characterized the contemporary postsecondary-education environment as one of "creative chaos," and have argued that public officials must be nimble and responsive to this context.

professional groups may wish to publish position papers on the topic for their member systems and institutions. Such efforts may be laudable and useful, but there is reason to be cautious about any hints of universal applicability and effectiveness. It may not be a bad thing that no single policy approach appears to be emerging as dominant. Rather than a weakness to be eliminated, the emergence of many possible answers represents a profusion of natural experimentation to be cherished and studied.

In fact, it is clear that complicated and diverse problems of student success are likely to require complicated and diverse solutions, fitted to the complicated and diverse individual institutional settings of postsecondary education in this country. There are unquestionably better and worse ideas afloat, and public evaluation should always work toward ensuring that good ideas drive out the bad. Nonetheless, the notion that any one policy idea is unequivocally best is shortsighted. There are unlikely to be any magic bullets awaiting those seeking to raise students' chances of success.

Of course, acknowledging the benefits of diverse answers requires acknowledging the dangers of assuming that best practices in student success are easily transferable. As states and institutions consider various new policies for achieving success, the question arises as to how to adopt the attractive, proven approaches of individual exemplary programs for productive use in other settings. Differences across and among postsecondary educational settings are immense, and advocates need to take great care in touting their own schools' solutions as potential solutions elsewhere. This, of course, is the increasingly familiar question of bringing single-site-based achievements "to scale."[23] The great imitative tendency in policy development needs to be leavened with realism and rigor regarding what can be transferred effectively from one place to another.

A further threat to productive dialogue and action involves glibness. It is far easier to support, in the abstract, integrative policy development across levels of the education system than to achieve that integration in reality. Often, integrative P–16 efforts can be hindered by structural, procedural, cultural, and political differences.[24] It would be foolish to suggest that a possibly productive action not be pursued because it is hard to accomplish, but it would be similarly foolish to underestimate the difficulties entailed. In most states, policies develop incrementally and in level-specific ways, and neither tendency serves to promote sweeping agendas such as those associated with student success. The most productive dialogue on success will realistically acknowledge the difficulties of achieving some desired structural and political outcomes.

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[23] See McDonald et al. (2006).

[24] See Turner, Jones, and Hearn (2004).

It is especially important to guard against any tendency to speak about the desirability of student success abstractly rather than as an area of potential investment of scarce resources, to be analyzed rigorously like any other area of potential investment. The proper questions to be asked are certainly not abstract: to achieve real improvement in student success, and not just rhetorical victories, it is imperative that questions of cost-effectiveness be addressed. They need to address which outcomes may be achieved at what level of costs. For example, it is understandable that state and institutional leaders around the country are recommending new policies for promoting success on campuses and across systems, but in how many cases are these leaders examining the various current and possible policy options and evaluating which approaches provide the most attractive combinations of costs and effects in the most important goal domains? What are the opportunity costs of choosing x rather than y? What would be the return to reforming or discarding certain existing policies and practices? For example, is it preferable to continue investing a million dollars a year on remedial education in a state university system, or to direct those funds instead to a new state program gathering data and reporting on success-related postsecondary outcomes in the state? As several of the commissioned authors note, when we move beyond the concerns of individual institutions toward the concerns of systems and states, directly addressing many facets of student success requires developing comprehensive information systems regarding student success at all levels of control and governance. That is no trivial matter. Asking tough questions about costs and effects, as well as about underlying policy values, is critical, especially in times of tight resources at both the institutional and system levels.

Conclusions

The authors of the five commissioned reports undertook a difficult task. Asked to review, synthesize, critique, and push forward the diverse research literature on student success, they delivered responsive, insightful, and provocative products likely to energize this research arena at the symposium and beyond. Notably, the authors considered and reconsidered the currently dominant theories and methods of student success research, raising a number of concerns about the existing research base. Frequently, the authors' reports urge future researchers to move beyond familiar, traditional approaches toward perspectives and techniques from political science, sociology, economics, anthropology, and other fields. Not surprisingly, the authors, as well as the insightful invited respondents to their reports, do not always agree in their critiques of existing theories and methods (is there too much quantitative research, or is the quantitative research itself insufficiently rigorous and scientific? is the research insufficiently sensitive to group differences, or do the most important aspects of success transcend race, ethnicity, and gender?). No one would argue that any research base is definitive, but the unavoidable conclusion from

the provocative reports and papers produced for the symposium is that the foment is healthy and will ultimately prove productive.

Energetic dialogue concerning what the reports say, and do not say, is desirable. NPEC did not commission these reports to establish definitively the current wisdom concerning student success. Rather, the reports are meant to provide the stimulus for diverse voices to enter the arena, and for action to proceed from the resulting discussion. Ensuring the quality of that discussion is important. Even more important is making sure that the dialogue leads to action.

As the observations in the preceding section suggest, the challenges to effective action on student success are daunting. The complexity of the problem might deter taking any action at all, out of fear of waste or, worse, of harm. Yet it seems best to conclude this essay by stressing that inaction also represents a clear danger. Sometimes, it makes good sense to act rather than simply to await the definitive, final piece of information. Often, by the time all the "necessary" information is available, the opportunity for productive action has passed. To simply recommend more research as the answer to questions regarding student success may be to deny current students opportunities for improved campus experiences and outcomes. As Tinto and Pusser argue,

> Though there is still much to learn, it is fair to say we already have a good sense of "what works." The issue, in our view, is not so much a lack of knowledge as it is of seriousness of intent and the failure to build effective partnerships between institutions and policymakers on behalf of the students we serve.

Kuh and his colleagues echo that view:

> We know many of the factors that facilitate and inhibit earning a bachelor's degree. The real question is whether we have the *will* to more consistently use what we know to be promising policies and effective educational practices in order to increase the odds that more students "get ready," "get in," and "get through."

Thus, the best dialogue on student success is going to be dialogue that incorporates research knowledge but also goes beyond arguments regarding the limits and fringes of that knowledge. Ultimately, the best dialogue will move policymakers and institutional leaders toward active commitment to applying existing knowledge to the benefit of all students.

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APPENDIX:
SUMMARIES OF THE FIVE COMMISSIONED PAPERS

NPEC identified a group of established researchers to receive a targeted solicitation to submit proposals for funding a report on student success in postsecondary education. Applicants were asked to submit an effective plan to:

- Review and synthesize relevant research, practice, and policy literature relating to student success in postsecondary education, with the goals of articulating a persuasive, inclusive, and theory-informed perspective on student success and identifying student and institutional characteristics associated with different definitions of success.

- Identify relevant major domains and themes in this literature.

- Identify significant issues and problems in the literature's assumptions, core concepts, theories and hypotheses, measurement approaches, research activity and findings, and applications to practice and policy.

- Incorporate federal, state, institutional, and student perspectives in developing approaches for addressing these lacunae. Include attention to further developing the definition and understanding of student success, and examining the implications of the definition for improving practitioner and policymaker decisions relating to student success in postsecondary education and for future research and theory.

In response to this solicitation, the Cooperative received numerous high-quality proposals. In 2004, using the criteria presented above, the NPEC review team selected four proposals for funding. The winning proposals came from John Braxton of Vanderbilt University, from George Kuh and colleagues from Indiana University, from Scott Thomas of the University of Georgia and Laura Perna of the University of Maryland (Perna subsequently moved to the University of Pennsylvania), and from Vincent Tinto of Syracuse University and Brian Pusser of the University of Virginia. As additional resources became available, NPEC selected for funding a fifth, more specialized, proposal from John Smart of the University of Memphis, Kenneth Feldman of SUNY at Stony Brook, and Corinna Ethington of the University of Memphis.

Each of these five reports will be briefly summarized here. Although their contracted directions and responsibilities were identical, the authors took somewhat different approaches. Most notably, their reports range from focusing on broad conceptualizations at the level of social, political, cultural, and economic issues to focusing on micro-level examinations of interactions among faculty and students. Each report covers both macro- and micro-level issues, of course, but it is possible to order the

reports' scope roughly from the broadest to the most specific. The reports are presented in that order below, with special attention to the authors' recommendations for policy and educational practice.

1. ***A Framework for Reducing the Student Success Gap and Promoting Success for All,***
by Scott L. Thomas and Laura W. Perna

This paper assayed recent literature in the fields of education, psychology, sociology, and economics. Thomas and Perna aimed to identify a framework to guide policymakers, practitioners, and researchers interested in understanding the various factors influencing student success. They stress that their framework is "intended to assist policymakers, practitioners, and researchers by describing avenues and approaches to effective development, implementation, and evaluation of policy, eschewing the identification of a 'single bullet' theory, method, policy, or practice."

They argue that student success is a product of four key phases or "transitions" in students' lives: the development of postsecondary readiness, the process of entering into postsecondary enrollment, achievement in the postsecondary years, and attainment in the years after attendance. Their review envisions success in each of these phases as based in four interrelated domains: students' internal cognitions and motivations, students' immediate family, students' schooling contexts, and the larger social, economic, and policy contexts enveloping students. For Thomas and Perna, the complexity of these four transitions and four contextual domains implies that student success policies and practices cannot be uniformly applied. Summarizing their work, they argue that student success is a longitudinal, context-driven process best understood through multiple, interdisciplinary theoretical approaches and multiple methodological approaches.

For that reason, Thomas and Perna's advice for policymakers and practitioners is cautionary: merely instituting uniform policies and practices for all students and standing back is not likely to work, no matter how sensible those policies and practices might seem. As they suggest, "Policymakers and practitioners should recognize that the effectiveness of a particular policy or practice cannot be assessed merely in terms of the availability of a program or policy to a student but also in terms of the layers of context that inform the student's understanding of the program or policy and that encourage or limit participation of the students in the policy or program." Sensitivity to contextual factors is imperative, they argue.

Thus, Thomas and Perna suggest that students are responding not to individual policies but rather to a broader array of stimuli and deterrents to their success. "No single approach to policy or practice will improve student success for all students or reduce gaps in success across students. Policies

and programs that recognize variations in the various layers of context are likely to be more effective than policies and programs that emphasize a one-size-fits-all approach." Thus, policies and programs designed to address discrete indicators of student success (e.g., graduation rates) may succeed or fail not so much on whether they address that particular issue well, but rather on how that effort corresponds to, and either reinforces or counteracts, the influences of other factors (e.g., student background experiences, efforts to address inequities in postsecondary access, etc.).

2.	*What Matters to Student Success: A Review of the Literature*,
	by George D. Kuh, Jillian Kinzie, Jennifer A. Buckley, Brian K. Bridges, and
	John C. Hayek

Kuh and his colleagues suggest that for most U.S. citizens, success in postsecondary education is critical to economic self-sufficiency and social, political, and cultural competency. Therefore, they suggest, policymakers, leaders, and researchers need to address the policies, programs, and practices fostering academic achievement; engagement; satisfaction; acquisition of knowledge, skills, and competencies; postsecondary persistence; educational attainment; and performance after postsecondary education completion.

Toward that end, Kuh et al. make several recommendations for policy and practice. First, they support a variety of school-based precollege efforts, including ensuring that all students have rigorous, intensive precollege academic preparation, developing a comprehensive national postsecondary education readiness strategy that addresses the educational needs of all students, aligning high school curricula with postsecondary performance standards, and instilling in K–12 educators an "assets-based" talent development philosophy. Second, Kuh et al. recommend expanding demonstrably effective postsecondary encouragement and transition programs such as GEAR UP and Indiana's Twenty-First Century Scholars Program and ensuring that students and families have accurate information about postsecondary attendance, costs, and aid availability.

Third, arguing that affordability matters to student success, Kuh et al. recommend not only designing financial aid and tuition policies to meet students' needs but also creating small pockets of emergency funds to meet student financial needs as they arise. Fourth, Kuh et al. recommend that institutions should forcefully and repeatedly emphasize their core values and expectations to prospective and matriculating students, concentrating special attention and learning resources on those students with two or more risk factors, such as being the first in the family to go to college or being from a socioeconomically disadvantaged background.

Fifth, Kuh and his colleagues emphasize the need for institutions to make meeting academic goals a primary feature of the campus community by making the classroom the locus of community, by structuring ways for commuter students to spend more time with classmates, and by meaningfully involving each student in an academic activity or with positive role models in the postsecondary environment. Sixth, stressing the importance of institutions creating a student-centered, success-oriented culture, Kuh et al. argue for first-year seminars, effective advising, peer support and mentoring, summer bridge programs, the development of learning communities and living-learning centers, and strong undergraduate research programs.

Finally, Kuh et al. stress that policymakers should focus assessment and accountability efforts on factors central to student success, rather than on factors perhaps more easily measurable but perhaps also influential only in more indirect ways. For example, the percentage of faculty with doctoral degrees is easy to measure and may indeed contribute to success, but in indirect ways. Kuh and colleagues instead recommend conducting periodic examinations of student experiences inside and outside the classroom; providing incentives to institutions to responsibly gather, report, and use information about the student experience to improve teaching, learning, and personal development; providing incentives to institutions to adopt a common reporting template for indicators of student success to make their performance transparent; and further developing the capacities of states and institutions to collect, analyze, and use data to foster accountability and improvement.

3.   ***Moving From Theory to Action: Building a Model for Student Success,***
          by Vincent Tinto and Brian Pusser

Tinto and Pusser argue that the critical domain of student success is the completion of an undergraduate degree, because it is the attainment of that degree that is critical to future occupational success. These authors aim to develop an action model providing guidelines policymakers and institutional leaders can use to increase student persistence to the degree.

Importantly, Tinto and Pusser stress several cautions: knowing why students leave does not tell us why they stay and succeed; theoretical concepts do not translate easily into definable courses of action; research tends to focus on external events rather than on the cognitive processes associated with departure; and persistence and success research and its application are hampered by ambiguities and confusion. Notably, they argue, research often fails to distinguish between voluntary and nonvoluntary

leaving, and between the different forms of completion (e.g., completing after continuous enrollment versus completing after discontinuous enrollment).

While acknowledging that each student brings to the postsecondary years certain distinctive characteristics and histories, Tinto and Pusser focus primarily on aspects of the *institutions' environments* that shape student success and are controlled by the institutions. These authors express concern that an institutional emphasis on maximizing rates of student success may prompt some institutions to reject applications from students with various kinds of background risk factors. Instead, they emphasize the importance of institutions establishing a supportive academic, social, and financial climate for students, via the activities and expectations of faculty, staff, and administrators; providing effective, wide-ranging support for students; providing effective feedback to students regarding their performances (via monitoring, assessment, and early warning systems); and ensuring there is a strong array of activities that involve students as important members of the institutional community. Throughout, Tinto and Pusser emphasize the importance of the postsecondary classroom, and the academically associated extracurriculum, as the major arenas for student success.

Tinto and Pusser suggest that state and national policies have the greatest positive impact upon student success when they focus on 1) creating linked P–16 systems to align primary and secondary standards with postsecondary requirements, and establishing databases that can follow students throughout all of the P–16 educational levels; 2) supporting teacher development in the primary and secondary levels; 3) developing underprepared students educationally; 4) designing institutional outreach programs directed at traditionally underrepresented students; 5) improving course articulation between two- and four-year institutions; 6) establishing early and continuous evaluation and assessment of student preparation for postsecondary access and success, with an eye on providing appropriate information to all stakeholders; and 7) developing innovative finance policies (including state support, institutional aid, federal aid, tax policy, and tuition policy) that direct expanded aid to the students with greatest financial need.

As an overarching recommendation, Tinto and Pusser emphasize the importance of policymakers, leaders, and researchers setting aside parochial, "K–12 versus postsecondary education" ways of thinking. Instead, they urge all parties to view the educational system as a whole.

4.   ***Faculty Professional Choices in Teaching that Foster Student Success,***
             by John M. Braxton

Noting the flurry of articles, conference presentations, and dissertations in recent years focused on student success, Braxton suggests that this interest alone is not an indication of real progress: "College student success stands as a topic that cries out for some form of systematic empirical attention. Without the benefit of such scholarly attention, uninformed, ad hoc views on student success and ways to achieve student success will emerge." With this charge in mind, Braxton focuses his report on postsecondary faculty, whom he sees as the key figures in the success of postsecondary students. Braxton seeks to conceptualize how faculty actions in teaching can contribute to student success.

Braxton identifies eight domains of student success: academic attainment, acquisition of general education, development of academic competence, development of cognitive skills and intellectual dispositions, occupational attainment, preparation for adulthood and citizenship, personal accomplishments, and personal development. Faculty's choices, from course organization to assessment of students to research on course outcomes, can importantly influence each of these aspects of success, Braxton argues. In turn, he suggests, faculty's choices in these areas are influenced not only by their own background and expectations but also by the institution's expectations and rewards, the institution's culture, and the actions of institutional leaders at various levels.

Braxton makes numerous recommendations for policy and practice. Of these, the following are those he emphasizes as most salient. At the state level, Braxton argues that 1) performance-funding policies should address those aspects of teaching that require some degree of effort by faculty to enact; 2) states should specifically earmark funds for faculty-development activities at the institutional level; and 3) state-initiated academic program reviews and performance indicators should document the ways faculty at public colleges and universities make professional choices that have been shown to contribute significantly to student learning.

At the campus level, Braxton argues that central leaders should 1) at every appropriate opportunity, whether public or private, express their commitment and support for excellence in undergraduate teaching, thus modeling the high value the institution places on teaching directed toward the improvement of student learning; 2) require that candidates for faculty positions present a teaching demonstration or a pedagogical colloquium as part of the interview process; and 3) work to ensure that faculty understand that pursuing effective efforts to contribute to student learning will be rewarded, in the form of salary increases, tenure, promotion, or reappointment. Braxton also provides six

recommendations for leaders of academic departments, the most critical one paralleling the last of those for central administrators: provide known and valued rewards for efforts to promote student success.

5.   ***Holland's Theory and Patterns of College Student Success,***
         by John C. Smart, Kenneth A. Feldman, and Corinna A. Ethington

The report by Smart and his colleagues is distinct from the other four in that it deals with only one question: how psychologist John L. Holland's (1997) theory of person-environment fit can aid understanding of postsecondary student success. Holland's theory focuses on vocational choice, which can be related closely to students' major choices in postsecondary education. Thus, Smart et al. focus on one particular aspect of postsecondary success: students' persistence, satisfaction, and achievement within a field of study.

Holland's theory postulates six basic personality basic types, and further suggests that these types are reflected in the various fields of postsecondary study. Students of different types come to campus, and campuses present various environments matching or not matching those types. For example, Holland's artistic-type students are rather unlikely to enjoy or find success pursuing a major in electrical engineering, while Holland's investigative-type students may be especially likely to enjoy and be successful in a physics major.

Smart and colleagues argue that educational persistence, satisfaction, and achievement are a function of the fit between individuals and their environments. That fit can be achieved by self-selection, in that students often (but not always) choose educational environments that are compatible with their personalities. Fit can also be achieved through socialization: once in an environment, students find that environment shaping them by requiring, reinforcing, and rewarding them for acquiring and displaying certain attitudes, values, interests, and competencies. Regardless of how fit is obtained, it is essential for success to be achieved.

These ideas are central to success, Smart and his colleagues argue:

> [A]cademic environments (e.g., major fields) are an absolutely essential component in efforts to understand student success in postsecondary education. … [S]tudents learn what they study, which is to say the distinctive repertoire of professional and personal self-perceptions, competencies, attitudes, interests, and values that their respective academic environments distinctly reinforce and reward.

Most strikingly, Smart, Feldman, and Ethington conclude that student advising should not be constrained by students' past or present personality profiles, but rather should be grounded in the competencies and interests students *desire* to develop in postsecondary education. That is, institutions should focus their advice more on what students hope to be rather than what they presently are. This advice dramatically counters the more prevalent view that student advising should be oriented around the idea of matching students with majors that are congruent with their present personalities and skills.

Smart and colleagues also suggest that, contrary to "one size fits all" approaches to assessing "student learning outcomes," institutions should make academic environments a key element in those assessment efforts, and should tailor assessments to both cognitive and affective outcomes that the respective academic environments seek to reinforce and reward.

Finally, Smart et al. suggest that institutions should make Holland-related information about students routinely available to faculty members and academic leaders to further boost their efforts to understand, assess, and promote student success. The Smart team stresses that faculty members and academic leaders need to understand that student success must be judged in relation to how closely students' interests, abilities, and values match those rewarded and reinforced by their respective academic environments.