
George D. Kuh

Chancellor's Professor of Educational
Leadership and Policy Studies at
Indiana University (Bloomington)

Nominated by:

John H. Schuh

George D. Kuh

**Letter of
Nomination**

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Human Sciences
Department of Educational
Leadership and Policy Studies
N243 Lagomarcino Hall
Ames, Iowa 50011-3195
515 294-4143
www.elps.hs.iastate.edu/

August 25, 2009

Dr. Trent E. Gabert
Chair, Executive Committee
Brock International Prize in Education
Associate Dean, College of Liberal Studies
The University of Oklahoma
1610 Asp Avenue, Suite 108
Norman, OK 73072-6405

Dear Dr. Gabert,

The purpose of my letter is to nominate Dr. George D. Kuh, Chancellor's Professor of Educational Leadership and Policy Studies at Indiana University (Bloomington) for the Brock International Prize in Education. Over my nearly 40 years as an administrator and faculty member, I can think of no one who is more deserving of this recognition than Dr. Kuh. He is, in my judgment, the leading scholar related to the college student experience in the world, and his record of productivity is unmatched by anyone in his generation. Were one to base this prize solely on scholarly productivity, Professor Kuh would be a leading candidate. But this award recognizes a person who has brought about change in education, and Dr. Kuh, certainly in higher education in my judgment, has no parallel.

The Brock Prize "recognizes an individual who has made a specific innovation or contribution to the science and art of education, resulting in a significant impact on the practice or understanding of the field of education. This innovation or contribution must have the potential to provide long-term benefit to all humanity through change and improvement in education at any level, include new teaching techniques, the discovery of learning processes, the organization of a school or school system, the radical modification of government involvement in education, or other innovations. The prize is not intended to recognize an exemplary career or meritorious teaching, administration, or service with a primarily local impact" according to the prize's web site.

I will skip a recitation of Dr. Kuh's scholarly achievements. They are included in the resume that is part of this packet although I have to confess that the resume that is enclosed is abridged due to lack of space. His complete resume runs more than 100 pages. He has been a top scholar in his discipline for decades, author of many books, refereed articles, and other scholarly products, and has been recognized with a panoply of awards. More central to the intent of the Brock Prize, Dr. Kuh has changed how higher education leaders, faculty, and staff across virtually every institutional type, from community colleges to leading research universities think about and approach student learning. Let me explain why.

As the principal developer of the National Survey of Student Engagement (NSSE), Dr. Kuh has been able to craft a means by which student engagement, a primary ingredient in the success of students at the baccalaureate level (see Astin, 1993; Tinto, 1997; Pascarella & Terenzini, 2005), can be measured. The NSSE has been adopted by hundreds of institutions of higher education (IHEs) as a means by which to gauge student engagement, diagnose problems, and make improvements in the undergraduate experience. Why is this important? As was called for in the Spellings Commission Report (2006), IHEs need to add to the robustness of student learning, thereby improving students' ability to achieve the goals that they set for themselves when they make the decision to enroll in college. I have enclosed in the nomination packet a paper prepared by Dr. Kuh that provides the conceptual framework for the NSSE as well as information about its psychometric properties. So, the NSSE, which was administered to 380,000 randomly selected first year and senior students at 722 four year institutions in the 2007-2008 academic year (the most recent year reported), is used to measure the undergraduate experience and make improvements in it, student by student.

But the NSSE also has tremendous value as one of the instruments that is utilized in the Voluntary System of Accountability (VSA), a voluntary initiative developed through a partnership of member institutions of the American Association of State Colleges and Universities (AASCU) and the Association of Public and Land-Grant Universities (A·P·L·U). VSA is a response, in part, to the call of the US Department of Education and the Spellings Commission for institutions of higher education to be more accountable to their various stakeholders. According to the VSA web site, 329 institutions are members of the VSA initiative.

Not content with just developing the NSSE, Dr. Kuh has been the driving force behind the creation of a number of other instruments including measures of student engagement in law schools, community colleges, and high schools as well as faculty engagement with students. Thus, his work has influenced and shaped education from high school through professional school.

How widespread is the influence of the NSSE? I point to the letters of the supporters of this nomination.

Dr. Molly Broad, President of the American Council of Education, wrote,

"NSSE has made a significant impact in improving student success and demonstrating higher education's commitment to produce postsecondary graduates who have the necessary skills to keep our country competitive."

Dr. Carol Geary Schneider, President of the Association of American Colleges and Universities, concluded,

"It is not too much to say that NSSE has wrought a revolution in campus consciousness, successfully directing both leadership and faculty attention

to the whole question of whether students reliably engage in high effort, high engagement educational practices that are beneficial to students' actual level of learning. Many campuses are making educational changes suggested by their NSSE data. The momentum in this direction is clearly building, thanks in part to Dr. Kuh's effective and far-reaching influence."

Dr. Stanley O. Ikenberry, President Emeritus of the University of Illinois, Past President of the American Council on Education, and Professor at the University of Illinois (Urbana Champaign), pointed out,

"Although international efforts are not part of NSSE's core mission, the project has informed international consideration of assessment and has garnered significant attention from higher education scholars, researchers, faculty and administrators abroad. The NSSE project has been part of discussions about quality improvement and assessment activities at international meetings led by the Organization for Economic Cooperation and Development (OECD)."

Dr. Thomas Ehrlich, currently a Senior Scholar at the Carnegie Foundation for the Advancement of Teaching and previously dean of the Stanford University Law School, Provost of the University of Pennsylvania, and President of Indiana University concluded,

"It (The NSSE) is primarily a tool for campuses that want to improve to learn what steps need to be taken. It enables campuses to compare the learning at their institutions with peers. It can be used by entire campuses or by units within campuses. It can be supplemented by clusters of questions by groups of campuses. In short, it is extraordinarily useful for a wide range of faculty and administrators who want to improve student learning."

To provide just one example of the influence of the NSSE and Dr. Kuh's work on a specific campus, President Theodora Kalikow of the University of Maine at Farmington, offered the following observations,

The genius of the NSSE is that it provides a proxy for measuring the quality of students' learning by measuring their engagement with the kinds of experiences that we know are conducive to active learning. And yet it avoids the controversies about standardized tests and the differences in academic missions that have sunk so many less-nuanced assessment efforts for so long. The data are national in scope but tailored to institutional type and mission: reliable, credible, actionable...This massive institutional change (at UMF) might never have happened with the NSSE data, which helped us make a compelling case about how curricular change could address an area of weakness...Our experience at UMF can be, and is, replicated throughout higher education.

Dr. Kuh's work is central to the question that virtually every institution of higher education in the country addresses: How can the student experience be enriched

so that students will learn to the greatest extent possible during the few precious years that they are enrolled as undergraduates? The NSSE works, and as the testimonials indicate, its influence on higher education in the United States is pervasive, and building just around the corner, Dr. Ikenberry predicts, is NSSE's worldwide influence.

It is important to note that Dr. Kuh has not been an ivory tower academic. He has served as a tireless advocate for enriching the student experience by his work with hundreds of individual institutions as well as the countless addresses, workshops and other outreach activities in which he has engaged on behalf of improving student learning. Just a few of the institutions he has worked with are listed in his vita, and what is most impressive is that his work has not been just with highly visible, very prestigious colleges and universities. He has traveled far and wide to assist institutions that are genuinely interested in improving the experiences of their students regardless of the institution's reputation, stature or prestige.

Dr. Kuh's references agree that he is a superb candidate for this award. Their words make a compelling case,

"His many accomplishments demonstrate his worthiness as the 2010 recipient of the Brock International Prize in Education" (Dr. Molly Broad).

"It is hard to think of any scholar who is more richly deserving of the Brock prize" (Dr. Carol Geary Schneider).

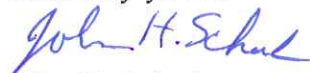
"I can think of no individual in American higher education more deserving of the Brock International Prize in Education than George Kuh" (Dr. Stanley O. Ikenberry).

"I have been involved in teaching and learning for almost 45 years and know of no one in all my experience who has had such a marked impact on higher education as Dr. Kuh" (Dr. Thomas Ehrlich).

"George's leadership in inventing and disseminating the National Survey of Student Engagement (NSSE) has truly made a profound impact on higher education" (Dr. Theodora Kalikow).

Under this cover are the letters of support, Dr. Kuh's abbreviated vita, the paper that describes the technical aspects of the NSSE, and an article that is a sample of Dr. Kuh's writing. They will provide further depth to your understanding of Dr. Kuh's work and I trust you will join me in concluding that he is very worthy of receiving the 2010 Brock International Prize in Education.

Sincerely yours,



John H. Schuh
Distinguished Professor

George D. Kuh

**Candidate
Vita**

June 2009

CURRICULUM VITA
(abbreviated)

George D. Kuh

Address: Center for Postsecondary Research, Indiana University
1900 E. 10th St., Eigenmann Hall Suite 419. Bloomington IN 47406-7512
Telephone: 812-856-5824 Fax: 812-856-5150 Internet: kuh@indiana.edu

Education

B.A. 1968 Luther College (IA) Majors: English, history
M.S. 1971 St. Cloud State College Major: Counseling
Ph.D. 1975 University of Iowa Major: Counselor education Minor: Higher education

Academic and Administrative Experience

Chancellor's Professor	Indiana University	2001-present
Professor	Indiana University Educational Leadership and Policy Studies School of Education Graduate School	1984-2000
Director	Indiana University Center for Postsecondary Research	1999-present
Director	National Institute for Learning Outcomes Assessment (NILOA)	2008-present
Director	Strategic National Arts Alumni Project (SNAAP)	2007-present
Director	National Survey of Student Engagement (NSSE)	1999-2007
Director	NSSE Institute for Effective Education Practice	2002-2007
Senior Scholar	NSSE Institute	2008-present
Director	College Student Experiences Questionnaire	1994-present

Associate Dean of the Faculties	Indiana University Bloomington	1997-2000
Associate Dean for Academic Affairs	Indiana University School of Education	1985-88
Assistant-Associate Professor	Indiana University School of Education Graduate School	1976-1984
Assistant Professor	University of Iowa	1975-1976
Admissions Officer	Luther College	1968-1972

Publications

I have published about 300 items including 30 books, monographs and national reports, 70 chapters, and about 200 articles. In addition I have prepared dozens of technical reports and contributed to several major national reports including the annual summary of findings from the National Survey of Student Engagement.

Selected Books and Monographs

Kuh, G.D. (1981). *Indices of quality in the undergraduate experience*. AAHE-ERIC/Higher Education Research Report No. 4. Washington, D.C.: American Association for Higher Education.

Kuh, G.D. (Ed.) (1983). *Understanding student affairs organizations. New Directions for Student Services*, No. 23. San Francisco: Jossey-Bass.

McCarthy, M.M., Kuh, G.D., Newell, L.J., & Iacona, C. (1988). *Under scrutiny: The educational administration professoriate*. Tempe, AZ: University Council on Educational Administration.

Kuh, G.D., & Whitt, E.J. (1988). *The invisible tapestry: Culture in American colleges and universities*. ASHE-ERIC Higher Education Report, No. 1. Washington, D.C.: Association for the Study of Higher Education.

Kuh, G.D., Schuh, J.H., Whitt, E.J., & Associates (1991). *Involving colleges: Successful approaches to fostering student learning and personal development outside the classroom*. San Francisco: Jossey-Bass.

Kuh, G.D. (Ed.). (1993). *Using cultural perspectives in student affairs work*. Washington, D.C.: American College Personnel Association.

Kuh, G.D., Douglas, K.B., Lund, J.P., & Ramin-Gyurnek, J. (1994). *Student learning outside the classroom: Transcending artificial boundaries*. ASHE-ERIC Higher Education

Report No. 8. Washington, D.C.: The George Washington University, School of Education and Human Development.

Kuh, G.D., Lyons, J., Miller, T., & Trow, J. (1995). *Reasonable expectations: Renewing the educational compact between institutions and students*. Washington, DC: National Association of Student Personnel Administrators.

Stage, F.K., Anaya, G.L., Bean, J.P., Hossler, D., & Kuh, G.D., (Eds.). (1995). *College students: The evolving nature of research*. Needham Heights, MA: Simon and Schuster/Association for the Study of Higher Education.

McCarthy, M.M., & Kuh, G.D. (1997). *Continuity and change: The educational leadership professoriate*. Columbia, MO: University Council on Educational Administration.

Kuh, G.D., Kinzie, J., Schuh, J.H., Whitt, E.J., & Associates (2005). *Student success in college: Creating conditions that matter*. San Francisco: Jossey-Bass.

Kuh, G.D., Kinzie, J., Schuh, J.H., & Whitt, E.J. (2005). *Assessing conditions to enhance educational effectiveness: The Inventory for Student Engagement and Success*. San Francisco: Jossey-Bass.

Miller, T., Kuh, G.D., Paine, D., & Associates. (2006). *Taking student expectations seriously: A guide for campus applications*. Washington, DC: National Association of Student Personnel Administrators.

Kuh, G.D., Kinzie, J., Buckley, J., Bridges, B., & Hayek, J.C. (2007). *Piecing together the student success puzzle: Research, propositions, and recommendations*. ASHE Higher Education Report. San Francisco: Jossey-Bass.

Kuh, G.D. (2008). *High impact educational practices: What they are, who has access to them, and why they matter*. Washington, DC: Association of American Colleges and Universities.

Gonyea, R.M. & Kuh, G.D. (2009). *Using NSSE in institutional research. New Directions for Institutional Research*. San Francisco: Jossey-Bass.

Selected Chapters (since 1995)

Kuh, G.D. (1996). Organizational theory. In S. Komives and D. Woodard, Jr. (Eds.), *Student services: A handbook for the profession* (3rd ed.). San Francisco: Jossey-Bass.

Kuh, G.D. (1997). Strengthening the ties that bind: Cultural events, traditions, and rituals. In J.N. Gardner and G. Van der Veer (Eds.), *The senior year experience: Facilitating integration, reflection, closure, and transition*. San Francisco: Jossey-Bass.

Arnold, K., & Kuh, G.D. (1999). What matters in undergraduate education? Mental models, student learning, and student affairs. In E.J. Whitt (Ed.), *Student learning as student*

affairs work: Responding to our imperative. Washington, DC: National Association of Student Personnel Administrators.

Kuh, G.D. (1999). Setting the bar high to promote student learning. In G.S. Blimling, E.J. Whitt and Associates, *Good practice in student affairs: Principles to foster student learning.* San Francisco: Jossey-Bass.

Kuh, G.D. (2000). Understanding campus environments. In M.J. Barr and M. Desler (Eds.), *Handbook on student affairs administration* (2nd ed.). San Francisco: Jossey-Bass.

Kuh, G.D., & P.G. Love (2000). A cultural perspective on student departure. In J. Braxton (Ed.), *Rethinking the departure puzzle: New theory and research on college student retention.* Nashville, TN: Vanderbilt University Press.

Kuh, G.D., Siegel, M.J., & Thomas, A. (2001). Higher education: Values and culture. In D. Creamer, R. Winston, and T. Miller (Eds.), *The professional student affairs administrator: Educator, leader, and manager.* Muncie, IN: Accelerated Development.

Kuh, G.D. (2001). College students today: Why we can't leave serendipity to chance. In P. Altbach, P. Gumpert, and B. Johnstone (Eds.), *In defense of the American university.* Baltimore: The Johns Hopkins University Press.

Kuh, G.D., Gonyea, R.M., & Rodriguez, D.P. (2002). Assessing student development during the college years. In T.W. Banta (Ed.), *The scholarship of assessment.* San Francisco: Jossey-Bass.

Kuh, G.D., & Hinkle, S.E. (2002). Enhancing student learning through collaboration between academic affairs and student affairs. In R.M. Diamond (Ed.), *A field guide for academic leaders.* San Francisco: Jossey-Bass.

Kuh, G., Palmer, M., & Kish, K. (2003). The value of educationally purposeful out-of-class experiences. In Skipper, T. L., & Argo, R. (Eds.), *Involvement in campus activities and the retention of first-year students.* Columbia, SC: University of South Carolina, National Resource Center for The First-Year Experience and Students in Transition.

Kuh, G.D., English, T.M., & Hinkle, S.E. (2003). Student-centered academic services. In G. Kramer and E.D. Peterson (Eds.), *Student academic services in higher education: A comprehensive handbook for the 21st century.* San Francisco: Jossey-Bass.

Jelke, T., & G.D. Kuh (2003). High performing fraternities and sororities. In D. Gregory (Ed.), *The administration of fraternal organizations on North American campuses: A pattern for the new millennium.* Asheville: College Administration Publications.

Kuh, G.D. (2004). The contributions of the research university to assessment and innovation in undergraduate education. In W.E. Becker and M.L. Andrews (Eds.), *The scholarship of teaching and learning in higher education: The contributions of research*

universities. Bloomington, IN: Indiana University Press.

Bridges, B.K., & Kuh, G.D. (2004). The National Survey of Student Engagement: A new indicator for postsecondary accountability. In Kazis, R., Vargas, J., & Hoffman, N. (Eds.), *Double the numbers: Increasing postsecondary credentials for underrepresented youth*. Cambridge, MA: Harvard Education Press.

Kuh, G.D., & Umbach, P. (2004). College and character: Insights from the National Survey of Student Engagement. In J. Dalton, T. Russell, and S. Kline (Eds.), *Assessing character outcomes in college, New Directions in Institutional Research*, No. 122. San Francisco: Jossey-Bass.

Kuh, G.D. (2005). Imagine asking the client: Using student and alumni surveys in accountability in higher education. In J. Burke (Ed.), *Achieving accountability in higher education: Balancing public, academic, and market demands*. San Francisco: Jossey-Bass.

Kuh, G.D. (2005). Student engagement in the first year of college. In Upcraft, L.M., Gardner, J.N., & Barefoot, B.O. (Eds.), *Challenging and supporting the first-year student: A handbook for improving the first year of college*. San Francisco: Jossey-Bass.

Kuh, G.D., Gonyea, R.M., Williams, J.M. (2005). What students expect from college and what they get. In T. Miller, B. Bender, J. Schuh and Associates, *Promoting reasonable expectations: Aligning student and institutional thinking about the college experience*. San Francisco: Jossey-Bass/National Association of Student Personnel Administrators.

Moneta, L., & Kuh, G.D. (2005). When expectations and realities collide: Environmental influences on student expectations and student experiences. In T. Miller, B. Bender, J. Schuh and Associates, *Promoting reasonable expectations: Aligning student and institutional thinking about the college experience*. San Francisco: Jossey-Bass/National Association of Student Personnel Administrators.

Bridges, B.K., Cambridge, B., Kuh, G.D., & Leegwater, L.H. (2005). Student engagement at minority serving institutions: Emerging lessons from the BEAMS project. In G.H. Gaither (Ed.), *What works: Achieving success in minority retention. New Directions for Institutional Research*, No. 125. San Francisco: Jossey-Bass.

Kuh, G.D. (2005). Built to engage: Liberal arts colleges and effective educational practice. In F. Oakely (Ed.), *Liberal arts colleges in American higher education: Challenges and opportunities, ACLS Occasional Paper, No. 59* (pp. 122-150). New York: American Council of Learned Societies.

Kuh, G.D. (2007). Making students matter. In J. Burke (Ed.), *Fixing the fragmented public university*. Bolton, MA: Anker.

Kuh, G.D., Boruff-Jones, P.D. & Mark, A. E. (2007). Engaging students in the first college year: Why librarians matter. In L. Hardesty (Ed.), *The role of the library in the first*

college year (Monograph No. 45). Columbia, SC: University of South Carolina, National Resource Center for the First-Year Experience and Students in Transition.

Kuh, G.D. (2007). Promoting student success: What institutions can do. In P. Lingenfelter (Ed.), *More student success*. Boulder, CO: State Higher Education Executive Officers.

Kuh, G.D. (2007). Success in college. In P. Lingenfelter (Ed.), *More student success: A systemic solution*. Boulder, CO: State Higher Education Executive Officers.

Kinzie, J., & Kuh, G.D. (2007). Creating a student-centered culture. In G. Kramer (Ed.), *Fostering student success in the campus community*. San Francisco: Jossey-Bass.

Harper, S.R., & Kuh, G.D. (2007). Myths and misconceptions about using qualitative methods in assessment. In S.R. Harper and S.D. Museus (Eds.), *Using qualitative methods in institutional assessment. New Directions for Institutional Research* (No. 136). San Francisco: Jossey-Bass.

Bridges, B.K., Kinzie, J., Nelson Laird, T.F., & Kuh, G.D. (2008). Student engagement and student success at minority serving institutions. In M. Gasman, B. Baez, and C.S. Turner (Eds.), *Interdisciplinary approaches to understanding minority institutions*. Albany, NY: SUNY Press.

Kuh, G.D. (2008). Advising for student success. In V.N. Gordon, W.R. Habley, T.J. Grites and Associates, *Academic advising: A comprehensive handbook* (2nd ed.). San Francisco: Jossey-Bass and NACADA.

Nelson Laird, T.F., Chen, P.D., & Kuh, G.D. (2008). Classroom practices at institutions with higher than expected persistence rates: What student engagement data tell us. In J.M. Braxton (Ed.), *The role of the classroom in college student persistence*. San Francisco: Jossey-Bass.

Kinzie, J., Gonyea, R.M., Shoup, R., & Kuh, G.D. (2008). Promoting persistence and success of underrepresented students: Lessons for teaching and learning. In J.M. Braxton (Ed.), *The role of the classroom in college student persistence*. San Francisco: Jossey-Bass.

Kuh, G.D. (2009). Understanding campus environments. In G. McClellan and J. Stringer (Eds.), *Handbook on student affairs administration* (3rd ed.). San Francisco: Jossey-Bass.

Kuh, G.D. (2009). The National Survey of Student Engagement: Conceptual and empirical foundations. In R. Gonyea and G. Kuh (Eds.), *Using student engagement data in institutional research. New Directions for Institutional Research*, No. 141. San Francisco: Jossey-Bass.

Gonyea, R.M. & Kuh, G.D. (2009). NSSE, organizational intelligence, and the institutional researcher. In Gonyea, R.M. & Kuh, G.D. (Eds.) *Using NSSE in institutional research. New Directions for Institutional Research*, No. 141. San Francisco: Jossey-Bass.

Selected Articles (since 1995)

Kuh, G.D. (1995). The other curriculum: Out-of-class experiences associated with student learning and personal development. *Journal of Higher Education*, 66, 123-155.

Kuh, G.D., & Robinson, B.M. (1995). Friends, brothers, and some sisters: Using cultural research to guide the merger of two seminaries. *The Review of Higher Education*, 19, 17-92.

Kuh, G.D. (1995). Cultivating "high stakes" student culture research. *Research in Higher Education*, 36, 563-576.

Kuh, G.D. (1996). Guiding principles for creating seamless learning environments for undergraduates. *Journal of College Student Development*, 37, 135-148.

DeSousa, D.J., & Kuh, G.D. (1996). Does institutional racial composition make a difference in what Black students gain from college? *Journal of College Student Development*, 37, 257-267.

Watson, L.W., & Kuh, G.D. (1996). The influence of dominant race environments on students' involvement, perceptions, and educational gains: A look at historically Black and predominantly White liberal arts institutions. *Journal of College Student Development*, 37, 415-424.

Smart, J., Kuh, G.D., & Tierney, W.G. (1997). The roles of institutional cultures and decision approaches in promoting organizational effectiveness in two-year colleges. *Journal of Higher Education*, 68, 256-281.

Kuh, G.D., Vesper, N., & Pace, C.R. (1997). Using process indicators to estimate student gains associated with good practices in undergraduate education. *Research in Higher Education*, 38, 435-454.

Kuh, G.D., & Vesper, N. (1997). A comparison of student experiences with good practices in undergraduate education between 1990 and 1994. *Review of Higher Education*, 21, 43-61.

Banta, T.W., & Kuh, G.D. (1998). A missing link in assessment: Collaboration between academic and student affairs. *Change*, 30(2), 40-46.

Kuh, G.D. (1998). Shaping student character. *Liberal Education*, 84(3), 18-25.

McCarthy, M.M., & Kuh, G.D. (1998). A new breed of educational leadership faculty members. *Journal of School Leadership*, 8, 360-372.

Kuh, G.D. (1999). How are we doing? Tracking the quality of the undergraduate experience, 1960s to the present. *The Review of Higher Education*, 22, 99-119.

Kuh, G.D., Hu, S. (1999). Unraveling the complexity of the increase in college grades from the mid-1980s to the mid-1990s. *Educational Evaluation and Policy Analysis*, 21, 297-320.

Kuh, G.D., & Banta, T.W. (2000). Faculty-student affairs collaboration on assessment: Lessons from the field. *About Campus*, 4(6), 4-11.

Kuh, G.D., Hu, S., & Vesper, N. (2000). "They shall be known by what they do": An activities-based typology of college students. *Journal of College Student Development*, 41, 228-244.

Kuh, G.D. (2000). Do environments matter? A comparative analysis of the impress of different types of colleges and universities on character. *Journal of College and Character*.
From
<http://www.collegevalues.org/articles.cfm?a=1&id=239>.

Kuh, G.D., & Hu, S. (2001). Learning productivity at research universities. *Journal of Higher Education*, 72, 1-28.

Kuh, G.D., & Vesper, N. (2001). Do computers enhance or detract from student learning? *Research in Higher Education*, 42, 87-102.

Kuh, G.D., & Hu, S. (2001). The effects of student-faculty interaction in the 1990s. *The Review of Higher Education*, 24, 309-332.

Kuh, G.D. (2001). Assessing what really matters to student learning: Inside the National Survey of Student Engagement. *Change*, 33(3), 10-17, 66.

Hossler, D., Kuh, G.D., & Olsen, D. (2001). Finding fruit on the vines: Using higher education research and institutional research to guide institutional policies and strategies. (Part I) *Research in Higher Education*, 42, 211-221.

Hossler, D., Kuh, G.D., & Olsen, D. (2001). Finding fruit on the vines: Using higher education research and institutional research to guide institutional policies and strategies. (Part II) *Research in Higher Education*, 42, 223-235.

Kuh, G.D. & Hu, S. (2001). The relationships between computer and information technology use, student learning, and other college experiences. *Journal of College Student Development*, 42, 217-232.

Kuh, G.D. (2001). Organizational culture and student persistence: Prospects and puzzles. *The Journal of College Student Retention*, 3(1), 23-39.

Kojaltic, M., & Kuh, G.D. (2001). A longitudinal assessment of college student engagement in good practices in undergraduate education. *Higher Education*, 42, 351-371.

Hu, S. & Kuh, G.D. (2001, November 24). Computing experience and good practices in undergraduate education: Does the degree of campus “wiredness” matter? *Education Policy Analysis Archives*, 9(49). Retrieved [date] from <http://epaa.asu.edu/epaa/v9n49.html>.

Hayek, J.H., Carini, R.M., O’Day, P. T., & Kuh, G.D. (2002). Triumph or tragedy: Comparing student engagement levels of members of Greek-letter organizations and other students. *Journal of College Student Development*, 43, 643-663.

Hu, S., & Kuh, G.D. (2002). Being (dis)engaged in educationally purposeful activities: The influence of student and institutional characteristics. *Research in Higher Education*, 43, 555-576.

Carini, R.M., & Kuh, G.D. (2003). Tomorrow’s teachers: Do they engage in the “right things” during college? *Phi Delta Kappan*, 84(5), 391-398.

Hu, S. & Kuh, G.D. (2003). A learning productivity model for estimating student gains during college. *Journal of College Student Development*, 44, 185-203.

Kuh, G.D. (2003). What we’re learning about student engagement from NSSE. *Change*, 35(2), 24-32.

Carini, R.M., Hayek, J.H., Kuh, G.D., Kennedy, J.M., & Ouimet, J.A. (2003). College student responses to web and paper surveys: Does mode matter? *Research in Higher Education*, 44, 1-19.

Hu, S., & Kuh, G.D. (2003). Maximizing what students get out of college: Testing a learning productivity model. *Journal of College Student Development*, 44, 185-203.

Pike, G.R., Kuh, G.D., & Gonyea, R.M. (2003). The relationship between institutional mission and students’ involvement and educational outcomes. *Research in Higher Education*, 44, 241-261.

Hu, S., & Kuh, G.D. (2003). Diversity experiences and college student learning and personal development. *Journal of College Student Development*, 44, 320-334.

Kuh, G.D., & Gonyea, R.M. (2003). The role of the academic library in promoting student engagement in learning. *College and Research Libraries*, 64, 256-282.

Zhao, C-M., & Kuh, G.D. (2004). Adding value: Learning communities and student engagement. *Research in Higher Education*, 45, 115-138.

Ouimet, J.A., Bunnage, J.C, Carini, R. M., Kuh, G.D., & Kennedy, J. (2004). Using focus groups, expert advice, and cognitive interviews to establish the validity of a college student survey. *Research in Higher Education*, 45, 233-250.

Hayek, J.C., & Kuh, G.D. (2004). Principles for assessing student engagement in the first

year of college. *Assessment Update*, 16(2), 11-13.

Kuh, G.D., & Pascarella, E.T. (2004). What does institutional selectivity tell us about educational quality? *Change*, 36(5), 52-58. [Reprinted in *CURRENT*, December 2004 (468), 11-14.]

Kinzie, J., & Kuh, G.D. (2004). Going DEEP: Learning from campuses that share responsibility for student success. *About Campus*, 9(5), 2-8.

Kuh, G.D. (2004). Forging a new direction: How UTEP created its own brand of excellence. *About Campus*, 9(5), 9-15.

Kuh, G.D., Nelson Laird T.F., & Umbach, P.D. (2004). Aligning faculty and student behavior: Realizing the promise of *Greater Expectations*. *Liberal Education*, 90(4), 24-31.

Kuh, G.D. (2005). Putting student engagement results to use: Lessons from the field. *Assessment Update*, 17(1), 12-13.

Nelson Laird, T.F., & Kuh, G.D. (2005). Student experiences with information technology and their relationship to other aspects of student engagement. *Research in Higher Education*, 46, 211-233.

Klein, S.P., Kuh, G.D., Chun, M., Shavelson, R., & Benjamin, R. (2005). An approach to measuring cognitive outcomes across higher education institutions. *Research in Higher Education*, 46, 251-276.

Zhao, C-M., Kuh, G.D., & Carini, R.M. (2005). A comparison of international student and American student engagement in effective educational practices. *Journal of Higher Education*, 76, 209-231.

Kuh, G.D. (2005). 7 steps for taking student learning seriously. *Trusteeship*, 13(3), 20-24.

Kuh, G.D., & Umbach, P.D. (2005). Experiencing diversity: What can we learn from liberal arts colleges? *Liberal Education*, 91(1), 14-21.

Pike, G.R., & Kuh, G.D. (2005). First- and second-generation college students: A comparison of their engagement and intellectual development. *Journal of Higher Education*, 76, 276-300.

Zhao, C-M., Carini, R.M., & Kuh, G.D. (2005). Searching for the peach blossom Shangri-la: Student engagement of men and women SMET majors. *Review of Higher Education*, 28, 503-525.

Kuh, G.D., Kinzie, J., Schuh, J.H., & Whitt, E.J. (2005). Never let it rest: Lessons about student success from high-performing colleges and universities. *Change*, 37(4), 44-51.

McCarthy, M.M., & Kuh, G.D. (2005, September 9). Student engagement: A missing link in improving high schools. *Teachers College Record*. Retrieved [date] from <http://www.tcrecord.org> ID Number: 12162.

O'Day, P.A., & Kuh, G.D. (2006). Assessing what matters in law school: The Law School Survey of Student Engagement. *Indiana Law Journal*, 81(1), 401-409.

Kuh, G.D., & Gonyea, R.M. (2006). Exploring the relationships between spirituality, liberal learning, and college student engagement. *Liberal Education*, 92(1), 40-47.

Umbach, P.D., & Kuh, G.D. (2006). Student experiences with diversity at liberal arts colleges: Another claim for distinctiveness. *Journal of Higher Education*, 77, 169-192.

Pascarella, E.T., Cruce, T., Wolniak, G.C., Kuh, G.D., Umbach, P.D., Hayek, J.C., Carini, R.M., Gonyea, R.M., Zhao, C-M. (2006). Institutional selectivity and good practices in undergraduate education. *Journal of Higher Education*, 77, 251-285.

Carini, R.M., Kuh, G.D., & Klein, S.P. (2006). Student engagement and student learning: Testing the linkages. *Research in Higher Education*, 47, 1-32.

Pike, G.R., & Kuh, G.D. (2005). A typology of student engagement for American colleges and universities. *Research in Higher Education*, 46, 185-209.

Umbach, P.D., & Kuh, G.D. (2006). Student experiences with diversity at liberal arts colleges: Another claim for distinctiveness. *Journal of Higher Education*, 77, 169-192.

Pascarella, E.T., Cruce, T., Wolniak, G.C., Kuh, G.D., Umbach, P.D., Hayek, J.C., Carini, R.M., Gonyea, R.M., Zhao, C-M. (2006). Institutional selectivity and good practices in undergraduate education. *Journal of Higher Education*, 77, 251-285.

Carini, R.M., Kuh, G.D., & Klein, S.P. (2006). Student engagement and student learning: Testing the linkages. *Research in Higher Education*, 47, 1-32.

McCarthy, M.M., & Kuh, G.D. (2006). Are students ready for college? What student engagement data say. *Phi Delta Kappan*, 87, 664-669.

Kinzie, J., Magolda, P.M., Kezar, A.J., Kuh, G.D., Whitt, E. J. & Hinkle, S.A. (2006, June 3). Methodological challenges and tensions in multi-investigator multi-institutional research. *Higher Education*. Digital Object Identifier: 10.1007/s10734-006-9007-7. Available: <http://www.springerlink.com/content/5757077807241524/fulltext.pdf>

Pike, G.R., & Kuh, G.D. (2006). Relationships among structural diversity, informal peer interactions and perceptions of the campus environment. *Review of Higher Education*, 29, 425-450.

Umbach, P.D., Palmer, M.M., Kuh, G.D., & Hannah, S.J. (2006). Intercollegiate athletes

and effective educational practices: Winning combination or losing effort? *Research in Higher Education*, 47, 709-733.

Pike, G.R., Smart, J.C., Kuh, G.D., & Hayek, J.C. (2006). Educational expenditures and student engagement: When does money matter? *Research in Higher Education*, 47, 847-992.

Kinzie, J.L., Thomas, A.D., Palmer, M.M., Umbach, P.D., & Kuh, G.D. (2007). Women students at coeducational and women's colleges: How do their experiences compare? *Journal of College Student Development*, 48, 145-165.

Pike, G.R., Kuh, G.D., & Gonyea, R.M. (2007). Evaluating the rationale for affirmative action in college admissions: Direct and indirect relationships between campus diversity and gains in understanding diverse groups. *Journal of College Student Development*, 48, 166-182.

Kuh, G.D. (2007). What student engagement data tell us about college readiness. *Peer Review*, 9(1), 4-8.

Hu, S., Kuh, G. D., & Gayles, J. G. (2007). Engaging undergraduate students in research activities: Are research universities doing a better job? *Innovative Higher Education*, 32, 167-177.

Kuh, G.D. (2007). How to help students achieve. *The Chronicle of Higher Education*, 53(41), B12-13.

Kuh, G.D. (2007). Risky business: Promises and pitfalls of institutional transparency. *Change*, 39(5), 30-35.

Kuh, G.D., Chen, D.P., & Nelson Laird, T.F. (2007). Why teacher-scholars matter: Some insights from FSSE and NSSE. *Liberal Education*, 93(4), 40-45.

Chen, D.P., Gonyea, R.M., & Kuh, G.D. (2008). Learning at a distance: Engaged or not? *Innovate: Journal of Online Education*, 4(3). Available: <http://innovateonline.info/index.php?view=article&id=438&action=login>

Nelson Laird, T.F., Shoup, R., Kuh, G.D., & Schwarz, M.J. (2008). The effects of discipline on deep approaches to student learning and college outcomes. *Research in Higher Education*, 49, 469-494.

Hu, S., Kuh, G.D., & Li, S. (2008). The effects of engagement in inquiry-oriented activities on student learning and personal development. *Innovative Higher Education*, 33, 71-81.

Kuh, G.D., Cruce, T.M., Shoup, R., Kinzie, J., & Gonyea, R.M. (2008). Unmasking the effects of student engagement on college grades and persistence. *Journal of Higher Education*, 79, 540-563.

Whitt, E.J., Kinzie, J., Schuh, J.H., & Kuh, G.D. (2008). Assessing conditions to enhance student success: How six campuses got started. *About Campus*, 13(3), 9-18.

Kuh, G.D. (2008). Diagnosing why some students don't succeed. *The Chronicle of Higher Education*, 55(16), A72.

Pike, G.R., Kuh, G.D., & McKinley, R. (2009). First-year students' employment, engagement, and academic achievement: Untangling the relationship between work and grades. *NASPA Journal*, 45(4), 560-582.

Nelson Laird, T.F., Niskode, A.S., & Kuh, G.D. (in press). What general education courses contribute to essential learning outcomes. *Journal of General Education*.

National Reports

A perspective on student affairs (1987). Washington, DC: National Association of Student Personnel Administrators. (Contributor)

The student learning imperative (1994). Washington, DC: American College Personnel Association. (Principal author)

American College Personnel Association and National Association of Student Personnel Administrators (1997). *Principles of good practice in student affairs: Statement and inventories*. Washington, DC: ACPA/NASPA. (Contributor)

National Survey of Student Engagement (2000). *The NSSE 2000 Report: National benchmarks of effective educational practice*. Bloomington, IN: Indiana University Center for Postsecondary Research.

National Survey of Student Engagement (2001). *Improving the college experience: National benchmarks for effective educational practice*. Bloomington, IN: Indiana University Center for Postsecondary Research.

National Survey of Student Engagement (2002). *From promise to progress: How colleges and universities are using student engagement results to improve collegiate quality*. Bloomington, IN: Indiana University Center for Postsecondary Research.

National Survey of Student Engagement (2003). *Converting data into action: Expanding the boundaries of institutional improvement*. Bloomington, IN: Indiana University Center for Postsecondary Research.

National Survey of Student Engagement (2004). *Student engagement: Pathways to collegiate success*. Bloomington, IN: Indiana University Center for Postsecondary Research.

Law School Survey of Student Engagement (2005). *Student engagement in law schools: A first look*. Bloomington, IN: Indiana University Center for Postsecondary Research.

National Survey of Student Engagement (2005). *Student engagement: Exploring different dimensions of student engagement*. Bloomington, IN: Indiana University Center for Postsecondary Research.

Law School Survey of Student Engagement (2006). *The law school years: Probing questions, actionable data*. Bloomington, IN: Indiana University Center for Postsecondary Research.

National Survey of Student Engagement (2006). *Engaged learning: Fostering success of all students*. Bloomington, IN: Indiana University Center for Postsecondary Research.

Law School Survey of Student Engagement (2007). *Engaging legal education: Moving beyond the status quo*. Bloomington, IN: Indiana University Center for Postsecondary Research.

National Survey of Student Engagement (2007). *Experiences that matter: Enhancing student learning and success*. Bloomington, IN: Indiana University Center for Postsecondary Research.

Law School Survey of Student Engagement (2008). *Student engagement in law school: Knowing our students*. Bloomington, IN: Indiana University Center for Postsecondary Research.

Law School Survey of Student Engagement (2009). *Student engagement in law school: Preparing 21st century lawyers*. Bloomington, IN: Indiana University Center for Postsecondary Research.

Research Instruments and Technical Norms Reports

Kuh, G.D., Vesper, N., Connolly, M.R., & Pace, C.R. (1997). *College Student Experiences Questionnaire: Revised norms for the 3rd edition*. Bloomington, IN: Center for Postsecondary Research and Planning, Indiana University.

Pace, C.R., & Kuh, G.D. (1998). *College Student Experience Questionnaire* (4th ed.). Center for Postsecondary Research and Planning. Bloomington: Indiana University.

Kuh, G.D., & Pace, C.R. (1998). *College Student Expectations Questionnaire* (2nd ed.). Center for Postsecondary Research and Planning. Bloomington: Indiana University.

Kuh, G.D. (1999). *The College Student Report. National Survey of Student Engagement*, Center for Postsecondary Research and Planning. Bloomington: Indiana University.

Kuh, G.D., & Siegel, M. (2000). *College Student Experiences Questionnaire: Tentative norms for the fourth edition*. Bloomington, IN: Center for Postsecondary Research and Planning, Indiana University.

Kuh, G.D., Hayek, J.C., Carini, R.M., Ouimet, J.A., Gonyea, R.M., & Kennedy, J. (2001). *NSSE technical and norms report*. Bloomington, IN: Indiana University Center for Postsecondary Research and Planning.

Gonyea, R. M., Kish, K., Kuh, G.D., Muthiah, R., & Thomas, A. (2003). *CSEQ: Norms for the fourth edition*. Bloomington, IN: Indiana University Center for Postsecondary Research and Planning.

Kuh, G.D., & O'Day, P. (2003). *Law School Survey of Student Engagement*. Bloomington, IN: Indiana University Center for Postsecondary Research.

Kuh, G.D., Umbach, P., & Hayek, J. (2003). *Faculty Survey of Student Engagement*. Bloomington, IN: Indiana University Center for Postsecondary Research.

Keynote Addresses, Lectures, and Paper Presentations

I have made more than 100 keynote and plenary addresses and named campus lectures, presented more than 250 research papers, and made several hundred other talks at professional meetings and colleges and universities in the U.S. and abroad.

Selected Keynote and Plenary Addresses (since 1995)

Navigating uncharted waters: Exploring new directions in student learning. Keynote address to the Canadian Association of College and University Student Services, Halifax, Nova Scotia, June 1997.

The student learning agenda: New realities for academic advisors. Keynote address to the annual meeting of the National Association of Academic Advisors, Kansas City, October 1997.

How are we doing? Tracking the quality of the undergraduate experience from the 1960s to the present. Presidential address to the annual meeting of the Association for the Study of Higher Education, Albuquerque, November 1997.

What matters in undergraduate education? 1997 Chester Peters Lecture, Kansas State University, Manhattan, April 1997.

Partnerships for learning: Building bridges for student success. Marlin R. Schmidt Memorial Lecture, University of Iowa, Iowa City, April 1999.

Student learning outside the classroom: Implications for academic and student affairs. Appalachian State University Centennial Speakers' Series in Student Affairs, Boone, October 1999.

College students today: Why we can't leave serendipity to chance. Baldwin Lecture, Truman State University, Kirksville, February 2001.

Undergraduate education at the turn of the century: Lessons from NSSE 2000. Higher Education Lecture, College of William & Mary, Williamsburg, March 2001.

Organizing for student success. Keynote address to the National Conference for College and University Chief Academic Officers and Chief Student Affairs Officers, Palm Springs, November 2001.

College students today: Why we can't leave serendipity to chance. Tracy Sonneborn Lecture, Indiana University Bloomington, November 2001.

Active learning: The cornerstone of effective educational practice. Keynote address, Seton Hall University Fall Faculty Convocation, South Orange, September 2002.

Strengthening institutional accountability for learning: Lessons from the National Survey of Student Engagement. Keynote address, Commission on Colleges of the Southern Association of Colleges and Schools, San Antonio, December 2002.

College and character: Insights from the National Survey of Student Engagement. Keynote address to the 13th Annual Institute on College Student Values, Tallahassee, February 2003.

Creating a culture of evidence about student engagement: First-order lessons about data-driven learning-centered improvement. Plenary address to the Texas A&M University Assessment Conference, College Station, February 2003.

Student engagement: A key to enhancing student learning and improving institutional effectiveness. Keynote address, Development and Learning: From High School to College, University of the Azores (Portugal), March 2003.

Student engagement in learning: Does the library matter? Featured presentation to the Association of College and Research Libraries, Charlotte, April 2003.

Assessment: Bridging faculty work and student engagement, inclusion, and achievement. Plenary session at the AAC&U Greater Expectations Institute: Campus Leadership for Student Engagement, Inclusion, and Achievement, Denver, June 2003.

Enhancing student learning at Samford: Why we need the horse. Keynote address to the Samford University Fall Faculty Workshop, Birmingham, August 2003.

Strengthening institutional accountability for learning: Lessons from the National Survey of Student Engagement. Keynote address, Middle States Commission on Higher Education, Philadelphia, December 2003.

Enhancing transfer student success. Closing plenary address to the Second Annual Institute on Transfer Students, Ft. Worth, January 2004.

Enhancing student learning: Lessons from the National Survey of Student Engagement. Keynote address, IUPUI Edward C. Moore Symposium on Teaching Excellence, Indianapolis, March 2004.

Digging DEEP for lessons about undergraduate student engagement and success. Keynote address, University of Iowa Institute for Student Affairs Administration and Research, Iowa City, September 2004.

What really matters to student success: Lessons from high-performing institutions. Keynote address to University of Louisville Delphi Center for Teaching and Learning “Student Engagement and Academic Success” conference, Louisville, October 2004.

Working together to promote student success. President’s Distinguished Lecture, University of Vermont, Burlington, October 2004.

Enhancing learning: DEEP lessons about effective educational practice and student success. Featured session at the annual meeting of the American College Personnel Association, Nashville, April 2005.

Engaged learning: The assessment of engaged learning and implications. Plenary session at the 2nd Annual Bringing Theory to Practice Conference, Bethesda, April 2005.

Engaged learning communities: Students, faculty, and institutions. Plenary session at the AAC&U Greater Expectations Institute, Burlington, June 2005.

Creating conditions that matter. Keynote address to the University of Texas System Graduation Rates Conference, Dallas, September, 2005.

Built to engage: Liberal arts colleges, the public interest, and effective educational practice. Keynote address to the Independent Colleges of Arkansas Annual Meeting, Batesville, October 2005.

Building an excellent undergraduate experience: Taking student success seriously. Keynote address to the Texas Higher Education Coordinating Board Governing Board Conference, Austin, October 2005.

Student success in college: What can presidents do? Council of Independent College President’s Institute, Naples, January 2006.

Student success in college: Puzzle, pipeline or pathway? University of Southern California Earl V. Pullias Lecture, Los Angeles, September 2006.

Thinking DEEPLY about academic advising and student engagement. Keynote address to the annual meeting of the National Academic Advising Association, Indianapolis, October 2006.

Engaged learning: Fostering the success of all students. Keynote address to the annual

meeting of the Council for Adult and Experiential Learning, Boston, November 2006.

Data informed perspectives on the undergraduate student experience. Keynote address to the annual meeting of the American College Health Association, Las Vegas, November 2006.

What matters to student success in college and university. Keynote address to the Canadian Association of College and University Student Services, Saskatoon Saskatchewan, June 2007.

What matters to student success: Lessons for ANAC institutions. Keynote address to the Associated New American Colleges Summer Institute, Elon, June 2007.

What matters to student success in the first year of university. Keynote address to the Pacific Rim First Year in Higher Education Conference, Brisbane, July 2007.

The classroom: The foundation for student success. Keynote address to the New England Faculty Development Consortium Conference, Westford (MA), November 2007.

Why writing matters: Lessons from NSSE and high-performing institutions. Keynote address to the Miami University Howe Symposium on Writing, Oxford, October 2007.

Piecing together the student success puzzle. Keynote address to the Lehigh Valley Association of Independent Colleges, Allentown, November 2007.

The engaging university: Creating conditions for student success. Keynote address to the Penn State University "Living the Vision of a Student-Centered University" conference, State College, November 2007.

Intentional learning requires intentional leadership: What will it take to move to the next level? Closing plenary panel at the annual meeting of the Association of American Colleges and Universities, January 2008, Washington DC.

What matters to student success at Ivy Tech. Keynote address to Ivy Tech Community College 2nd Annual Learning College Conference, Columbus, February 2008.

Promises and pitfalls of institutional transparency: First lessons learned. Closing plenary address to the annual meeting of Higher Learning Commission, Chicago, April 2008.

What matters to student success in college. Keynote address to the 5th International Conference on Supplemental Instruction, Orlando, May 2005.

Guiding forces: Emerging trends and their impact on student outcomes. Keynote address to the EducationDynamics' National Dialog on Student Retention, Atlanta, June 2008.

High impact practices: What they are, why they work, and who benefits. Keynote address to the 16th Institute for Student Learning, Durham England, September 2008.

Measuring and reporting student and institutional performance: First lessons learned. Invited presentation to the National Association of College Admissions Counseling Chief Enrollment Officers Forum, Seattle, September 2008.

What matters to student success in the first year of college. Keynote address to the University of Minnesota Focusing on the First Year Conference, Minneapolis, October 2008.

Student engagement and study abroad: Why both matter. Keynote address to the annual meeting of the Council of International Educational Exchange, Nashville, November 2008.

For what shall we be accountable? Improving student learning through assessment and transparency. West Virginia Higher Education Policy Commission Chancellor's Lecture, Charleston, November 2008.

The classroom: The foundation for student success. Keynote address to the Faculty Resource Network National Symposium: "Defining and Promoting Student Success, San Francisco, November 2008.

Campus and community engagement: Why they matter. Invited lecture to Campus Philly Partners, Philadelphia, December 2008.

Investing in student success and the public good: Four recession-friendly tactics to assure collegiate quality. Plenary address to the Council of Independent Colleges Presidents Institute, Bonita Springs, January 2009.

The disparities within: Why high-impact practices matter. Invited presentation to the Association of American Colleges and Universities Presidents Forum, Seattle, January 2009.

The classroom: The foundation for building community and fostering student success. Keyote address to the Minnesota State Colleges and Universities System-Wide Realizing Student Potential/Iteach Conference, Minneapolis, February 2009.

What matters to student success in college: Lessons from high performing institutions. Keynote address to the 5th Symposium of the Carrefour de la Reussite Au Collegial, Montreal Quebec Canada, April 2009.

Improving undergraduate success through student engagement. Keynote address to the Council on Higher Education's Colloquium on Improving Undergraduate Success, Pretoria, South Africa, May 2009.

Grants and Contracts (since 1999)

Pilot study of the National Survey of Student Engagement. National Center for Higher Education Management Systems and The Pew Charitable Trusts, 1999, \$359,000 (Principal investigator)

Implementation of the National Survey of Student Engagement. The Pew Charitable Trusts, 2000-2002, \$3,330,000 (Principal investigator)

Documenting effective educational practices. Lumina Foundation for Education, 2002-2004, \$1,358,000 (Principal investigator)

Documenting effective educational practices at selected high performing liberal arts colleges. Wabash College Center of Inquiry in the Liberal Arts, 2002-2004, \$393,000 (Principal investigator)

Implementation of the post-master's certificate program in institutional research. Association of Institution Research/National Center for Education Statistics, 2002-2004, \$60,000 annually. (Principal investigator and project co-director).

Connecting the dots: Analyzing the relationships between student engagement and the institutional practices and conditions that foster student success. Lumina Foundation for Education, 2004-2006, \$250,000 (Principal investigator)

Student expectations, engagement and the conditions that foster student success at liberal arts colleges. Wabash College Center of Inquiry in the Liberal Arts, 2004-2006, \$167,212 (Principal investigator)

What matters to student success: Lessons from the field. National Postsecondary Education Cooperative and National Center for Education Statistics, 204-2006, \$69,000 (Principal investigator)

Evaluating the assessment initiatives grants. Teagle Foundation, 2005, \$139,918 (Co-principal investigator)

Assessing deep approaches to learning. Teagle Foundation, 2007, \$97,356 (Co-principal investigator)

Bridges, maps, and fare: How underrepresented students use educational equity programs to access routes to academic success. Spencer Foundation, 2008-2009, \$497,575 (Co-principal investigator)

Launching the Strategic National Arts Alumni Project. Surdna Foundation, 2007-2008, \$49,418 (Co-principal investigator)

Implementing the Strategic National Arts Alumni Project. Surdna Foundation, 2008-2013, \$2,443,340 (Director and co-principal investigator)

Strategic National Arts Alumni Project. National Endowment for the Arts, 2008-2009, \$60,000 (Director and co-principal investigator)

Implementing the Strategic National Arts Alumni Project. Barr Foundation, 2008-2011, \$450,000 (Director and co-principal investigator)

Implementing the Strategic National Arts Alumni Project. Houston Endowment, 2008-

2011, \$600,000 (Director and co-principal investigator)

Implementing the Strategic National Arts Alumni Project. Cleveland Foundation, 2009-2010, \$100,000 (Director and co-principal investigator)

Making learning outcomes usable and transparent: Mapping the territory, documenting the journey. Lumina Foundation for Education, 2008-2011, \$940,000 (Director and co-principal investigator)

Making learning outcomes usable and transparent: Mapping the territory, documenting the journey. Teagle Foundation, 2008-2011, \$150,000 (Director and co-principal investigator)

Making learning outcomes usable and transparent: Mapping the territory, documenting the journey. Carnegie Corporation of New York, 2009-2011, \$599,800 (Director and co-principal investigator)

Strategic National Arts Alumni Project. National Endowment for the Arts, 2009-2010, \$60,000 (Director and co-principal investigator)

Selected Awards and Honors

Allen P. Splete Award for Outstanding Service, Council of Independent Colleges, 2009

Distinguished Alumni Award, St. Cloud State University, 2008

Exemplary Research Award, American Educational Research Association Division J, 2008

Outstanding Contribution to Higher Education, National Association of Student Personnel Administrators, 2008

Lifetime Achievement Award, American College Personnel Association, 2006

Virginia B. Smith Innovative Leadership Award, National Center for Public Policy in Higher Education and Council for Adult and Experiential Learning, 2005

Sidney Suslow Award for Distinguished Contributions to Higher Education, Association for Institutional Research (2002)

Doctor of Humane Letters (honoris causa)

Luther College (1994)

Millikin University (2002)

Washington and Jefferson College (2006)

Winthrop University (2007)

Tracy Sonneborn Award for Distinguished Teaching and Research, Indiana University (2001)

Charles F. Elton Best Forum Paper Award, Association for Institutional Research (1996, 2002, 2003)

Academic Leadership Award, Council of Independent Colleges (2001)

Albert B. Hood Distinguished Alumni Award, University of Iowa (2001)

Research Achievement Award, Association for the Study of Higher Education (2000)

Campus Life Division Faculty Recognition Award, Indiana University (1998)

Teaching Excellence Recognition Award, Indiana University (1997, 1998)

Educational Leadership Award for Teaching, St. Cloud State University (1996)

Best Forum Paper, Association for Institutional Research (1996, 2001, 2002)

Robert H. Shaffer Award for Academic Excellence as a Graduate Faculty Member, National

Association of Student Personnel Administrators (1994)
Senior Scholar Diplomate, American College Personnel Association (1995)
Contribution to Literature and Research, National Association of Student Personnel
Administrators (1987)
Contribution to Knowledge, American College Personnel Association (1986)

Current Editorial Activities

Change, Consulting Editor
Journal of College Student Development
Journal for the Study of Sports and Athletes in Education, Editorial Board
Journal of Higher Education, Field Reviewer
Higher Education, Field Reviewer
Higher Education Abstracts, Advisory Board
International Journal for the Scholarship of Teaching & Learning, Editorial Board
The Black College Review, Advisory Board

Selected Other Current Professional Activities

Association of American Colleges and Universities Education and America's Promise
Campaign National Leadership Council, 2005-2015
Achieving the Dream, Coach, University of Houston, 2007-2011
Center for Enrollment Research, Policy, and Practice, University of Southern California,
Advisory Board
Educational Testing Service North Central Regional Advisory Council, 2008-
InsideTrack, Advisory Board, 2008-
Luther College Board of Regents

Consultations

I have consulted with more than 250 institutions and agencies in the US and abroad including:

Adrian College, American Association of State Colleges and Universities, American Council of
Learned Societies, Appalachian State University, Baldwin-Wallace College, Brigham Young
University, Bucknell University, California State University at Fresno, Colgate University,
College Board, Colorado State University, Dalhousie University, Earlham College, Educational
Testing Service, Florida State University, Griffith University (AU), Hamline University,
Independent Colleges of Indiana, Indiana Tech, Indiana University, Ithaca College, James
Madison University, Kent State University, Lafayette College, Lehigh University, Longwood
College, Louisiana State University, Lyndon State College, Macalester College, Massachusetts
College of Liberal Arts, Miami University, Middlebury College, Minot State University, New
Jersey Department of Higher Education, New York State Education Department, Northern
Illinois University, Northern Kentucky University, Ohio Board of Regents, Pew Charitable
Trusts, Olin College of Engineering, Penn State University, Plymouth State University, Portland
State University, Rockford College, St. Bonaventure University, St. Louis University, Salem
State College, Simon Fraser University, Sinclair Community College (OH), South Dakota State
University, Spencer Foundation, Syracuse University, Teagle Foundation, Texas A&M
University, Texas Christian University, Texas Tech University, University of Alaska Fairbanks,
University of Bophuthatswana (Africa), United States Military Academy, United States Naval

Academy, University of California Office of the President, University of Calgary, University of Cincinnati Medical School, University of Connecticut, University of British Columbia, University of Delaware, University of the Free State (RSA), University of Georgia, University of Guelph, University of Idaho, University of Iowa, University of Kansas, University of Louisville, University of Massachusetts-Amherst, University of Michigan-Ann Arbor, University of Michigan-Flint, University of Minnesota-Twin Cities, University of Nevada, Las Vegas, University of Pennsylvania, University of South Carolina, University of Texas-Austin, University of Texas System, University of Toronto, University of Utah, University of Vermont, University of Victoria, University of Waterloo, University of West Florida, University of Western Ontario, University of Wisconsin System, Ursinus College, Vanderbilt University, Virginia Tech, Wake Forest University, Westminster College (UT), Western Washington University.

In addition, I have worked with hundreds of other colleges and universities in my capacities as director of the National Survey of Student Engagement, the Faculty Survey of Student Engagement, the Law School Survey of Student Engagement, the College Student Experiences Questionnaire Research Program, the Strategic National Arts Alumni Project, and the National Institute for Student Learning Outcomes Assessment (NILOA).

George D. Kuh

**Letters of
Support**

American Council on Education



Office of the President

June 19, 2009

Jury
Brock International Prize in Education
c/o Dr. Trent E. Gabert, Ph.D.
Associate Dean
College of Liberal Studies
The University of Oklahoma
1610 Asp Avenue, Suite 108
Norman, Oklahoma 73072-6405

Dear Members of the Jury:

I enthusiastically support the nomination of Dr. George D. Kuh, Chancellor's Professor of Higher Education and Director of the Center for Postsecondary Research at Indiana University Bloomington, for the 2010 Brock International Prize in Education. In my opinion, Dr. Kuh's leadership of Indiana University's Center for Postsecondary Research is one of the principal reasons the National Survey of Student Engagement (NSSE) has become such an effective and widely used tool. NSSE has made a significant impact in improving student success and demonstrating higher education's commitment to produce postsecondary graduates who have the necessary skills to keep our country competitive.

The University of North Carolina (UNC) Chapel Hill was a pilot research institution for the instrument when I was UNC's system president. I observed firsthand Dr. Kuh and the design team's efforts to develop a survey that would yield results to enhance curriculum.

His many accomplishments demonstrate his worthiness as the 2010 recipient of the Brock International Prize in Education. However, the quality that most sets him apart is that George Kuh has dedicated his considerable talent to develop an instrument that provides needed evidence for substantive curricular reform and to help institutions use the results to better prepare our students. There is no doubt that he has contributed an enduring benefit to teaching and learning in higher education. I welcome the opportunity to talk to you further about Dr. Kuh's nomination for this highly revered award.

Sincerely,

A handwritten signature in black ink that reads "Molly Corbett Broad". The signature is written in a cursive, flowing style.

Molly Corbett Broad
President

MCB/cg



*Association
of American
Colleges and
Universities*

1818 R Street, NW
Washington, DC 20009
202.387.3760
fax: 202.265.9532
www.aacu.org

July 14, 2009

Dr. John H. Schuh
Distinguished Professor
N221 Lagomarcino Hall
Iowa State University
Ames, IA 50014

Dear Dr. Schuh,

I am writing this letter to express my very strong support of Professor George D. Kuh as a distinguished and highly deserving recipient of the 2010 Brock International Prize in Education.

Dr. Kuh, who is Chancellor's Professor of Higher Education at Indiana University Bloomington, is the intellectual architect for the National Study of Student Engagement, or NSSE. This continuing research program, now housed at Indiana University, has made a far-reaching and lasting contribution to the "science and art of education" by inaugurating a pace-setting and widely influential way of both documenting and strengthening student achievement in United States higher education.

NSSE

Why is NSSE a contribution to the betterment of higher learning and, through advanced study, to the betterment of the lives of millions of students who seek expanded opportunity through higher education?

In the United States, as elsewhere, the shift toward postsecondary learning as "essential" rather than "optional" has turned a new spotlight on ways of helping unevenly prepared students reap the full benefits of their time in college. This concern in turn has generated broad discussion about 1) what we mean by "student success;" 2) the kinds of learning that express student accomplishment; 3) the practices that foster desired levels of learning and accomplishment; and finally, 4) systems of reporting that help stakeholders understand what students are actually achieving and where systemic improvement efforts are needed.

The shorthand term for this constellation of issues is "assessment and accountability for student learning outcomes."

NSSE, which was launched and led for several years by Dr. Kuh, has been a signal contribution to this larger effort to both document student achievement and identify changes that, when enacted, have a strong probability of raising students' actual level of achievement. The questions NSSE probes reflect a generation of far-reaching research on educational practices that correlate with higher levels of persistence and demonstrated learning outcomes. NSSE thus provides both a way of probing what lies beneath disparate patterns of student performance and also a preliminary diagnosis of what interventions are most likely to raise performance.

NSSE has almost single-handedly shifted the focus in U.S. discussions of student learning outcomes from grades and test scores to the quality and character of students' actual experiences across a multi-year course of study. In doing so, it has helped build new understanding of "the disparities within" virtually any college or university. Many students are highly engaged, and correspondingly high achieving. But many are under-engaged, and NSSE points toward ways of helping these students gain much more from their postsecondary studies than would otherwise result.

The NSSE research program is itself a breakthrough improvement in higher education because it turns a spotlight on what students are actually doing with their time in college. But even more important, it is teaching a broad array of colleges and universities HOW to plan their own improvement efforts in undergraduate education.

NSSE is Now Widely Used Across American Higher Education

I write this letter from my own vantage point as the president of a national association of 1,200 colleges and universities whose sole focus is on the intended aims, outcomes and quality of student learning in college. AAC&U has worked closely with Dr. Kuh and with NSSE since this national research program was first conceived.

In part because of the quality of the instrument and accompanying research, and in part because of Dr. Kuh's energetic and highly influential promulgation of NSSE, this self-study program has spread rapidly and influentially across all parts of American higher education. NSSE serves four-year campuses, but because of the power of its research metrics, CSSE, a community-college version, also has been created. There also are numerous NSSE-related surveys, such as FSSE, a study of faculty perceptions of student engagement which allows any institution to connect its student findings with its faculty findings.

NSSE is, in itself, educational for any campus that elects to use it and study the results, because it points beyond itself to a rich body of scholarship on educationally effective teaching, learning and achievement practices. Through its design and through its highly transparent templates for reporting findings, NSSE has effectively "mainstreamed" in U.S. higher education a broad campus awareness of the practices that stand behind student achievement (proactive, hands-on engagement with faculty, student peers, and productive "high effort" teaching and learning approaches) and a heightened interest in seeing whether students actually are engaging in practices that raise the quality of learning. More than any other higher education innovation I know, NSSE has helped campuses actually benefit from scholarship on student learning and achievement.

It is not too much to say that NSSE has wrought a revolution in campus consciousness, successfully directing both leadership and faculty attention to the whole question of whether students reliably engage in high effort, high engagement educational practices that are beneficial to students' actual level of learning. Many campuses are making educational changes suggested by their NSSE data. The momentum in this direction is clearly building, thanks in great part to Dr. Kuh's effective and far-reaching influence.

Kuh has Mobilized Widespread Attention to "High Impact Educational Practices"

More recently, Dr. Kuh also has helped to turn a national spotlight on a small array of educational innovations—e.g. learning communities, undergraduate research, service learning, capstone projects, etc.—that have "compensatory" potential to help students who start farther behind and/or who come from communities that historically have been underserved in higher education. Synthesizing several years of NSSE data, he labeled these practices "high impact"

because participation in them correlates notably with higher persistence, higher grade point averages and, especially, students' own self-reported NSSE gains in "deep" or "integrative learning," personal growth and the like. The gain curves are higher for students who stand at greater risk in U.S. higher education.

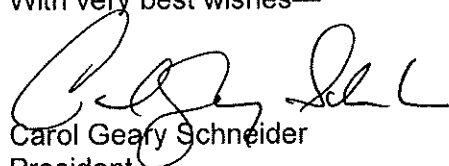
I have never seen a concept spread more rapidly through higher education than the term "high impact practices." My organization published Kuh's findings on high impact practices last October; by November the concept was all over the higher education circuit, being actively reported by those who had already read this latest Kuh study. Today, wherever I go (and my job takes me to many educational gatherings), this work is being cited, studied and applied.

To my mind, the rapid spread of Kuh's most recent research findings is testimony to the influence and standing NSSE has achieved in higher education in a very short period of time. The higher education community respects this contribution to its own understanding of "what works" in raising the level of student success; it trusts Kuh's leadership, vision and integrity; and it is eager to continue learning from his work on how better to foster success for the extraordinarily diverse students who now populate United States college campuses.

Kuh exemplifies, in short, multiple forms of intellectual and practical leadership in higher education: research knowledge; a rich conceptual vision that draws its power from research; practical translations into accessible and informative tools for campus faculty and leaders; and, most important, a constant, laser-like focus on the core point of our enterprise: high levels of student learning and development in the college years.

It is hard to think of any scholar who is more richly deserving of the Brock Prize. A creative force in American higher education, a high energy leader who has been tireless in his efforts to foster effective educational practices, and, not least, a truly collegial and self-less colleague, George Kuh is an outstanding candidate for this award.

With very best wishes—



Carol Geary Schneider
President



Office of the President Emeritus

July 2, 2009

Dr. John H. Schuh
Distinguished Professor
Iowa State University
College of Human Sciences
Department of Educational Leadership and Policy Studies
N234 Lagomarcino Hall
Ames, Iowa 50011-3195

Dear Dr. Schuh,

I am pleased to write this letter in support of the nomination of Dr. George D. Kuh, Chancellor's Professor of Higher Education and Director of the Center for Postsecondary Research at Indiana University Bloomington, for the 2010 Brock International Prize in Education. I have known and admired George Kuh for many years and presently work closely with him as co-principal investigator at the National Institute for Learning Outcomes Assessment co-located at Indiana and Illinois. I can think of no individual in American higher education more deserving of the Brock International Prize in Education than George Kuh. I strongly and enthusiastically support his nomination.

Dr. Kuh is known around the world for his scholarship, having published more than 300 works, including more than 220 articles, 75 book/monograph chapters and 23 books. He has received numerous awards and recognition for his research and academic leadership over the years, but by far his most far reaching impact on the field of higher learning has been the innovation and successful launch of the National Survey for Student Engagement presently used by more than 1,400 four-year colleges and Universities in the United States and Canada. Under his guidance other large scale institutional improvement tools have been created, including a special version of NSSE for community colleges, the Faculty Survey of Student Engagement, a Law School Survey of Student Engagement, the Strategic National Arts Alumni Project and others.

Although international efforts are not part of NSSE's core mission, the project has informed international considerations of assessment and has garnered significant attention from higher education scholars, researchers, faculty and administrators abroad. The NSSE project has been part of discussions about quality improvement and

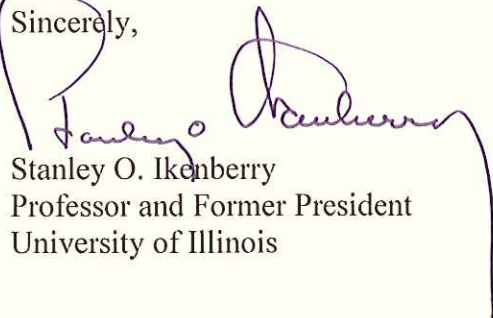
assessment activities at international meetings led by the Organization for Economic Cooperation and Development (OECD). In addition, scholars and administrators from Japan, Australia, China, South Africa, and Macedonia have visited NSSE and consulted with Dr. Kuh about the potential for adapting NSSE within other contexts. The most advanced international project informed by Dr. Kuh's work is the Australasian Survey of Student Engagement (AUSSE) in Australia and New Zealand. As I write this letter, Dr. Kuh is in Australia for the next two weeks speaking and working at major universities and academic centers throughout the country.

Though the innovative development of the National Survey of Student Engagement, and its wide adoption in the United States and elsewhere, George Kuh has made a lasting contribution to the science and art of education. The vitality and quality of the academic experience is grounded in the quality of the engagement of students in the learning process and the quality of the interaction between faculty members and their students. Dr. Kuh broke new ground when he led the development of a nationally normed survey that makes the nature of student engagement more transparent. Use of NSSE data enables a campus to make data-based improvements to help strengthen the environment for teaching and learning.

George Kuh is a strong, forceful, creative thought-leader in American higher education. We have yet to understand the full reach of his work, but I can think of no individual in American higher education who has had a comparable, sustainable impact. His innovation of NSSE and the related instruments that followed have changed the way we understand the teaching learning process and assess the nature and quality of the student learning environment. This year NSSE will celebrate its tenth anniversary. Launched with initial foundation support, NSSE is now fully independent and self sustaining, contributing to continuous improvement on hundreds of college and university campuses in the United States and Canada. Interest and experimentation with NSSE is global in its reach.

Dr. Kuh is a great scholar and innovator. Beyond that, however, Dr. Kuh is a remarkably talented, warm, wonderful human being of incredible integrity. I count him as a warm personal friend and a colleague from whom I learn constantly. It is an honor and a pleasure to offer this sincere letter of recommendation and support for the award of the 2010 Brock International Prize in Education to Dr. George D. Kuh.

Sincerely,



Stanley O. Ikenberry
Professor and Former President
University of Illinois



THE CARNEGIE FOUNDATION
for the ADVANCEMENT *of* TEACHING

51 Vista Lane
Stanford CA 94305-8703
650 566 5100 *tel*
650 326 0278 *fax*
www.carnegiefoundation.org

June 15, 2009

Professor John H. Schuh
Iowa State University
College of Human Sciences
Department of Educational Leadership and Policy Studies
N243 Lagomarcino Hall
Ames, Iowa 50011-3195

Dear Professor Schuh:

With great pleasure, I write to support the nomination of Dr. George D. Kuh for the 2010 Brock International Prize in Education. Dr. Kuh perfectly meets the key Prize criterion that the recipient must have "made a specific innovation or contribution to the science and art of education, resulting in a significant impact on the practice or understanding of the field of education."

By way of background, I am currently a Senior Scholar at the Carnegie Foundation for the Advancement of Teaching, and have previously served as dean of Stanford Law School, provost of the University of Pennsylvania, and president of Indiana University. In the last of these roles, I came to know and work with Dr. Kuh, who was running a major Center on Post-Secondary Education. I was impressed then by his extraordinary commitment to enhancing teaching and learning through rigorous quantitative combined with qualitative analyses.

Soon after I came to the Carnegie Foundation, the then-head of the Pew Foundation suggested a new survey to provide a set of indicators for undergraduate education. After a careful review of the leaders in survey research, we chose Dr. Kuh as uniquely qualified to lead this new effort. The National Survey of Student Engagement (NSSE) came into being just ten years ago, and I served as vice-chair of its advisory board. NSSE is a survey administered now to many thousands of students on campuses throughout the country. Even those of us most enthusiastic about this venture had no idea that it would quickly become the most important large-scale survey that provides guidance on undergraduate teaching and learning. NSSE does not directly measure learning, but rather measures surrogates or proxies for learning--how many times did you talk with a professor outside of class, how many drafts did you do of a paper, and similar questions. These surrogates or proxies are based on careful research, much of it carried out by Dr. Kuh in his Center.

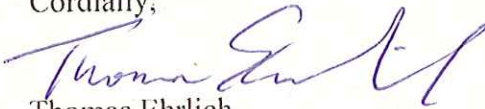
Over the course of the early years, NSSE was steadily improved, and, in the process, it gained wider and wider usage and audiences. It is primarily a tool for campuses that want to improve to learn what steps need to be taken. It enables campuses to compare the learning at their institutions with their peers. It can be used by entire campuses or by units within campuses. It can be supplemented by clusters of questions by groups of campuses. In short, it is

extraordinarily useful for a wide range of faculty and administrators who want to improve student learning.

NSSE has been so successful that a version for community colleges was developed, another for faculty, and another for law schools. Dr. Kuh has led some amazing research using NSSE as a starting point. His book, "Student Success in College," for example, is a landmark study. It asks why do some campuses do better than their peers on NSSE, and shows through careful analysis what is going on at those campuses that makes them superior learning environments.

I have been involved in teaching and learning for almost 45 years and know of no one in all my experience who has had such a marked impact on higher education as Dr. Kuh. He well deserves the Brock Prize and if he is chosen he will add luster to this important award.

Cordially,

A handwritten signature in blue ink, appearing to read "Thomas Ehrlich". The signature is fluid and cursive, with a large initial "T" and "E".

Thomas Ehrlich
Senior Scholar



August 10, 2009

Dr. John H. Schuh, Distinguished Professor
N221 Lagomarcino Hall
Iowa State University
Ames, IA 50014

Dear John:

I am very happy to provide a supporting letter for George Kuh's nomination for the Brock International Prize in Education. George's leadership in inventing and disseminating the National Survey of Student Engagement (NSSE) has truly made a profound impact on higher education.

The genius of the NSSE is that it provides a proxy for measuring the quality of students' learning by measuring their engagement with the kinds of experiences that we know are conducive to active learning. And yet it avoids the controversies about standardized tests and the differences in academic missions that have sunk so many less-nuanced assessment efforts for so long. The data are national in scope but tailored to institutional type and mission: reliable, credible, actionable!

I want to tell you the story of the NSSE's impact on my institution, the University of Maine Farmington, a public liberal arts college of 2000 FTE. We signed up for the NSSE soon after its inception, not knowing how we would measure up to our peers. We were pleased to find that we did well on four out of five indices, and we were further amazed to be chosen for Project DEEP!

Being part of the DEEP (Documenting Effective Educational Practice) project meant that a group of researchers from Iowa State came to campus for several days and studied our culture and our practices to discover the reasons why our students were reporting such effective educational interventions. They reported their results in a national publication featuring UMF and the other 19 project schools.

DEEP gave us recognition for what we had already done, but it also gave us confidence and motivation to do even better. We looked at the NSSE results and asked ourselves, if we are doing so well on four indices, but only so-so on the fifth (the level of academic challenge) hadn't we better focus on that? In other words, we were inspired and validated to focus on an ambitious

institution-wide change. The faculty agreed to re-think the entire curriculum to provide courses (4 credits instead of 3 credits) with more time for independent projects, writing, in-depth practice, undergraduate research, and other practices that can lead to exciting and involving learning.

This massive institutional change might never have happened without the NSSE data, which helped us make a compelling case about how curricular change could address an area of weakness. The Trustees and the Chancellor supported our plans with funding to hire some new key faculty members. After much planning and preparation, we made the change smoothly, and the subsequent NSSE data on how the students regard the academic challenge at UMF have risen in gratifying ways.

We love the NSSE and all its new companion tests as well. Our experience at UMF can be, and is, replicated throughout higher education. I hope George gets the recognition that he deserves for leading its development.

Sincerely yours,

A handwritten signature in cursive script, appearing to read 'Theodora'.

Theodora J. Kalikow
President

George D. Kuh

**Writing
Samples**

WHAT WE'RE

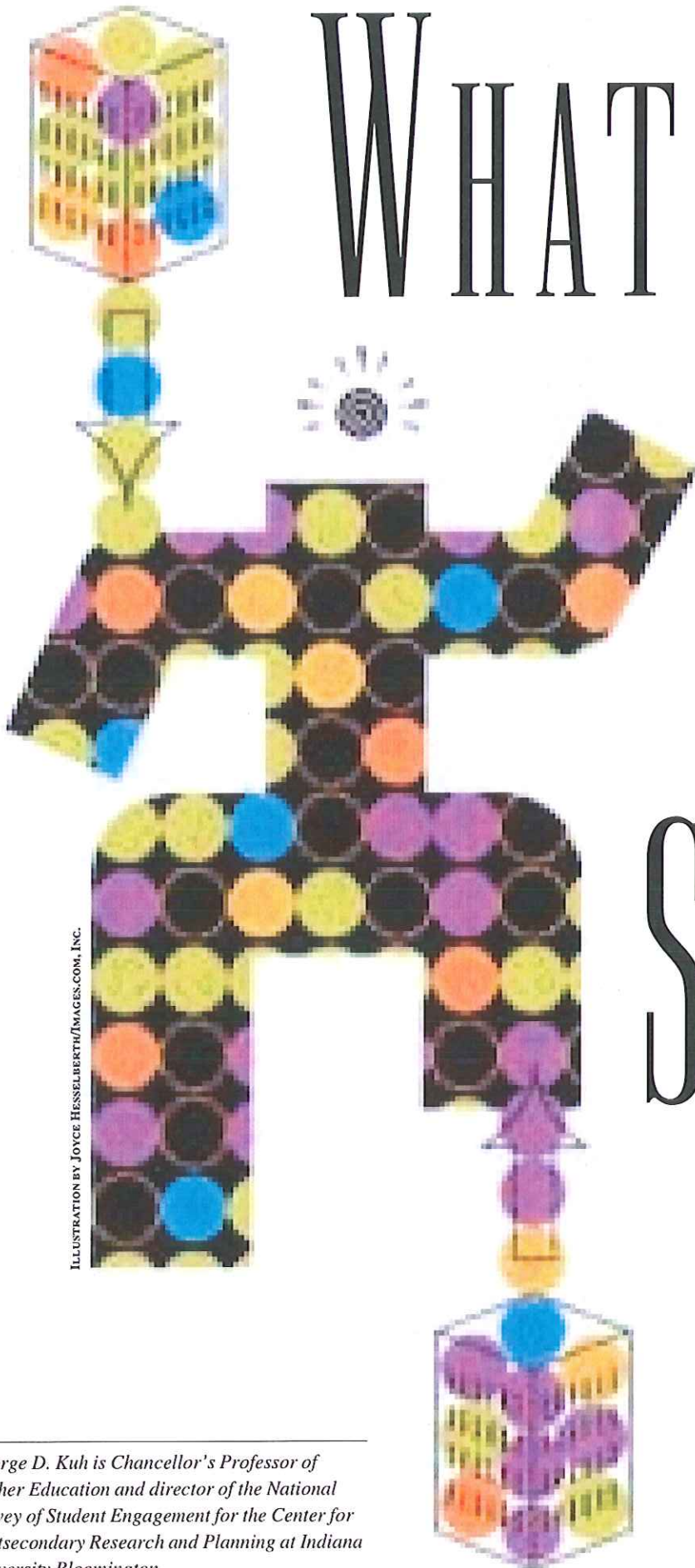


ILLUSTRATION BY JOYCE HESSELBERTH/IMAGES.COM, INC.



OCASIONALLY AN IDEA comes along that seems to clarify complex issues and potentially resolve fundamental problems in a given line of endeavor. Such is the connection between collegiate quality and student engagement. For years, judgments about the quality of the undergraduate experience have turned on evidence about an institution's reputation and resources—students' SAT scores, faculty credentials, library holdings, and so on. But students can be surrounded by impressive

STUDENT

*Benchmarks
for Effective
Educational
Practices*

George D. Kuh is Chancellor's Professor of Higher Education and director of the National Survey of Student Engagement for the Center for Postsecondary Research and Planning at Indiana University Bloomington.

LEARNING ABOUT

resources and not routinely encounter classes or take part in activities that authentically engage them in learning. Moreover, with more than 70 percent of an increasingly diverse pool of high school graduates going on to some form of postsecondary education, it makes little sense now (if it ever did) to focus on measures that pertain only to a small fraction of institutions.

A more meaningful approach to evaluating an institution is to determine how well it fosters student learning. Decades of studies show that college

effective educational practice into discussions about collegiate quality, both on and off the campus.

The engagement premise is deceptively simple, even self-evident: The more students study a subject, the more they learn about it. Likewise, the more students practice and get feedback on their writing, analyzing, or problem solving, the more adept they become. The very act of being engaged also adds to the foundation of skills and dispositions that is essential to live a productive, satisfying life after college. That is,

practices. This effort, NSSE (pronounced “Nessie”), was initially bankrolled by The Pew Charitable Trusts. Now, institutional fees cover the cost of participating (for more information about NSSE’s mission, philosophies, and guiding principles see the May/June 2001 *Change* issue or visit the NSSE Web site at www.iub.edu/~nsse). After a word about the evolution and status of the NSSE project, this article summarizes some of what we have learned so far about the engagement patterns of different groups of students

ENGAGEMENT NSSE

students learn more when they direct their efforts to a variety of educationally purposeful activities. To assess the quality of the undergraduate education at an institution, we need good information about student engagement: the time and energy students devote to educationally sound activities inside and outside of the classroom, and the policies and practices that institutions use to induce students to take part in these activities. Indeed, one of goals of the National Survey of Student Engagement (NSSE) is to insinuate the language of

students who are involved in educationally productive activities in college are developing habits of the mind and heart that enlarge their capacity for continuous learning and personal development. (See Lee Shulman’s article, “Making Differences,” in the November/December 2002 issue of *Change* for an amplification of the “engagement as an end in itself” argument.)

Four years ago a group of researchers launched an initiative to determine the extent to which college students were engaging in educationally effective

and some of the questions and challenges NSSE results raise.

NSSE IN REVIEW

NSSE is both a new way to think about collegiate quality and a college student survey. As a survey, NSSE complements and extends research programs such as UCLA’s entering-student survey (CIRP) by focusing specifically on educational activities that are related to learning and personal development. After three years we have information from 285,000 first-year and senior students

from more than 600 four-year colleges and universities about their behaviors.

These data also provide us with a defined view of the institutional practices that mirror those highlighted in the classic report, "Seven Principles of Good Practice in Undergraduate Education." It's gratifying, indeed, that so many schools are taking seriously their responsibility for strengthening student learning. Although NSSE does not directly assess learning outcomes, the re-

sults from the survey point to areas where colleges are performing well in enhancing learning, as well as to aspects of the undergraduate experience that could be improved.

To facilitate the conversation about student engagement, learning, and institutional improvement, we grouped key questions from the survey into five clusters or benchmarks of effective educational practices (Chart 1).

The NSSE benchmarks are a window into student and institutional performance at the national, sector, and institutional levels. What do different colleges and universities expect in terms of homework, reading and writing assignments, and intellectual tasks? How frequently do students participate in various forms of active and collaborative learning? How often do students interact with their professors?

With many more historically underrepresented students matriculating, it's important to examine the engagement patterns of these groups. Are students with certain characteristics more en-

gaged than others? If so, what might account for the differences and, equally important, what might we do about them? The NSSE results take into account (where appropriate) such variables as year in school, race, sex, age, transfer status, place of residence (on or off campus), major field of study, enrollment status (full- or part-time), parents' educational attainment, sector, undergraduate headcount, Carnegie classification, urbanicity, and institutional selectivity.

WHO'S ENGAGED AND WHO'S NOT?

With three years of findings, major patterns of student engagement at the national and sector levels have emerged. But any generalizations about institutions, institutional type, institutional size, or student groups should be considered with the caveat that there is great variation within each of these categories.

First, though smaller schools generally engage students more effectively, schools of similar sizes can vary widely. For example, Chart 2—the EKG of Student Engagement—shows the senior academic challenge benchmark scores, by size of school, for the 600-plus institutions that have participated in NSSE at least once since 2000. While smaller schools are generally more academically challenging, it's also clear that some large universities exceed many smaller colleges on this benchmark. This pattern holds for the four other benchmarks of effective educational practice. So, in order to determine collegiate quality, we've got to probe more deeply into the nature of the student experience at a particular institution, and not assume that all colleges of a certain type and size are comparable.

Second, student engagement differs more within a given school (or institutional type) than between schools (or institutional types). This may sound counter-intuitive, but it's consistent with other research. To illustrate, Chart 3 shows the range of student-faculty interaction benchmark scores of first-year students at 12 different baccalaureate liberal arts colleges, where we might expect student contact with faculty to be high, ranging from the lowest-scoring school on this benchmark to the highest scoring. (Only the middle 80 percent of

CHART 1. NSSE BENCHMARKS

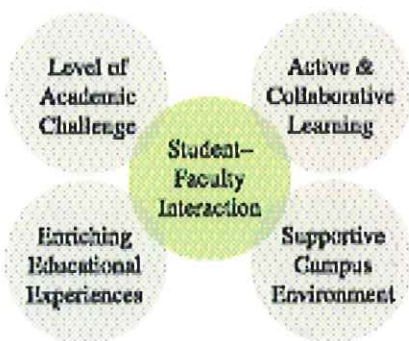


CHART 2. THE EKG OF STUDENT ENGAGEMENT

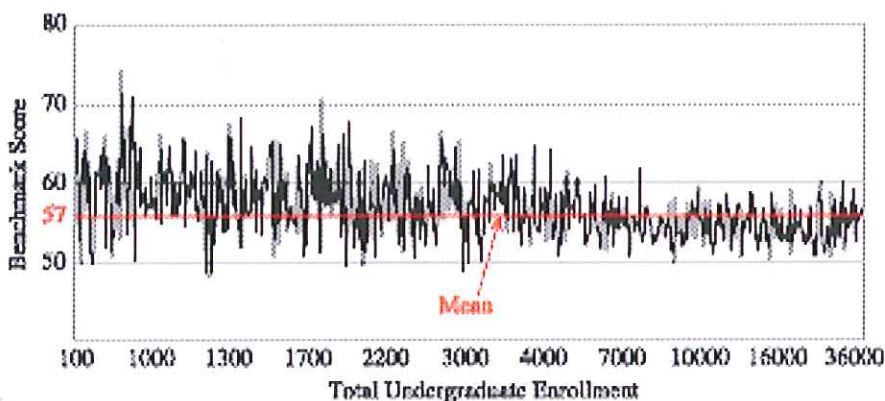
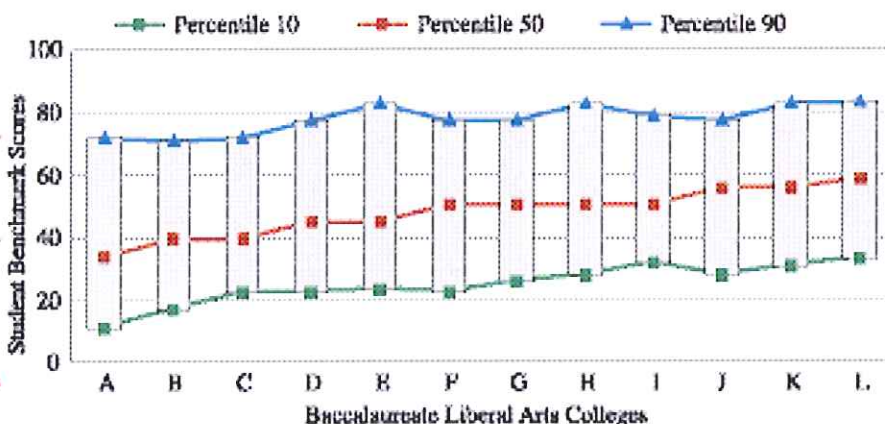


CHART 3. RANGE OF STUDENT-FACULTY INTERACTION AT TWELVE LIBERAL ARTS SCHOOLS



While smaller schools are generally more academically challenging, it's also clear that some large universities exceed many smaller colleges on this benchmark

students at each institution is shown so that outliers do not skew the display.) The distance between the lowest and highest schools is quite substantial, almost 34 (on the adjusted 100-point scale), or about one-third of the scale, suggesting very large differences within this sector. The pattern represented here is similar for all benchmarks for all other institutional types.

These results suggest that one immediate step the vast majority of schools can take to improve undergraduate education is to identify students who are essentially disengaged and try to involve them in educationally purposeful activities. But this cannot simply be done by student category (younger and older, full-time and part-time), since this assumes that students in these groups are more alike than they actually are.

CHART 4. WHO'S MORE ENGAGED?

- ✓ Women
- ✓ Full-time students
- ✓ Students living on campus
- ✓ Native students (those who start at and graduate from the same school)
- ✓ Learning community students
- ✓ International students
- ✓ Students with diversity experiences

With these caveats in mind, Chart 4 lists the groups of students that are, on average, more engaged than others. Full-time students and students who live on campus (the vast majority of whom are enrolled full-time) are more engaged. This is to be expected, as they take more classes, read and write more, and spend more time preparing for class than their part-time counterparts. Because they live on campus, they have better access than their commuting peers to institutional resources for learning, including faculty members and other students. In addition, full-time students tend to have fewer obligations, such as family responsibilities and off-

campus work, that preclude them from taking part in certain educational activities, such as study abroad or extracurricular events.

In terms of race and ethnicity there's plenty of research and anecdotal evidence to indicate that students of color experience college differently than white students. The good news from NSSE is that the results suggest that they engage in effective educational practices to a comparable degree.

However, despite putting forth about the same amount of effort, African-American students report lower grades. White students generally get the highest grades, followed by Asian and multi-racial students and Latino and Native-American students. Why students of color get lower grades for comparable academic effort isn't clear, given that GPA is positively related to all five benchmark scores and nearly all of the effective educational practices represented on the NSSE survey.

"MESSY" NSSE QUESTIONS

NSSE results sometimes raise difficult questions. For example, after receiving its results one state system was surprised to discover that its residential "flagship" campus was under-performing on the benchmarks of effective educational practice compared with its sister urban university. Some people involved in these discussions began to refer to the National Survey of Student Engagement as "messy NSSE," because the data "messed up" the pecking order by contradicting long-standing perceptions of the relative quality of the institutions in the system. Here are some other messy questions worth pondering.

Are students putting forth enough academic effort? The life situations of both traditional-age and returning college students have become more complex. Among the latter group is the non-trivial number of students whose life exigencies severely limit the amount of time they can devote to their studies—those who work full-time, sup-

port and care for dependents, and so forth. Even the majority of traditional age, full-time students are working by the time they are seniors.

Nevertheless, most students come to college expecting to be more engaged than they are. What first-year students say they *expect* to do in college typically exceeds in almost every category of performance what they *actually* do. They expect to read more, write more, and take part in more cultural activities than they do, at least in the all-important first year of college when attitudes and habits are forming.

In a few areas, though, students' experiences match their expectations. One of these, unfortunately, is the amount of time they will spend studying. Students start college knowing that they will need to study more than in high school, and they do—on average almost twice as many hours per week in college (12 or so) as in high school (about 5 to 6 hours). But the number is far short of what faculty say is needed to do well. If there's a mantra for academe, "two for one" is it: undergraduate students should spend at least two hours preparing for every class hour (in math and science, 3 to 4 hours seems to be the expectation). Unfortunately, most students spend only about half that amount of time.

In addition, about one-fifth of both first-year students and seniors "frequently" come to class unprepared and say their institutions give little emphasis to studying and spending time on academic work. These disengaged students put very little effort into their studies and report making very little progress toward desired outcomes of college.

The problem does not begin in college. Record numbers of high school seniors are disengaged from academic work, according to UCLA's Higher Education Research Institute, yet more than ever (44 percent) are graduating from high school with an A average, suggesting students are getting higher grades for less effort. The wider and

The “disengagement compact”: “I’ll leave you alone if you leave me alone.”

That is, I won’t make you work too hard (read a lot, write a lot) so that I won’t have to grade as many papers or explain why you are not performing well.

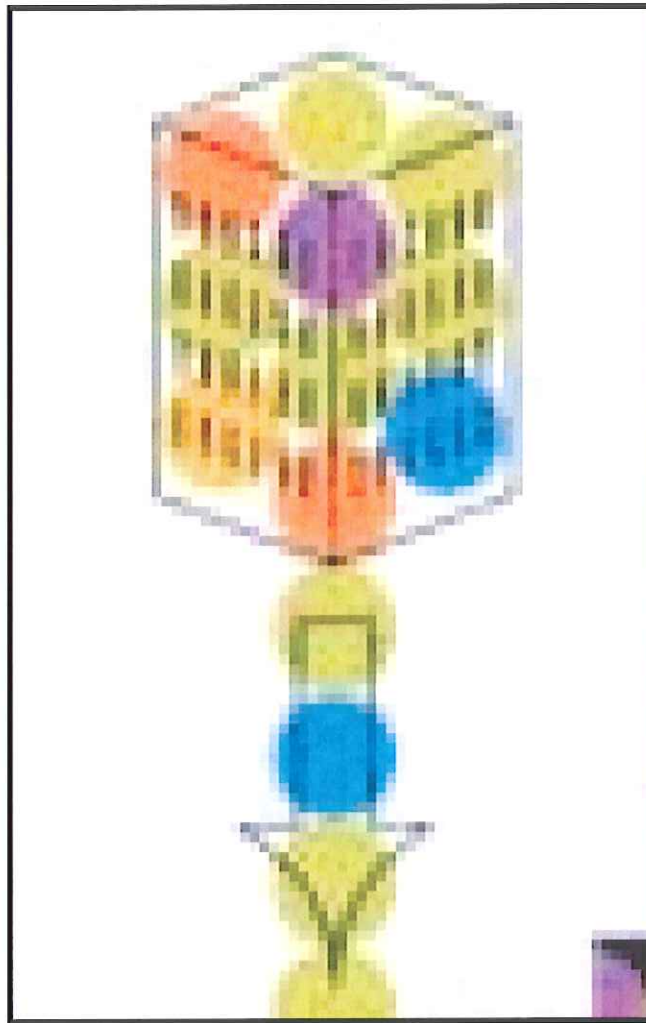
deeper college-going pool then brings these habits and expectations, not to mention a lack of preparation, with them to college.

Students typically don’t exceed their own expectations, particularly with regard to academic work. But students will go beyond what they think they can do under certain conditions, one of which is that their teachers expect, challenge, and support them to do so. Students read and write when we demand it. And in concert with other effective practices—prompt feedback, for example—they learn more. The next “messy NSSE” question is, are we willing to make the effort that such practices demand of us?

The more pages students write, the more pages faculty members have to read and give feedback about. And the more of that we do, the more likely it is that students will make appointments during office hours to talk with us about that feedback. In terms of student engagement, all this is generally positive. But it becomes problematic in terms of allocating time across multiple faculty priorities.

And this brings us to the unseemly bargain, what I call the “disengagement compact”: “I’ll leave you alone if you leave me alone.” That is, I won’t make you work too hard (read a lot, write a lot) so that I won’t have to grade as many papers or explain why you are not performing well. The existence of this bargain is suggested by the fact that at a relatively low level of effort, many students get decent grades—Bs and sometimes better. There seems to be a breakdown of shared responsibility for learning—on the part of faculty members who allow students to get by with far less than maximal effort, and on the part of students who are not taking full advantage of the resources institutions provide.

Even while we find ways to make learning more efficient (using technology, perhaps) and more engaging (using active and collaborative approaches), nothing substitutes for time on task. This is even more important if we think of engagement as a valued end in itself.



College is a potentially transforming experience, a once-in-a-lifetime opportunity to challenge students to examine their previous ways of knowing, thinking, and behaving. It’s hard to imagine this happening to a meaningful degree if students don’t devote the time and effort needed to develop the habits of the mind and heart characteristic of an educated person.

Perhaps it doesn’t make any difference how much time students spend

preparing for class if they are acquiring the skills and competencies they need to succeed after college. While the NSSE is built on research suggesting that certain practices lead to learning, it is not a direct assessment of that learning. And we have no learning measure that has been applied systematically across institutions and states, as is pointed out by the National Center on Public Policy and Higher Education, which again assigned an “incomplete” to the student learning category in its 2002 state-by-state report card, *Measuring Up*. In the absence of outcome measures, we are left with something like NSSE’s indicators of effective educational practice to estimate learning and to point institutions to student behaviors and institutional policies and practices where performance could be improved.

Is the active and collaborative learning movement inadvertently undercutting academic effort? We were initially pleasantly surprised when the first round of NSSE data showed that students were frequently engaging in certain forms of active and collaborative learning.

- Almost all students (98 percent) ask questions in class or contribute to class discussions, with about two-thirds doing so “frequently”;

- More than two-fifths (42 percent) of seniors report doing community work or service learning as part of a class assignment, indicating that many schools are incorporating this powerful pedagogical approach into their academic programs; and

- Most students (90 percent) report collaborating on projects and tasks: about 56 percent of seniors “frequently” work with classmates outside of class on academic tasks and assignments.

These gratifying findings suggest that faculty members are responding to the numerous calls to use engaging pedagogies. At the same time, NSSE data don't provide evidence of the *quality* of active and collaborative learning activities, only the frequency with which students say they engage in them. Anecdotal reports suggest many students don't prepare as much for classes that feature in-class group work. Instead, they rely on their group members to pull them through a class activity.

Of course, a well-designed and implemented collaborative learning activity would prevent this from happening routinely, by building in opportunities for peer evaluation, instructor-graded individual contributions, and instructor observations. Yet in the rush to incorporate active and collaborative learning in the undergraduate program, it's likely that good practice in this domain lags behind the adoption of the activity itself.

How much interaction with faculty members is enough? Another area of effective practice where "more" may not necessarily be "better" is student-faculty interaction. This is one measure where comparing one school against others like this has immediate relevance, especially if the institution promises that students will have frequent contact with their teachers. But how much is optimal?

As with the time-on-task question, we can't answer this definitively in absence of relevant outcome measures. What is clear is that student-faculty interaction matters most to learning when it encourages students to devote greater effort to other educationally purposeful activities during college. The key is substantive contact. Casual contact with faculty members has little to no effect on learning gains or effort. In fact, we have some evidence that students who have the most out-of-class contact with faculty report making less progress toward desired outcomes. All this is to say that *both the nature and frequency* of contact matter.

Technology is altering our understanding of the faculty role in the learning process. After reviewing evidence from institutions participating in the new-funded Course Redesign Program conducted by the Center for Academic Transformation, Carol Twigg concluded that with an effective use of technology, "student success can be achieved in class

without increased student-faculty contact." This requires being more intentional about the nature of the contact, such as being available on an as-needed, "when students get stuck" basis, which is built into the redesigned mathematics courses at Virginia Tech, the University of Alabama, and the University of Idaho.

For some purposes, occasional contact with faculty members may be enough. Three of the six behaviors on the student-faculty interaction benchmark are of this kind: discussing career plans, working with a faculty member outside of class on a committee or project, and doing research with a faculty member. For most students having the first two types of interactions once or maybe twice a semester is probably good enough. Working on a research project with a faculty member just once during college could be a life-altering experience. But for the other three activities—getting prompt feedback, discussing grades and assignments, and discussing ideas outside of class—we know that the more frequent the contact the better.

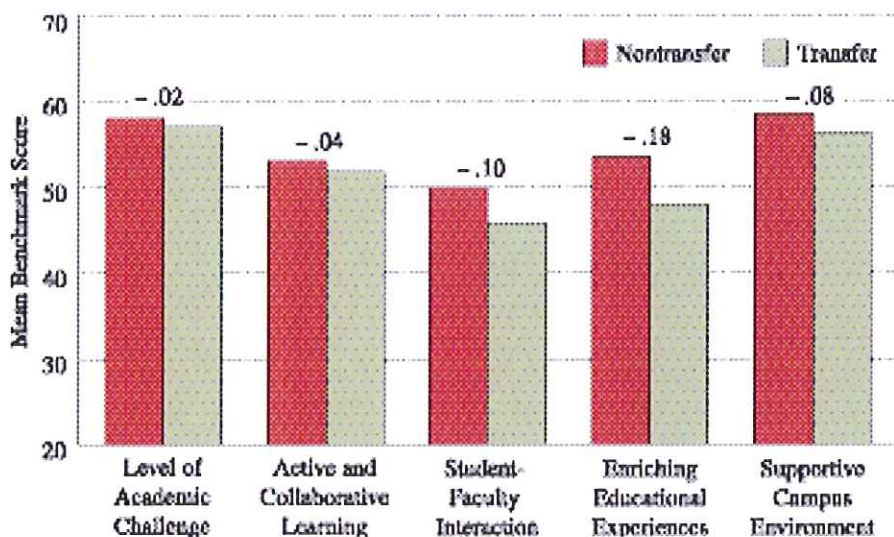
Who is responsible for the quality of the educational experience of transfer students? Forty percent of all seniors responding to NSSE began college at an institution other than the one they currently attend. At master's-granting and doctoral institutions, almost half of seniors are transfers—and at some universities, the proportion of graduating seniors who are transfers exceeds 70 percent.

Chart 5 shows that transfer students are generally less involved in educationally engaging activities at the school from which they are about to graduate in four of the five areas: active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment. The number above each benchmark in Chart 5 is the effect size (standardized mean difference), which indicates the relative magnitude of the differences between transfer and non-transfer student performance. The larger the effect size, the more likely the quality of the educational experience of the two groups really differs in a meaningful way. Numbers smaller than .1 generally represent such a small difference that for all practical purposes transfer and native students are the same, such as on the academic challenge benchmark, which has an effect size of only .02.

Thus, we conclude that transfers generally find their institutions as academically challenging as their nontransfer peers do. In fact, they report comparable grades and are more likely to be prepared for class than nontransfer students. The differences on the other four benchmarks are all negative, suggesting that transfer students are less engaged, especially with regard to faculty contact and enriching educational experiences.

One explanation for this is that transfer students are more likely to be older (63 percent are at least 24, compared to 13 percent of nontransfer students) and commuters; thus they are more

CHART 5. SENIOR TRANSFER STATUS AND EFFECT SIZE ON NSSE BENCHMARKS



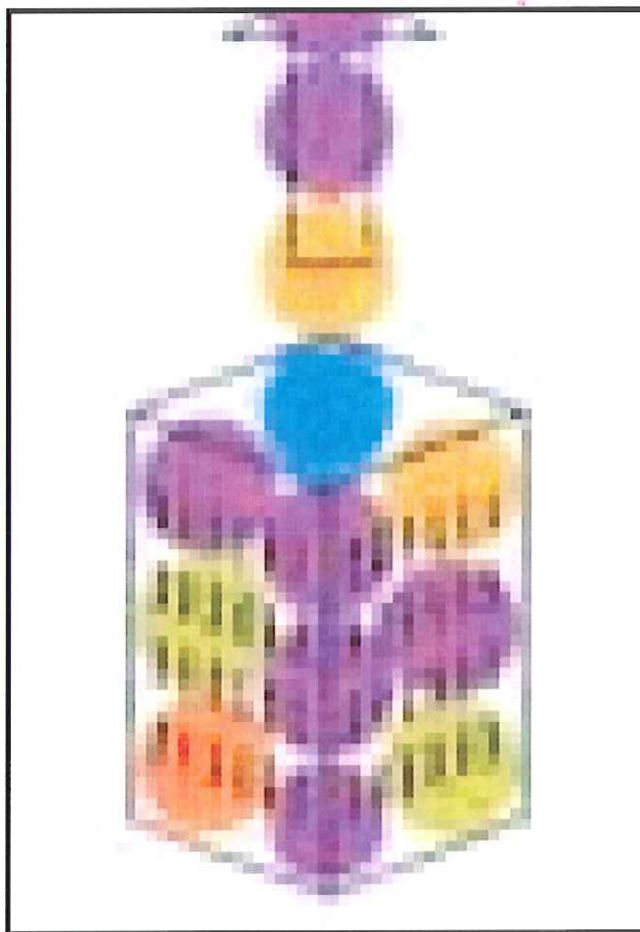
By their senior year, most students live off campus and are less exposed to campus activities that promote diversity awareness and have fewer naturally occurring opportunities for interacting with people who are different.

likely to spend more hours a week working and caring for dependents. Moreover, more than half (54 percent) are first-generation students, compared with 38 percent of nontransfer students. But even after controlling for these factors, the differences in engagement favoring nontransfer students persist. This may be due in part to what we might call the “transfer tremor”—managing the challenges that come with learning how to negotiate the cultural pathways of their new institution. And the range and types of socializing experiences designed to ease the transition of new first-year college students—pre-school orientation, welcome week, special seminars, living together—are not routinely made available to transfer students.

That transfer students are less engaged overall than nontransfer students poses some challenges for academic advisors and student affairs professionals. It can also raise nettlesome questions for articulation agreements and for performance indicator systems. When evaluating the quality of the educational experience, how much responsibility for transfer student performance belongs to the institution, to the individual student, and to the other institutions transfer students have attended? What we can say at this point is that the under-engaged transfer student phenomenon is not a function of attending a certain type of institution. That is, there doesn't seem to be any discernable differences in the engagement levels of transfers from community colleges compared with those who move from one four-year institution to another.

It's possible for institutions to link NSSE data with student records, such as transcripts, to determine at what point students transfer (second year or later) and when their performance appears to

be affected, if at all. With the Community College Survey of Student Engagement (CCSSE) coming online this spring under the direction of Kay McClenney at the University of Texas at Austin, we may for the first time have information from CCSSE and NSSE that will allow us to examine student engagement at two-year and four-year campuses within



a single state or university system and track the movement and performance of students between the two sectors. This may also help us determine if those students who transfer are generally predisposed to be less engaged.

With the two-year college sector growing and more students attending multiple institutions on their way toward a baccalaureate degree, we can expect the number of transfer students to increase. Finding ways to dampen transfer tremor and more fully engage these stu-

dents in effective educational practices is a challenge we must address in order to improve the quality of postsecondary education. Toward this end, we conducted an analysis of the more than 600 four-year colleges and universities in the NSSE database, looking for transfer-friendly schools—that is, institutions where transfer students performed as

well as or better than nontransfer students on the NSSE benchmarks. There were very few.

It seems wise to direct some effort and resources to learning what institutions can do to involve their transfer students at reasonable levels in effective educational practice. Almost 30 years ago John Gardner, then at the University of South Carolina, set out to enhance the quality of the first-year student experience. His success is evidenced by the widespread implementation of “orientation to college” seminars across the country and other innovations aimed to promote student success in the first year. Higher education sorely needs similar work of this kind on developing ways to engage transfer students in effective educational practice. One group that has taken up the challenge to recognize and promote the academic excellence and involvement of transfer students is the Tau Sigma honorary society, founded by Professor Lee

Colquitt at Auburn University (www.auburn.edu/tausigma). Thirteen chapters now exist, all at public universities, and others are in the process of forming at other schools.

Does experience with diversity matter to student engagement? Understanding and learning how to work effectively with people from different backgrounds is a valued set of skills and competencies. NSSE asks four questions about students' exposure to and experiences with diversity:

1) The extent to which the school encourages contact among students of different backgrounds;

2) How frequently students have serious conversations with others of different races/ethnicities;

3) How frequently students have serious conversations with others who have very different religious beliefs or personal values; and

4) How frequently students incorporate diverse perspectives into class discussions or written reports.

Students who report more experience with diversity, net of other factors, are more involved in other effective educational practices and also report greater gains on many of the 15 learning and personal development items on the NSSE survey. For example, the more exposure to diversity, the more likely it is that students are involved in active and collaborative learning and the more satisfied they are with their college experience.

Diversity experiences vary somewhat by institutional type. Students at baccalaureate liberal arts colleges and doctoral/research extensive universities more frequently engage in diversity-related activities, while students at master's institutions do so least frequently. The density of racial and ethnic groups is also a factor in engagement, in that students at campuses with higher percentages of students from different racial and ethnic backgrounds, not sur-

prisingly, report more diversity experiences. Students of color, on average, also report more diversity experiences (probably because they are usually outnumbered by white students in classes and elsewhere on campus and thus have more contact with them).

Students at baccalaureate liberal arts colleges and doctoral/research extensive universities more frequently engage in diversity-related activities, while students at master's institutions least frequently do so. First-year students are more likely to report that their institutions encourage contact with students from different backgrounds. This is likely due in part to schools' promoting the importance of diversity during new student orientation, dorm-based activities, and first-year seminars. But by their senior year, most students live off campus and are less exposed to campus activities that promote diversity awareness and have fewer naturally occurring opportunities for interacting with people who are different. By this time many students are "diversity inoculated," having been presented with many messages about the importance of diversity early in their college years.

These explanations may be plausible, but are they acceptable? Is it satisfactory that more than a fifth of all seniors think that their schools give little emphasis to encouraging contact between students from different economic, social, and racial backgrounds? Is this the

lasting impression we want newly graduated students to have about the value their institution places on diversity? Or should schools look for ways to reinforce the need and value of continuing to explore human differences in educationally purposeful ways?

WHAT'S NEXT?

There is much more to learn about student engagement and educational effectiveness than one intentionally short, highly focused student survey can tell us. To probe further, some institutions are combining their NSSE results with evidence from other surveys and academic records to develop rich, campus-specific profiles of the undergraduate experience. Portfolios and major field-specific outcomes assessments could also be instructive sources of evidence when linked with student engagement findings and other information. And we need to further document the relationships between student engagement data and valid measures of student learning.

We also need to learn more about what promotes engagement, both in undergraduate programs and in other levels of education. In the foreword to the "NSSE 2002 Report," Russ Edgerton and Lee Shulman wrote "students can be engaged in a range of effective practices and still not be learning with understanding." And students can be learning with understanding but not be able to apply what they are learning to practical matters or in different contexts. To respond to some of the messy NSSE questions raised earlier we need to determine the optimal and minimal levels of engagement in the various practices that yield satisfactory amounts of learning for various groups of students at different institutions or in various programs and levels of study.

NSSE data confirm what many have believed for a long time—that the quality of the undergraduate experience at one school can differ substantially from that of another school, even of the same size and caliber. One way for prospective students to find out whether the students at a college they are interested in are engaged in various activities is to ask the institution. As part of NSSE's public advocacy effort, it is making a pocket guide available to high school counselors, prospective college stu-

Resources

- Chickering, A.W., and Z.F. Gamson, "Seven Principles for Good Practice in Undergraduate Education," *AAHE Bulletin*, Vol. 39, No. 7, 1987, pp. 3-7.
- *From Promise to Progress: How Colleges and Universities are Using Student Engagement Results to Improve Collegiate Quality*, Bloomington, IN: Indiana University Center for Postsecondary Research and Planning, 2002.
- Kuh, G.D., "Assessing What Really Matters to Student Learning: Inside the National Survey of Student Engagement," *Change*, Vol. 33, No. 3, 2001, pp. 10-17, 66.
- Kuh, G.D. and S. Hu, "The Effects of Student-Faculty Interaction in the 1990s," *The Review of Higher Education*, Vol. 24, 2001, pp. 309-332.
- Pascarella, E.T., "Identifying Excellence in Undergraduate Education: Are We Even Close?" *Change*, Vol. 33, No. 3, 2001, pp. 19-23.
- Schilling, K. M. and K. L. Schilling, "Increasing Expectations for Student Effort," *About Campus*, Vol. 4, No. 2, 1999, pp. 4-10.
- Shulman, L.S., "Making Differences: A Table of Learning," *Change*, Vol. 34, No. 6, 2002, pp. 36-44.
- Twigg, C.A., "Rethinking the Seven Principles," *The Learning MarketSpace*, November 9, 2002. Online at www.center.rpi.edu/LForum/LdtLM.html

dents, and parents. The guide includes the types of questions students should ask about student engagement and related matters when visiting colleges. NSSE is also pursuing ways to examine the nature and frequency of student engagement in high schools and in selected post-baccalaureate programs.

NSSE is collaborating with an expanding cadre of partners with similar goals and values to further strengthen institutional accountability for student learning. We formed the NSSE Institute for Effective Educational Practice to bring together faculty members, administrators, and others to discover and implement effective mechanisms for linking information about student experiences to efforts to improve academic programs and support services. One such effort, called Project DEEP (Documenting Effective Educational Practice), will identify promising practices at about 20 colleges and universities that have higher-than-predicted scores on the NSSE benchmarks and higher-than-predicted graduation rates.

The NSSE Institute is working with the American Association for Higher

Education (AAHE) on this project to learn more about schools that have intentionally changed the way they work with their students to promote higher levels of student engagement that translate into achievement. Other partners in DEEP include the Wabash College Center of Inquiry in the Liberal Arts, the Association of American Colleges and Universities, the National Association of Student Personnel Administrators, and Lumina Foundation for Education.

NSSE is also working with AAHE and the Alliance for Equity in Higher Education on the BEAMS Project (Building Engagement and Attainment of Minority Students). This is an effort to reduce the national gap in educational attainment for African-Americans, Hispanics, and Native Americans by increasing the number of students from these groups who earn bachelor's degrees (www.aahe.org/BEAMS). This expanded workscope is transforming NSSE from an annual survey of undergraduates into a national movement for using survey data to improve the undergraduate experience.

CONCLUSION

Fortunately, nobody flies a plane across the Atlantic without navigational instruments anymore. Nor should colleges and universities make judgments about the effectiveness of their policies and practices in the absence of student engagement data or some comparable source of information about the quality of the student experience. NSSE is one compass that can help determine whether student behavior and institutional practices are headed in the right direction.

The good news is that many schools seem to be moving that way in some areas, such as incorporating active and collaborative learning activities and promoting internship and senior capstone experiences. But there's also plenty of room for improvement. And it is only with the support of presidents, governing board members, academic and student life administrators, faculty members, and students that a variety of coherent, challenging, and complementary educational activities, inside and outside the classroom, will flourish on a campus.

Ad

The National Survey of Student Engagement: Conceptual Framework and Overview of Psychometric Properties

George D. Kuh

Indiana University Center for Postsecondary Research and Planning

What students **do** during college counts more in terms of desired outcomes than who they are or even where they go to college. That is, the voluminous research on college student development shows that the time and energy students devote to educationally purposeful activities is the single best predictor of their learning and personal development (Astin, 1993; Pascarella & Terenzini, 1991; Pace, 1980). The implication for estimating collegiate quality is clear. Those institutions that more fully engage their students in the variety of activities that contribute to valued outcomes of college can claim to be of higher quality in comparison with similar types of colleges and universities.

Certain institutional practices are known to lead to high levels of student engagement (Astin, 1991; Chickering & Reisser, 1993; Kuh, Schuh, Whitt & Associates, 1991; Pascarella & Terenzini, 1991). Perhaps the best known set of engagement indicators is the "Seven Principles for Good Practice in Undergraduate Education" (Chickering & Gamson, 1987). These principles include student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning. Also important to student learning are institutional environments that are perceived by students as inclusive and affirming and where expectations for performance are clearly communicated and set at reasonably high levels (Education Commission of the States,

1995; Kuh, 2001; Kuh et al., 1991; Pascarella, 2001). All these factors and conditions are positively related to student satisfaction and achievement on a variety of dimensions (Astin, 1984, 1985, 1993; Bruffee, 1993; Goodsell, Maher, & Tinto, 1992; Johnson, Johnson, & Smith, 1991; McKeachie, Pintrich, Lin, & Smith, 1986; Pascarella & Terenzini, 1991; Pike, 1993; Sorcinelli, 1991). Thus, educationally effective colleges and universities -- those that add value -- channel students' energies toward appropriate activities and engage them at a high level in these activities (Educational Commission of the States, 1995; The Study Group, 1984).

Emphasizing good educational practice helps focus faculty, staff, students, and others on the tasks and activities that are associated with higher yields in terms of desired student outcomes. Toward these ends, faculty and administrators would do well to arrange the curriculum and other aspects of the college experience in accord with these good practices, thereby encouraging students to put forth more effort (e.g., write more papers, read more books, meet more frequently with faculty and peers, use information technology appropriately) which will result in greater gains in such areas as critical thinking, problem solving, effective communication, and responsible citizenship.

Overview and Content of the NSSE Project and Questionnaire

The National Survey of Student Engagement (NSSE) is specifically designed to assess the extent to which students are engaged in empirically derived good educational practices and what they gain from their college experience (Kuh, 2001). The main content of the NSSE instrument, *The College Student Report*, represents student behaviors that are highly correlated with many desirable learning and personal development outcomes of college. Responding to the questionnaire requires that students reflect on what they are putting into and getting out of their college experience. Thus, completing the survey itself is consistent with effective educational practice.

The results from the NSSE project have been used to produce a set of national benchmarks of good educational practice that participating schools are using to estimate the efficacy of their improvement efforts (Kuh, 2001). For example, administrators and faculty members at dozens of schools are using their NSSE results to discover patterns of student-faculty interactions and the frequency of student participation in other educational practices that they can influence directly and indirectly to improve student learning. In addition, some states are using NSSE data in their performance indicator systems and for other public accountability functions.

Structure of the Instrument

The College Student Report asks students to report the frequency with which they engage in dozens of activities that represent good educational practice, such as using the institution's human resources, curricular programs, and other opportunities for learning and development that the college provides. Additional items assess the amount of reading and writing students did during the current school year, the number of hours per week

they devoted to schoolwork, extracurricular activities, employment, and family matters, and the nature of their examinations and coursework. Seniors report whether they participated in or took advantage of such learning opportunities as being a part of a learning community, working with a faculty member on a research project, internships, community service, and study abroad. First-year students indicate whether they have done or plan to do these things. Students also record their perceptions of features of the college environment that are associated with achievement, satisfaction, and persistence including the extent to which the institution offers the support students need to succeed academically and the quality of relations between various groups on campus such as faculty and students (Astin, 1993; Pascarella & Terenzini, 1991; Tinto, 1993). Then, students estimate their educational and personal growth since starting college in the areas of general knowledge, intellectual skills, written and oral communication skills, personal, social and ethical development, and vocational preparation. These estimates are mindful of a value-added approach to outcomes assessment whereby students make judgments about the progress or gains they have made (Pace, 1984). Direct measures of student satisfaction are obtained from two questions: "How would you evaluate your entire educational experience at this institution?" "If you could start over again, would you go to the same institution you are now attending?"

Students also provide information about their background, including age, gender, race or ethnicity, living situation, educational status, and major field. Finally, up to 20 additional questions can be added to obtain information specific to an institutional consortium. Schools have the option of linking their students' responses with their own institutional data base in order to examine other aspects of the undergraduate experience

or to compare their students' performance with data from other institutions on a mutually-determined basis for purposes of benchmarking and institutional improvement.

Validity, Reliability, and Credibility of Self-Report Data

As with all surveys, the NSSE relies on self-reports. Using self-reports from students to assess the quality of undergraduate education is common practice. Some outcomes of interest cannot be measured by achievement tests, such as attitudes and values or gains in social and practical competence. For many indicators of educational practice, such as how students use their time, student reports are often the only meaningful source of data.

The validity and credibility of self-reports have been examined extensively (Baird, 1976; Berdie, 1971; Pace, 1985; Pike, 1995; Pohlmann & Beggs, 1974; Turner & Martin, 1984). The accuracy of self-reports can be affected by two general problems. The most important factor (Wentland & Smith, 1993) is the inability of respondents to provide accurate information in response to a question. The second factor is unwillingness on the part of respondents to provide what they know to be truthful information (Aaker, Kumar, & Day, 1998). In the former instance, students simply may not have enough experience with the institution to render a precise judgment or they may not understand the question. The second problem represents the possibility that students intentionally report inaccurate information about their activities or backgrounds. Research shows that people generally tend to respond accurately when questions are about their past behavior with the exception of items that explore sensitive areas or put them in an awkward, potentially embarrassing position (Bradburn & Sudman, 1988).

The validity of self-reported time use has also been examined (Gershuny & Robinson, 1988). Estimates of time usage tend to be less accurate than diary entries. However, this threat to validity can be ameliorated somewhat by asking respondents about relatively recent activities (preferably six months or less), providing a frame of reference or landmark to use, such as the period of time to be considered (Converse & Presser, 1989). Such landmarks aid memory recall and reduce distortion by telescoping, the tendency for respondents to remember events as happening more recently than they actually did (Singleton, Straits, & Straits, 1993). Requesting multiple time estimates also makes it possible to control for outliers, those whose combined estimates of time are either so high that the total number of hours reported exceeds the number available for the set of activities or those that are unreasonably low.

Student self-reports are also subject to the halo effect, the possibility that students may slightly inflate certain aspects of their behavior or performance, such as grades, the amount that they gain from attending college, and the level of effort they put forth in certain activities. To the extent this halo effect exists, it appears to be relatively constant across different types of students and schools (Pike, 1999). This means that while the absolute value of what students report may differ somewhat from what they actually do, the effect is consistent across schools and students so that the halo effect does not appear to advantage or disadvantage one institution or student group compared with another.

With this in mind, self-reports are likely to be valid under five general conditions (Bradburn & Sudman, 1988; Brandt, 1958; Converse & Presser, 1989; DeNisi & Shaw, 1977; Hansford & Hattie, 1982; Laing, Swayer, & Noble 1989; Lowman & Williams, 1987; Pace, 1985; Pike, 1995). They are: (1) when

the information requested is known to the respondents; (2) the questions are phrased clearly and unambiguously; (3) the questions refer to recent activities; (4) the respondents think the questions merit a serious and thoughtful response; and (5) answering the questions does not threaten, embarrass, or violate the privacy of the respondent or encourage the respondent to respond in socially desirable ways. *The College Student Report* was intentionally designed to satisfy all these conditions.

The NSSE survey is administered during the spring academic term. The students randomly selected to complete *The Report* are first-year students and seniors who were enrolled the previous term. Therefore, all those who are sent the survey have had enough experience with the institution to render an informed judgment. The questions are about common experiences of students within the recent past. Memory recall with regard to time usage is enhanced by asking students about the frequency of their participation in activities during the current school year, a reference period of six months or less. To eliminate the variability in week-to-week fluctuations, students report the number of hours spent in each of six activities during a typical week, which also allows an accuracy check on the total number of hours students report. The format of most of the response options is a simple rating scale, which helps students to accurately recall and record the requested information, thereby minimizing this as a possible source of error.

Most of the items on *The Report* have been used in other long-running, well-regarded college student research programs, such as UCLA's Cooperative Institutional Research Program (Astin, 1993; Sax, Astin, Korn, & Mahoney, 1997) and Indiana University's College Student Experiences Questionnaire Research Program (Kuh, Vesper, Connolly, & Pace, 1997; Pace, 1984, 1990). Responses to the Educational and Personal Growth items

have been shown to be generally consistent with other evidence, such as results from achievement tests (Brandt, 1958; Davis & Murrell, 1990; DeNisi & Shaw, 1977; Hansford & Hattie, 1982; Lowman & Williams, 1987; Pike, 1995; Pace, 1985).

For example, Pike (1995) found that student reports to gains items from the CSEQ, an instrument conceptually similar to *The College Student Report*, were highly correlated with relevant achievement test scores (also see Anaya, 1999). He concluded that self-reports of progress could be used as proxies for achievement test results if there was a high correspondence between the content of the criterion variable and proxy indicator.

In summary, a good deal of evidence shows that students are accurate, credible reporters of their activities and how much they have benefited from their college experience, provided that items are clearly worded and students have the information required to accurately answer the questions. In addition, students typically respond carefully and in many cases with personal interest to the content of such questionnaires. Because their responses are congruent with other judgments, and because for some areas students may be the best qualified to say in what ways they are different now than when they started college, it is both reasonable and appropriate that we should pay attention to what college students say about their experiences and what they've gained from them (Pace, 1984; Pascarella, 2001).

Psychometric Properties of the NSSE

Validity is arguably the most important property of an assessment tool. For this reason the Design Team that developed the NSSE instrument devoted considerable time during 1998 and 1999 making certain the items on the survey were clearly worded, well-defined, and had high face and content validity. Logical relationships exist between the items in ways that are consistent with the results of objective measures and with other research. The responses to the survey items are approximately normally distributed and the patterns of responses to different clusters of items (College Activities, Educational and Personal Growth, Opinions About Your School) discriminate among students both within and across major fields and institutions. For example, factor analysis (principal components extraction with oblique rotation) is an empirical approach to establishing construct validity (Kerlinger, 1973). We used factor analysis to identify the underlying properties of student engagement represented by items on *The Report*. These and other analyses will be described in more detail later.

The degree to which an instrument is reliable is another important indicator of an instrument's psychometric quality. Reliability is the degree to which a set of items consistently measures the same thing across respondents and institutional settings. Another characteristic of a reliable instrument is stability, the degree to which the students respond in similar ways at two different points in time. One approach to measuring stability is test-retest, wherein the same students are asked to fill out *The Report* two or more times within a reasonably short period of time. Very few large-scale survey instruments have test-retest information available due to the substantial expense and effort needed to obtain such information. It's particularly challenging and logistically problematic for a

national study of college students conducted during the spring term to collect test-retest data because of the amount of time available to implement the original survey and then in the short amount of time left in the term to locate once again and convince respondents to complete the instrument a second time.

Estimating the stability aspect of reliability is problematic in two other ways. First, the student experience is somewhat of a moving target; a month's time for some students can make a non-trivial difference in how they respond to some items because of what's transpired between the first and second administration of the survey. Second, attempts to estimate the stability of an instrument assume that the items have not changed or been re-worded. To improve the validity and reliability of *The Report*, minor editing and item substitutions have been made prior to each administration. We'll return to these points later.

Two additional pertinent indicators are estimates of skewness and kurtosis. Skewness represents the extent to which scores are bunched toward the upper or lower end of a distribution, while kurtosis indicates the extent to which a distribution of scores is relatively flat or relatively peaked. Values ranging from approximately + 1.00 to - 1.00 on these indicators are generally regarded as evidence of normality. For some items, out-of-range skewness values can be expected, such as participating in a community-based project as part of a regular course where, because of a combination of factors (major, course selection, faculty interest), relatively few students will respond something other than Anever.@

To establish *The Report's* validity and reliability we've conducted psychometric analyses following all six administrations of the instrument, beginning with the field tests in 1999. These analyses are based on 3,226

students at 12 institutions in spring, 1999, 12,472 students at 56 institutions in fall 1999, 63,517 students at 276 institutions in spring 2000, 89,917 students at 321 institutions in spring 2001, 118,355 students at 366 institutions in spring 2002, and 122,584 students at 427 institutions in spring 2003. The following sections describe some of the more important findings from the various psychometric analyses of items and scales from *The College Student Report* conducted between June 1999 and August 2003. Additional information about most of the analyses reported here is available on the NSSE web site (www.indiana.edu/~nsse) or from NSSE project staff.

College Activities Items

This section includes the 22 items on the first page of *The Report* that represent activities in which students engage inside and outside the classroom. The vast majority of these items are expressions of empirically derived good educational practices; that is, the research shows they are positively correlated with many desired outcomes of college. The exceptions are the item about coming to class unprepared and the two items about information technology that have yet to be empirically substantiated as good educational practice. Items from some other sections of *The Report* also are conceptually congruent with these activities, such as the amount of time (number of hours) students spend on a weekly basis participating in various activities (studying, socializing, working, extra-curricular involvements).

As expected, the Acoming to class unprepared@ (CLUNPREP) item was not highly correlated with the other 21 College Activities (CA) items. To facilitate psychometric and other data analyses this item was reverse scored and the reliability coefficient (Cronbach=s alpha) for the 22 CA items was .85 (Table 1). Except for the

CLUNPREP item, the intercorrelations for the CA items range from 0.09 to 0.68. Most of the lowest correlations are associated with the Acoming to class unprepared@ item and the item about rewriting a paper several times. Those most highly correlated in this section include the four faculty-related items: “discussed grades or assignments with an instructor,” “talked about career plans with a faculty member or advisor,” “discussed ideas from your readings or classes with a faculty member outside of class” (FACIDEAS) and “received prompt feedback from faculty on your academic performance (written or oral)” (FACFEED).

Principal components analysis of the 22 CA items with oblique rotation produced four factors accounting for about 45% of the variance in student responses (Table 2). The factors are mindful of such principles of good practice as faculty-student interaction, peer cooperation, academic effort, and exposure to diverse views. As intended, the underlying constructs of engagement represented by the 22 CA items are consistent with the behaviors that previous research has linked with good educational practice. The skewness and kurtosis estimates for the CA items are generally acceptable, indicating that responses to the individual CA and related items are relatively normally distributed. One noteworthy exception is the “participating in a community-based project as part of a regular course” which was markedly positively skewed as about 66% answered “never.”

**TABLE 1: RELIABILITY COEFFICIENTS AND INTERCORRELATIONS
COLLEGE ACTIVITIES, EDUCATIONAL AND PERSONAL GROWTH, AND OPINIONS ABOUT YOUR SCHOOL**

College Activities Items		Alpha Reliability =.85																					
	CLQUEST	CLPRESEN	REWPAP	INTEGRAT	DIVCLASS	CLUNPREP	CLASSGRP	OCCGRP	INTIDEAS	TUTOR	COMMPROJ	ITACADEM	EMAIL	FACGRADE	FACPLANS	FACIDEAS	FACFEED	WORKHARD	FACOTHER	OOCIDEAS	DIVRSTUD	DIFSTU2	
CLQUEST*	1.00																						
CLPRESEN	0.33	1.00																					
REWPAP	0.15	0.16	1.00																				
INTEGRAT	0.27	0.37	0.35	1.00																			
DIVCLASS	0.28	0.23	0.23	0.39	1.00																		
CLUNPREP	-0.10	-0.05	-0.20	-0.10	-0.06	1.00																	
CLASSGRP	0.13	0.27	0.14	0.19	0.15	0.02	1.00																
OCCGRP	0.17	0.35	0.11	0.26	0.13	0.02	0.29	1.00															
INTIDEAS	0.29	0.29	0.14	0.37	0.31	-0.02	0.22	0.34	1.00														
TUTOR	0.22	0.15	0.07	0.14	0.13	-0.02	0.08	0.24	0.25	1.00													
COMMPROJ	0.16	0.24	0.11	0.19	0.22	-0.02	0.15	0.21	0.21	0.22	1.00												
ITACADEM	0.11	0.17	0.09	0.22	0.15	-0.01	0.14	0.20	0.20	0.13	0.14	1.00											
EMAIL	0.19	0.20	0.12	0.26	0.20	0.01	0.12	0.27	0.25	0.16	0.16	0.37	1.00										
FACGRADE	0.34	0.26	0.19	0.29	0.24	-0.04	0.19	0.27	0.29	0.21	0.19	0.24	0.46	1.00									
FACPLANS	0.29	0.25	0.14	0.26	0.23	-0.06	0.14	0.24	0.28	0.25	0.24	0.16	0.30	0.47	1.00								
FACIDEAS	0.36	0.25	0.18	0.27	0.27	-0.08	0.14	0.24	0.34	0.28	0.24	0.17	0.28	0.44	0.49	1.00							
FACFEED	0.28	0.20	0.15	0.26	0.24	-0.10	0.14	0.18	0.28	0.17	0.16	0.17	0.25	0.35	0.35	0.39	1.00						
WORKHARD	0.20	0.21	0.28	0.29	0.21	-0.17	0.15	0.22	0.25	0.15	0.17	0.14	0.21	0.31	0.27	0.29	0.29	1.00					
FACOTHER	0.27	0.25	0.08	0.21	0.20	-0.02	0.11	0.25	0.26	0.30	0.30	0.15	0.24	0.30	0.41	0.42	0.27	0.23	1.00				
OOCIDEAS	0.28	0.16	0.13	0.27	0.28	-0.06	0.10	0.20	0.35	0.20	0.14	0.17	0.20	0.27	0.27	0.36	0.30	0.25	0.26	1.00			
DIVRSTUD	0.21	0.13	0.09	0.19	0.30	0.01	0.10	0.16	0.23	0.18	0.13	0.14	0.18	0.21	0.20	0.25	0.19	0.17	0.21	0.33	1.00		
DIFSTU2	0.22	0.12	0.09	0.20	0.31	0.03	0.09	0.17	0.25	0.19	0.12	0.15	0.21	0.23	0.22	0.26	0.20	0.17	0.22	0.35	0.68	1.00	

Educational and Personal Growth		Alpha Reliability =.90													
	GNGENLED	GNWORK	GNWRITE	GNSPEAK	GNANALY	GNQUANT	GNCMPTS	GNOTHERS	GNCITIZN	GNINQ	GNSSELF	GNDIVERS	GNPROBSV	GNETHICS	GNCOMMUN
GNGENLED*	1.00														
GNWORK	0.34	1.00													
GNWRITE	0.45	0.32	1.00												
GNSPEAK	0.40	0.38	0.66	1.00											
GNANALY	0.44	0.37	0.54	0.53	1.00										
GNQUANT	0.31	0.35	0.32	0.36	0.54	1.00									
GNCMPTS	0.24	0.35	0.27	0.32	0.35	0.46	1.00								
GNOTHERS	0.35	0.41	0.39	0.48	0.44	0.37	0.45	1.00							
GNCITIZN	0.22	0.23	0.26	0.32	0.23	0.22	0.23	0.31	1.00						
GNINQ	0.35	0.29	0.37	0.38	0.45	0.34	0.29	0.42	0.31	1.00					
GNSSELF	0.36	0.29	0.35	0.39	0.39	0.26	0.24	0.43	0.29	0.52	1.00				
GNDIVERS	0.33	0.25	0.33	0.37	0.34	0.25	0.24	0.40	0.32	0.36	0.52	1.00			
GNPROBSV	0.34	0.41	0.35	0.41	0.46	0.43	0.35	0.47	0.34	0.43	0.50	0.54	1.00		
GNETHICS	0.36	0.31	0.35	0.40	0.40	0.29	0.26	0.44	0.33	0.44	0.61	0.51	0.57	1.00	
GNCOMMUN	0.32	0.32	0.32	0.37	0.35	0.28	0.23	0.41	0.40	0.36	0.45	0.45	0.50	0.59	1.00

Opinions about Your School		Alpha Reliability =.84									
	ENVSCHOL	ENVSUPRT	ENVDIRS	ENVNACAD	ENVSOCAL	ENVEVENT	ENVSTU	ENVFAC	ENVADM	ENTIREXP	SAMECOLL
ENVSCHOL*	1.00										
ENVSUPRT	0.41	1.00									
ENVDIRS	0.26	0.45	1.00								
ENVNACAD	0.23	0.48	0.50	1.00							
ENVSOCAL	0.22	0.45	0.46	0.66	1.00						
ENVEVENT	0.24	0.39	0.36	0.41	0.51	1.00					
ENVSTU	0.17	0.26	0.22	0.23	0.32	0.25	1.00				
ENVFAC	0.19	0.48	0.28	0.33	0.32	0.28	0.34	1.00			
ENVADM	0.19	0.41	0.28	0.33	0.33	0.28	0.28	0.51	1.00		
ENTIREXP	0.29	0.50	0.32	0.35	0.39	0.35	0.40	0.53	0.44	1.00	
SAMECOLL	0.22	0.39	0.27	0.29	0.35	0.28	0.36	0.39	0.37	0.65	1.00

*To identify the respective items consult the NSSE 2002 Codebook in the fourth tabbed section of the institutional report binder.

TABLE 2: FACTOR LOADINGS
COLLEGE ACTIVITIES, EDUCATIONAL AND PERSONAL GROWTH, AND OPINIONS ABOUT YOUR SCHOOL
Principal Components Extraction; Promax (Oblique) Rotation

	Student-Faculty	Student-Student	Diversity	Classwork	
FACIDEAS ^a	0.751				
FACPLANS	0.741				
FACOTHER	0.595				
FACGRADE	0.572				
FACFEED	0.472				
TUTOR	0.358				
CLQUEST	0.347				
EMAIL	0.336				
OCCGRP		0.700			
CLPRESEN		0.523			
CLASSGRP		0.493			
INTIDEAS		0.377			
ITACADEM		0.312			
COMMPROJ		0.249			
DIFFSTU2			0.895		
DIVRSTUD			0.826		
OOCIDEAS			0.287		
REWROPAP				0.594	
INTEGRAT				0.505	
CLUNPREP				-0.422	
DIVCLASS				0.360	
WORKHARD				0.335	Total
% Variance Explained	25.8	6.9	6.1	5.7	44.6
Educational and Personal Growth					
	Personal-Social	Practical Competence	General Education		
GNETHICS ^a	0.879				
GNSELF	0.771				
GNDIVERS	0.711				
GNCOMMUN	0.706				
GNPROBSV	0.584				
GNINQ	0.390				
GNCITIZN	0.390				
GNQUANT		0.808			
GNCMPTS		0.733			
GNWORK		0.425			
GNANALY		0.407			
GNOTHERS		0.396			
GNWRITE			0.994		
GNSPEAK			0.673		
NGENLED			0.372		Total
% Variance Explained	41.7	8.8	6.8		57.3
Opinions about Your School					
	Quality of Relations	Campus Climate-Social	Campus Climate-Academic		
ENTIREXP ^a	0.838				
SAMECOLL	0.751				
ENVFAC	0.523				
ENVSTU	0.498				
ENVADM	0.432				
ENVSOCAL		0.911			
ENVNACAD		0.724			
ENVEVENT		0.466			
ENVDIVRS		0.460			
ENVSUPRT			0.832		
ENVSCHOL			0.431		Total
% Variance Explained	41.7	11.3	8.4		61.3

^a To identify the respective items, consult the NSSE 2002 Codebook in the fourth tabbed section of the institutional report

Reading, Writing, and Other Educational Program Characteristics

Some additional items address other important aspects of how students spend their time and what the institution asks them to do, which directly and indirectly affect their engagement. The results discussed in this section are not presented in a table but are available from the NSSE website. The five items about the extent to which the institution emphasizes different kinds of mental activities represent some of the skills in Bloom's (1956) taxonomy of educational objectives. The standardized alpha for these items is .70 when the lowest order mental function item, memorization, is included. However, the alpha jumps to .80 after deleting the memorization item. This set of items is among the best predictors of self-reported gains, suggesting that the items are reliably estimating the degree to which the institution is challenging students to perform higher order intellectual tasks.

Patterns of correlations among these items are consistent with what one would expect. For example, the item related to the number of hours spent preparing for class is positively related to several questions surrounding academic rigor such as the number of assigned course readings (.25), coursework emphasis on analyzing ideas and theories (.16) and synthesizing information and experiences (.16), the number of mid-sized (5-19 pages) written papers (.15), and the challenging nature of exams (.21). Likewise, the number of assigned readings is predictably related to the number of small (.24) and mid-sized (.29) papers written. Interestingly, the quality of academic advising is positively correlated with the four higher order mental activities, analyzing (.15), synthesizing (.17), evaluating (.15), and applying (.17), and is also positively related to the challenging nature of examinations (.20).

The set of educational program experiences (e.g., internships, study abroad, community service, working with a faculty member on a research project) have an alpha of .52. Working on a research project with a faculty member is positively related to independent study (.27), culminating senior experiences (.25), and writing papers of 20 pages or more (.15). Also, students who had taken foreign language coursework were more likely to study abroad (.24). It's worth mentioning that the national College Student Experiences Questionnaire database shows that the proportion of students saying they have worked on research with a faculty member has actually increased since the late 1980s, suggesting that collaboration on research may be increasingly viewed and used as a desirable, pedagogically effective strategy (Kuh & Siegel, 2000; Kuh, Vesper, Connolly, & Pace, 1997).

Finally, the time usage items split into two sets of activities, three that are positively correlated with other aspects of engagement and educational and personal gains (academic preparation, extracurricular activities, work on campus) and three items that are either not correlated or are negatively associated with engagement (socializing, work off campus, caring for dependents). Less than 1% of full-time students reported a total of more than 100 hours across all six time allocation categories. Three quarters of all students reported spending an average of between 35 and 80 hours a week engaged in these activities plus attending class. Assuming that full-time students are in class about 15 hours per week and sleep another 55 hours or so a week, the range of 105 to 150 hours taken up in all these activities out of a 168-hour week appears reasonable.

A few of these items have out-of-range but explainable skewness and kurtosis indicators. They include the number of hours spent working on campus (72% work five or fewer hours per week), the number of papers of 20

pages or more (66% said "none"), number of non-assigned books read (78% said fewer than 5), and the number of hours students spend caring for dependents (78% reported 5 or fewer hours).

Educational and Personal Growth

These 15 items are at the top of page 3 on *The College Student Report* and have an alpha coefficient of .90 (Table 1). The intercorrelations for these items range from .22 to .65. The lowest intercorrelations are between voting in elections and analyzing quantitative problems (.22), acquiring job or work-related knowledge and skills (.22), and computer and technology skills (.23). Four correlations were at .57 or higher: between writing and speaking (.66), and between developing a personal code of values and ethics and understanding yourself (.61), understanding people of other racial and ethnic backgrounds (.51), and contributing to the welfare of your community (.59).

Principal components analysis yielded three factors (Table 2). The first is labeled *Personal and social development* and it is made up of seven items that represent outcomes that characterize interpersonally effective, ethically grounded, socially responsible, and civic minded individuals. The second factor has only three items and is labeled *Practical competence* to reflect the skill areas needed to be economically independent in today's post-college job market. The final factor labeled *General education* is composed of four items that are earmarks of a well-educated person. Taken together, the three factors account for about 57.3% of the total variance.

Skewness and kurtosis estimates indicate a fairly normal distribution of responses. All skewness statistics are between -1.00 and +1.00 and only two items, understanding people of other racial and ethnic backgrounds

and developing a personal code of values and ethics are slightly platykurtic (more responses at the ends and fewer in the middle creating a flatter distribution).

In an attempt to obtain concurrent validity data we obtained, with students' permission, the end-of-semester gpa and cumulative gpa for 349 undergraduates at a large research university who completed NSSE 2000 *College Student Report*. The self-reported gains items most likely to be a function of primarily academic performance are those represented by the general education factor. Using these four items as the dependent variable, the partial correlations for semester gpa and cumulative gpa were .16 and .13, respectively. Both are statistically significant ($p < .01$).

Other evidence of validity of the Educational and Personal Growth items can be found from examining the scores of first-year and senior students, and students in different majors. Seniors typically report greater overall gains than first-year students, though on a few personal and social development items (self-understanding, being honest and truthful) older students sometimes reported less growth compared with traditional-age seniors on these individual items. The patterns of scores reported by students vary across majors and length of study in the same manner as has been determined through direct achievement testing. For example, science and mathematics majors report greater gains in quantitative analysis compared with other majors. Also, students in applied majors report greater gains in vocational competence compared with their counterparts majoring in history, literature, and the performing arts. As part of the ongoing NSSE project research program we are seeking additional evidence of concurrent validity of these items.

Opinions About Your School

These items are on page 3 of the instrument and represent students' views of important aspects of their college's environment. The alpha coefficient for these 11 items (including the two items on students' overall satisfaction with college) is .84 (Table 1). The intercorrelations range between .22 to .65, indicating that all these dimensions of the college or university environment are positively related. That is, the degree to which an institution emphasizes spending time on academics is not antithetical to providing support for academic success or friendly, supportive relations with students and faculty members. At the same time, most of the correlations are low to moderate in strength, indicating that these dimensions make distinctive contributions to an institution's learning environment. Skewness and kurtosis indicators are all in the acceptable range.

Principal components analysis of these items produced three factors (Table 2) accounting for about 61% of the total variance. The first factor, "Student satisfaction with college and quality of personal relations," is made up of five items. The second factor is labeled "Campus climate-social" and consists of four items. The third factor is "campus climate-academic" that consists of two items. Thus, students perceive that their institution's environment has three related dimensions. The first represents their level of satisfaction with the overall experience and their interactions with others. The second and the third are broad constructs that reflect the degree to which students believe the programs, policies and practices of their school are supportive and instrumental in both social and academic aspects in helping them attain their personal and educational goals.

Summary. The pattern of responses from first-year students and seniors suggest the items are measuring what they are supposed to measure.

For example, one would expect seniors to be, on average, more engaged in their educational pursuits compared with first-year students. Seniors would be expected to score higher on most College Activities items and reporting that their coursework places more emphasis on higher order intellectual skills, such as analysis and synthesis as contrasted with memorization. Among the exceptions is that seniors reported re-writing papers and assignments less frequently than first-year students. This may be because first-year students are more likely to take classes that require multiple drafts of papers or because seniors have become better writers during college and need fewer drafts to produce acceptable written work. On the two other items, both of which are related to interacting with peers from different backgrounds, first-year students and seniors were comparable.

Overall, the items on *The Report* appear to be measuring what they are intended to measure and discriminate among students in expected ways.

Grades and Engagement

Student-reported grade point average (GPA) is positively correlated with the five benchmarks, as well as with three additional scales that measure student-reported gains at their institution in three areas: general education, practical competence, and personal-social growth (See Table 3). These patterns hold for both first-year and senior students. These correlations likely understate the link between grades and engagement, particularly for seniors, because GPA is cumulative over the student's college career while engagement is typically measured over the current school year. While these analyses cannot determine the degree to which engagement promotes higher grades, or higher grades promote more intense engagement, the upshot is clear: higher engagement levels and higher grades go hand-in-hand.

Table 3. Bivariate Correlations between Cumulative Grade Point Average (GPA) and Selected 2002 Scales by Class

SCALES	GPA	
	FIRST-YEAR	SENIOR
Level of Academic Challenge	.15	.11
Active and Collaborative Learning	.17	.15
Student Faculty Interaction	.12	.17
Enriching Educational Experiences	.11	.13
Supportive Campus Environment	.10	.12
General Education Gains	.10	.10
Practical Competence Gains	.04	.02
Personal Social Gains	.05	.05

Notes. (1) All correlations reported are significant at the .001 level (one-tailed tests).

(2) Gains scales are constructed from principal components analyses described in Table 2.

Other Academic Performance Measures

In a study that examined the relationships between student engagement and educational outcomes, including RAND measures of academic performance and critical thinking as well as GRE scores. The results of this study suggest that that student engagement in several areas (academic challenge, supportive campus climate, reading and writing, quality of relations among groups on campus, and institutional emphases on good practices) was positively associated with the RAND measures. Additionally, four areas of student engagement (academic challenge, active and collaborative learning, reading and writing, and higher order thinking) were positively associated with GRE score. For more on the background of this study, see Benjamin and Hersh (2002). For an detailed description of the results, see Carini and Kuh (2003).

Non-Respondent Analysis

A frequently expressed reservation about the results from surveys is whether the people who did not respond differ in meaningful ways from respondents, especially on the

questions that constitute the focus of the study. For the NSSE project, this means that non-respondents might be less engaged, for example, in some key areas such as reading or interacting with peers and faculty members, which could advantage schools with fewer respondents (i.e., they would have higher scores). As we shall see, however, this does not seem to be the case.

To determine whether respondents and non-respondents differed in their engagement in selected effective educational practices, the Indiana University Center for Survey Research (CSR) conducted telephone interviews with 553 non-respondents from 21 colleges and universities nationwide that were participating in the NSSE 2001 survey. The purpose of the study was to ask those students who had not completed either the paper or web instrument to complete an abridged version of the instrument over the phone. NSSE staff members, in cooperation with telephone survey experts from the CSR, developed two versions of the interview protocol for this purpose. Both versions contained a common core of nine engagement items. Form A of the interview protocol

included six additional questions and Form B included six different additional questions. Students in the non-respondent sample were randomly assigned a priori to one of two groups. Those in Group 1 were interviewed using Form A and those in Group 2 were interviewed using Form B. This procedure allowed us to ask a substantial number of questions from the survey without making the interview too long to jeopardize reliability and validity.

CSR staff randomly selected between 100 and 200 students from each school (based on total undergraduate enrollment) who were judged to be non-respondents by mid-April 2001. That is, those classified as non-respondents had been contacted several times and invited to complete *The College Student Survey* but had not done so. The goal was to interview at least 25 non-respondents from each of the 21 institutions for a total of 525.

Data were collected using the University of California Computer-Assisted Survey Methods software (CASES). All interviewers had at least 20 hours of training in interviewing techniques and an additional hour of study-specific training using the NSSE Non-Respondent Interview protocol. Students with confirmed valid telephone numbers were called at least a dozen times, unless the respondent refused or insufficient time remained before the end of the study.

Multivariate analysis of variance was used to compare the two groups of respondents and non-respondents from the respective schools on 21 engagement and 3 demographic items from *The College Student Report*. The analyses were conducted separately for first-year and senior students. The total numbers of students with complete usable information for this analysis were as follows: first-year respondents = 3,470 and non-respondents = 291, and senior respondents = 3,391 and non-respondents = 199.

Compared with first-year respondents, first-year non-respondents scored higher on nine comparisons. First-year respondents scored higher on only three items (using e-mail to contact an instructor, writing more papers fewer than 5 pages, and taking more classes that emphasized memorization). There were no differences on 7 of the 21 comparable items. For seniors, non-respondents again appeared to be somewhat more engaged than respondents as they scored higher on six items while senior respondents scored higher on the same three items as their first-year counterparts (using e-mail to contact an instructor, writing more papers fewer than 5 pages long, taking more classes that emphasized memorization). No differences were found on more than half (11) of the items.

Overall, it appears that undergraduate students who do not complete the NSSE survey when invited to do so may be slightly more engaged than respondents. This is counter to what many observers believe, that non-respondents have a less educationally productive experience and, as a result, do not respond to surveys. The findings from the telephone interviews suggest that the opposite may be true, that non-respondents are busier in many dimensions of their lives and don't take time to complete surveys.

At the same time we must exercise due caution in drawing firm conclusions from these results. Telephone interviews typically are associated with a favorable mode effect, meaning that those interviewed often respond somewhat more positively to telephone surveys than when answering the same questions on a paper questionnaire (Dillman, Sangster, Tarnai & Rockwood, 1996). Thus, it appears that few meaningful differences exist between respondents and non-respondents in terms of their engagement in educationally effective practices.

Estimates of Stability

It is important that participating colleges and universities as well as others who use the results from the NSSE survey be confident that the benchmarks and norms accurately and consistently measure the student behaviors and perceptions represented on the survey. The minimum sample sizes established for various size institutions and the random sampling process used in the NSSE project assures that each school will have a reasonable number of respondents generally representative of the respective institution. It is also important to assure institutions and others who use the data that the results from *The Report* are relatively stable from year to year, indicating that the instrument produces reliable measurements from one year to the next. That is, are students with similar characteristics responding approximately the same way from year to year?

Over longer periods of time, of course, one might expect to see statistically significant and even practically important improvements in the quality of the undergraduate experience. But changes from one year to the next should be minimal if the survey is producing reliable results.

The approaches that have been developed in psychological testing to estimate stability of measurements make some assumptions about the domain to be tested that do not hold for the NSSE project. Among the most important is that the respondent and the environment in which the testing occurs do not change. This is contrary, of course, to the goals of higher education. Students are supposed to change, by learning more and changing the way they think and act. Not only is the college experience supposed to change people, the rates at which individuals change or grow are highly variable. In addition, during the past decade many colleges have made concerted efforts to improve the undergraduate experience, especially that of first-year students. All this is to say that attempts to

estimate the stability of students' responses to surveys about the nature of their experience are tricky at best.

With these caveats in mind, we have to date estimated the stability of NSSE data in three different ways to determine if students at the same institutions report their experiences in similar ways from one year to the next. Two of these approaches are based on responses from students at the colleges and universities where the NSSE survey was administered in 2000, 2001, and 2002.

Are Student Engagement Scores Stable from One Year to the Next? The first stability estimate is a correlation of concordance, which measures the strength of the association between scores from two time periods. NSSE has conducted three national administrations since 2000. This analysis is based on student responses from institutions that used NSSE two or more years. That is, 127 schools administered NSSE in both 2000 and 2001; 156 schools in 2001 and 2002; and 144 institutions used the survey in 2000 and again in 2002. In addition, we also analyzed separately the 80 colleges and universities that administered the survey all three years. This assured that institutional characteristics are fully controlled. We computed Spearman's rho correlations for the five benchmarks using the aggregated institutional level data. The benchmarks were calculated using unweighted student responses to survey items that were essentially the same for the three years. These benchmarks and their rho values range from .74 to .92 for the 2000-2001 comparison, .79 to .92 for the 2001-2002 comparison, .79 to .90 for the 2000 and 2002 comparison, and .74 to .93 for the three-year comparison (See Table 4). Additional analyses were run comparing scores for the 214 institutions that participated in NSSE in both 2002 and 2003. Spearman's rho values for these analyses ranged from .81 to .93. Together, these findings suggest that the NSSE data at the

institutional level are relatively stable from year to year.

We did a similar analysis using data from seven institutions that participated in both the 1999 spring field test (n=1,773) and NSSE 2000 (n=1,803) by computing Spearman's rho for five clusters of items. These clusters and their rho values are: College Activities (.86), Reading and Writing (.86), Mental Activities Emphasized in Classes (.68), Educational and Personal Growth (.36), and

Opinions About Your School (.89). Except for the Educational and Personal Growth cluster, the Spearman rho correlations of concordance indicated a reasonably stable relationship between the 1999 spring field test and the NSSE 2000 results.

As with the findings from the schools common to NSSE 2000, 2001, and 2002, these results are what one would expect with the higher correlations being associated with institutional characteristics that are less likely

Table 4. Benchmark Spearman Rho Correlations among the Three NSSE Administration Years (2000, 2001, 2002)

<i>First-year Students (N=82)*</i>		Level of Academic Challenge		Active and Collaborative Learning		Student Faculty Interactions		Enriching Educational Experiences		Supportive Campus Environment	
		CHAL00	CHAL01	ACT00	ACT01	STU00	STU01	ENR00	ENR01	SUP00	SUP01
Level of Academic Challenge	CHAL01	0.867									
	CHAL02	0.883	0.912								
Active and Collaborative Learning	ACT01			0.832							
	ACT02			0.857	0.877						
Student Faculty Interactions	STU01					0.741					
	STU02					0.738	0.840				
Enriching Educational Experiences	ENR01							0.927			
	ENR02							0.902	0.921		
Supportive Campus Environment	SUP01									0.884	
	SUP02									0.839	0.812
<i>Seniors (N=80)*</i>		Level of Academic Challenge		Active and Collaborative Learning		Student Faculty Interactions		Enriching Educational Experiences		Supportive Campus Environment	
		CHAL00	CHAL01	ACT00	ACT01	STU00	STU01	ENR00	ENR01	SUP00	SUP01
Level of Academic Challenge	CHAL01	0.880									
	CHAL02	0.809	0.824								
Active and Collaborative Learning	ACT01			0.751							
	ACT02			0.746	0.780						
Student Faculty Interactions	STU01					0.819					
	STU02					0.803	0.885				
Enriching Educational Experiences	ENR01							0.905			
	ENR02							0.832	0.895		
Supportive Campus Environment	SUP01									0.904	
	SUP02									0.863	0.897

* N is the number of institutions participating in NSSE for three continuous years (00-02).

to change from one year to the next, such as the amount of reading and writing and the types of activities that can be directly influenced by curricular requirements, such as community service and working with peers during class to solve problems. The lower correlations are in areas more directly influenced by student characteristics, such as estimates of educational personal growth.

A second approach to estimating stability from one year to the next was done using matched sample t-tests to determine if differences existed in student responses to individual survey items within a two-year period. For both first-year and senior students, about 18% of the items between 2000 and 2001 have large effect sizes and less than 16% of the items common to 2000 and 2002 have large effect size differences; only 3% of NSSE items between 2001 and 2002 have large mean difference effect sizes ($> .80$). For both first-year students and seniors, NSSE items are highly or moderately correlated between any of the two years, with all coefficients being statistically significant, ranging from .60 to .96. The few exceptions that fall below the .6 threshold are items where changes were made in wording or response options or where student changes may occur (e.g., using of technology, co-curricular activities, and student-reported gains in voting and elections, etc.).

We used a similar approach to estimate the stability of NSSE results from the seven schools that were common to the spring 1999 pilot and the spring 2000 survey. This analysis did not yield any statistically significant differences ($p < .001$). We then compared item cluster means (those described earlier in this section) for the individual institutions using a somewhat lower threshold of statistical significance ($p < .05$, two-tailed). Only four of 35 comparisons reached statistical significance. Moreover, the effect sizes of

these differences again were relatively small, in the .25 range.

Test-Retest. The third approach to estimating stability was a form of test-retest analysis. We have two sources of test-retest data that provide some clues about the relative stability of the instrument at the individual student level, though the information is far from definitive evidence. In response to a financial incentive (a \$10 long distance telephone calling card), 129 students at a university participating in NSSE 2000 agreed to complete *The Report* a second time. Both the Atest@ (first administration) and Aretest@ were done via the Web. The other source of data is students ($n=440$) who completed the survey twice without any inducement. Some of these students simply completed the form twice, apparently either forgetting they had done it in response to the original mailing or, more likely according to anecdotal information obtained from the NSSE Help Line staff, that they were worried the survey they returned got lost in the mail. All these students completed the paper version, as the Web mode has a built-in security system that does not permit the same student to submit the survey more than once. Another group of students was recruited during focus groups we conducted on eight campuses in spring 2000 (we describe this project later). We asked students in the focus groups to complete *The Report* a second time. Some of these students used the Web, others used the paper version, others a combination! So, it's possible that mode of administration effects are influencing in unknown ways the test-retest results, as some data were obtained using the Web, some using paper only, and some using a combination of Web (test) and paper (retest). We examine administration mode effects in the next section.

Using Pearson product moment correlation as suggested by Anastasi and Urbina (1997) for test-retest analysis, the overall test-retest

reliability coefficient for all students (N=569) across all items on *The Report* was a respectable .83. This indicates a fair degree of stability in students' responses, consistent with other psychometric tools measuring attitude and experiences (Crocker & Algina, 1986). Some sections of the survey were more stable than others. For example, the reliability coefficient for the 20 College Activities items was .77. The coefficient for the 10 Opinions About Your School items was .70, for the 14 Educational and Personal Growth items .69, for the five reading, writing, and nature of examinations items .66, and for the six time usage items .63. The mental activities and program items were the least stable, with coefficients of .58 and .57 respectively.

In 2002, we conducted a similar test-retest analysis with 1,226 respondents who completed the paper survey twice. For this analysis, we used the Pearson product moment correlation to examine the reliability coefficients for the items used to construct our benchmarks. For the items related to three of the benchmarks (academic challenge, enriching educational experiences, and the academic challenge), the reliability coefficients were .74. The student interaction with faculty members items and supportive campus environment items had reliability coefficients of .75 and .78 respectively.

Summary. Taken together, these analyses suggest that the NSSE survey appears to be reliably measuring the constructs it was designed to measure. Assuming that respondents were representative of their respective institutions, data aggregated at the institutional level on an annual basis should yield reliable results. The correlations are high between the questions common to both years. Some of the lower correlations (e.g., nature of exams, rewriting papers, tutoring) may be a function of slight changes in item wording and modified response options for other items on the later surveys (e.g., number of papers

written). At the same time, compared with 2000, 2001 and 2002 data reflect a somewhat higher level of student engagement on a number of NSSE items, though the relative magnitude of these differences is small.

Checking for Mode of Administration Effects

Using multiple modes of survey administration opens up the possibility of introducing a systematic bias in the results associated with the method of data collection. That is, do the responses of students who use one mode (i.e., Web) differ in certain ways from those who use an alternative mode such as paper? Further complicating this possibility is that there are two paths by which students can use the Web to complete the NSSE survey: (1) students receive the paper survey in the mail but have the option to complete it via the Web (Web-option), or (2) students attend a Web-only school and must complete the survey on-line (Web-only).

Using ordinary least squares (OLS) or logistic regressions we analyzed the data from NSSE 2000 to determine if students who completed the survey on the Web responded differently than those who responded via a traditional paper format. Specifically, we analyzed responses from 56,545 students who had complete data for survey mode and all control variables. The sample included 9,933 students from Web-exclusive institutions and another 10,013 students who received a paper survey, but exercised the Web-option. We controlled for a variety of student and institutional characteristics that may be linked to both engagement and mode. The control variables included: class, enrollment status, housing, sex, age, race/ethnicity, major field, 2000 Carnegie Classification, sector, undergraduate enrollment from IPEDS, admissions selectivity (from *Barron's*, 1996), urbanicity from IPEDS, and academic support expenses per student from IPEDS. In addition to tests of statistical significance, we computed effect sizes to ascertain if the

magnitude of the mode coefficients were high enough to be of practical importance to warrant attention. Finally, we applied post-stratification weights at the student-level for all survey items to minimize nonresponse bias related to sex and enrollment status.

We analyzed the Web-only and Web-option results separately against paper as shown in Table 5 by Model 1 (Web-only) and Model 2 (Web-option) against paper. We compared Web-only against Web-option in Model 3.

For 39 of the 67 items, the unstandardized coefficients for Model 1 favored Web-only over paper. For Model 2, 40 of the 67 items showed statistically significant effects favoring the Web option over paper. In contrast, there are only 9 statistically significant coefficients that are more favorable for paper over Web in Models 1 and 2 *combined*. Model 3 reveals that there are relatively few statistically significant differences between the two Web-based modes.

The effect sizes for most comparisons in both Model 1 and Model 2 are not large -- generally .15 or less, with a few exceptions. Interestingly, the largest effect sizes favoring Web over paper were for the three computer-related items: "used e-mail to communicate with an instructor" (EMAIL), "used an electronic medium to discuss or complete an assignment" (ITACADEM), and self-reported gains in "using computers and information technology" (GNCMPTS).

These models take into account many student and school characteristics. However, the results for items related to computing and information technology might differ if a more direct measure of computing technology at particular campuses was available. That is, what appears to be a mode effect might instead be due to a preponderance of Web respondents from highly Awired@ campuses

that are, in fact, exposed to a greater array of computing and information technology.

On balance, responses of college students to NSSE 2000 Web and paper surveys show small but consistent differences that favor the Web. These findings, especially for items unrelated to computing and information technology, generally dovetail with studies in single postsecondary settings (Layne, DeCristoforo, & McGinty, 1999; Olsen, Wygant, & Brown, 1999; Tomsic, Hendel, & Matross, 2000). This said, it may be premature to conclude that survey mode shapes college students' responses. First, while the responses slightly favor Web over paper on a majority of items, the differences are relatively small. Second, only items related to computing and information technology exhibited some of the largest effects favoring Web. Finally, for specific populations of students mode may have different effects than those observed here.

In auxiliary multivariate analyses, we found little evidence for mode-age (net of differential experiences and expectations attributable to year in school) or mode-sex interactions, suggesting that mode effects are not shaped uniquely by either of these characteristics.

Additional information about the analysis of mode effects is available in the *NSSE 2000 Norms* report (Kuh, Hayek et al., 2001) and from Carini, Hayek, Kuh, Kennedy and Ouimet (in press). A copy of the Carini et al. paper can be found on the NSSE website. We will continue to analyze NSSE data in future years to learn more about any possible mode effects.

Table 5: REGRESSIONS OF ENGAGEMENT ITEMS ON MODE OF ADMINISTRATION AND SELECTED STUDENT AND INSTITUTIONAL CONTROLS^{a,b,c}

Item	Model 1: Web-only vs. Paper		Model 2: Web-option vs. Paper		Model 3: only vs. Web-option	
	Unstandardized Coefficient	E.S. ^d	Unstandardized Coefficient	E.S.	Unstandardized Coefficient	E.S.
CLQUEST	.066***	.08	.053***	.06	.013	NS
EMAIL	.251***	.25	.151***	.15	.100***	.11
CLPRESEN	.063***	.07	.041***	.05	.022	NS
REWROPAP	-.026	NS	.025	NS	-.051***	-.05
CLUNPREP	.096***	.15	.071***	.11	.025	NS
CLASSGRP	.196***	.24	.163***	.20	.033	NS
OCCGRP	.155***	.18	.083***	.09	.072***	.08
TUTOR	.097***	.12	.089***	.11	.008	NS
COMMPROJ	.061***	.08	.040***	.05	.021	NS
ITACADEM	.318***	.32	.194***	.20	.124***	.12
FACGRADE	-.015	NS	.043***	.05	-.059***	-.07
FACPLANS	.038***	.04	.049***	.06	-.011	NS
FACIDEAS	.038***	.05	.076***	.10	-.038	NS
FACFEED	.029	NS	.037***	.05	-.008	NS
WORKHARD	-.010	NS	-.024	NS	-.014	NS
FACRESCH	.054***	.07	.045***	.06	.009	NS
FACOTHER	.034***	.04	.021	NS	.014	NS
OOCIDEAS	-.048***	-.06	-.063***	-.07	.014	NS
DIFFSTUD	.072***	.08	.051***	.05	.021	NS
DIVRSTUD	.040	NS	.045***	.05	-.005	NS
READASGN ^f	.062	NS	-.047	NS	.109	NS
READOWN ^f	.405***	.09	.367***	.08	.038	NS
WRITEMOR ^f	.328***	.09	.101	NS	.227***	.06
WRITEFEW ^f	-.067	NS	.286***	.04	.353***	.05
EXAMS	.035	NS	.100***	.06	-.065	NS
MEMORIZE	.036	.04	.032	NS	.003	NS
ANALYZE	.059***	.07	.045***	.05	.014	NS
SYNTHEZ	.083***	.09	.077***	.08	.006	NS
EVALUATE	.087***	.09	.114***	.12	-.027	NS
APPLYING	.072***	.08	.079***	.08	-.007	NS
ACADPREP ^f	-.737***	-.09	-1.228***	-.15	.491***	.06
WORKON ^f	.041	NS	.305***	.05	-.264	NS
WORKOFF ^f	-1.368***	-.12	-.696***	-.06	-.673***	-.07
COCURRIC ^f	.667***	.11	.241	NS	.426***	.06
SOCIAL ^f	.052	NS	.383***	.05	-.331	NS
CAREDEPD ^f	-.258	NS	.094	NS	-.352***	-.05

*** $p < .001$ (two-tailed)

^aOrdinary least squares regression unless specified otherwise

^bStudent level controls include class, enrollment status, housing, sex, age, race/ethnicity, and major field; Institutional-level controls include Carnegie Classification, sector, undergraduate enrollment, Barron's admissions selectivity, urbanicity, and academic support per student

^cNS range from 29,048 to 56,501

^dE.S.=Effect Size (y-standardized coefficient for OLS regression; change in predicted probabilities for an "average" student at an "average" institution for logistic regression)

^eNS=Not Significant ($p > .001$)

^fMetric derived from midpoints of response intervals, e.g., number of books read, papers written, or hours per week

^gFactor change from logistic regression for dichotomous item (1=Yes, 0=No, "Undecided"=missing)

Table 5 (continued)
Regressions of Engagement Items on Mode of Administration and Selected Student and Institutional Controls^{a,b,c}

Item	Model 1: Web-only vs. Paper		Model 2: Web-option vs. Paper		Model 3: Web-only vs. Web-option	
	Unstandardized Coefficient	E.S. ^d	Unstandardized Coefficient	E.S.	Unstandardized Coefficient	E.S.
INTERN ^e	1.078	NS	.986	NS	1.094	NS
VOLUNTER ^e	1.113	NS	.972	NS	1.145***	.02
INTRDISC ^e	1.119***	.03	1.051	NS	1.065	NS
FORLANG ^e	1.133***	.03	.978	NS	1.159***	.04
STUDYABR ^e	.951	NS	.969	NS	.981	NS
INDSTUDY ^e	.901	NS	.978	NS	.930	NS
SENIORX ^e	.889***	-.02	.975	NS	.912	NS
GNGENLED	-.003	NS	.021	NS	-.024	NS
GNWORK	.099***	.10	.041***	.04	.058***	.06
GNWRIT	-.002	NS	.040***	.05	-.042***	-.05
GNSPEAK	.056***	.06	.058***	.06	-.003	NS
GNANALY	.042***	.05	.032***	.04	.010	NS
GNQUANT	.142***	.15	.122***	.13	.020	NS
GNCMPTS	.195***	.20	.132***	.13	.063***	.07
GNOTHERS	.083***	.09	.044***	.05	.039	NS
GNCITIZN	.137***	.15	.089***	.10	.048***	.05
GNINQ	.091***	.10	.074***	.09	.016	NS
GNSELF	.116***	.12	.105***	.11	.011	NS
GNDIVERS	.053***	.05	.067***	.07	-.015	NS
GNTRUTH	.122***	.11	.097***	.09	.026	NS
GNCOMMUN	.088***	.09	.072***	.07	.015	NS
ENVSCHOL	.002	NS	-.051***	-.06	.053***	.07
ENVSUPRT	.022	NS	-.001	NS	.023	NS
ENVDIVRS	.022	NS	.036	NS	-.015	NS
ENVNACAD	.043***	.05	.070***	.07	-.027	NS
ENVSOCAL	.057***	.06	.059***	.06	-.002	NS
ENVSTU	-.077***	-.06	-.073**	-.05	-.004	NS
ENVFAC	.027	NS	.040	NS	-.013	NS
ENVADM	.099***	.06	.133***	.08	-.034	NS
ENTIREXP	.021	.05	.003	NS	.018	NS
SAMECOLL	.024	.04	-.014	NS	.038	.06

*** $p < .001$ (two-tailed)

^aOrdinary least squares regression unless specified otherwise

^bStudent-level controls include class, enrollment status, housing, sex, age, race/ethnicity, and major field; Institutional-level controls include Carnegie Classification, sector, undergraduate enrollment, *Barron's* admissions selectivity, urbanicity, and academic support per student

^cNSs range from 29,048 to 56,501

^dE.S.=Effect Size (y-standardized coefficient for OLS regression; change in predicted probabilities for an "average" student at an "average" institution for logistic regression)

^eNS=Not Significant ($p > .001$)

^fMetric derived from midpoints of response intervals, e.g., number of books read, papers written, or hours per week

^gFactor change from logistic regression for dichotomous item (1=Yes, 0=No, "Undecided"=missing)

Interpreting The Meaning of Engagement Items: Results from Student Focus Groups

The psychometric analyses show that the vast majority of items on *The College Student Report* are valid and reliable and have acceptable kurtosis and skewness indicators. What cannot be demonstrated from such psychometric analyses is whether respondents are interpreting the items as intended by the NSSE Design Team and whether students' responses accurately represent their behaviors and perceptions. That is, even when psychometric indicators are acceptable, students may be interpreting some items to mean different things.

It is relatively rare that survey researchers go into the field and ask participants to explain the meaning of items and their responses. However, because of the importance of the NSSE project, we conducted focus groups of first-year and senior students during March and April 2000 at eight colleges and universities that participated in NSSE 2000. The schools included four private liberal arts colleges (including one women's college) and four public doctoral-granting universities. Between three and six student focus groups were conducted on each campus. The number of students participating in the groups ranged from 1 to 17 students, for a total of 218 student participants. More women (74%) and freshmen (52%) participated than men (26%) and seniors (48%). Approximately 37% were students of color. Although there was not enough time to discuss every item during each focus group, every section of the instrument was addressed in at least one group on each campus.

In general, students found *The Report* to be clearly worded and easy to complete. A few items were identified where additional clarity would produce more accurate and consistent interpretations. For example, the "Number of books read on your own" item confused some

students who were not sure if this meant reading books for pleasure or readings to supplement those assigned for classes. This item is an illustration of a handful of items where students suggested that we provide additional prompts to assist them in understanding questions. However, students generally interpreted the item response categories in a similar manner. The meanings associated with the response sets varied somewhat from item to item, but students' interpretations of the meaning of the items were fairly consistent. For example, when students marked "Avery often" to the item "Asked questions in class or contributed to class discussions" they agreed that this indicated a daily or during every class meeting. When answering the "Made a class presentation" item, students told us that "Avery often" meant about once a week.

The information from student focus groups allows us to interpret the results with more precision and confidence. This is because the focus group data indicated that students consistently interpreted items in a similar way and that the patterns of their responses accurately represent what they confirm to be the frequency of their behavior in various areas. We also have a better understanding of what students mean when they answer various items in certain ways. In summary, we are confident that student self-reports about the nature and frequency of their behavior are reasonably accurate indicators of these activities. For additional detail about the focus group project look at the Ouimet, Carini, Kuh, and Bunnage (2001) paper on the NSSE website.

Cognitive Testing Interviews

We used information from the focus groups and psychometric analyses to guide revisions to the 2001 version of *The College Student Report*. We also worked closely with survey expert, Don Dillman to redesign the

instrument so that it would have a more inviting look and feel. For example, we revamped the look by substituting check boxes for the traditional bubbles so the instrument looked less test-like. These and other changes created a more inviting feel to the instrument. We then did cognitive testing on the instrument via interviews with Indiana University undergraduates in mid-November 2000 as a final check before beginning the 2001 survey cycle.

The group, 14 men and 14 women, was recruited by the Center for Survey Research (CSR) staff. CSR and NSSE staff members worked together to draft the interview protocol, study information sheet, and incentive forms, all of which were approved by the Indiana University Bloomington Institutional Review Board, Human Subjects Committee. Students were compensated \$10 for their participation. CSR professional staff and NSSE associates conducted the interviews. Interviews lasted between 30 and 45 minutes and were tape recorded with respondent permission. The interviews were subsequently transcribed and analyzed by two NSSE staff members. Included among the key findings are:

1. The vast majority of students indicated that the instrument was attractively formatted, straightforward, and easy to read, follow, and understand. Most agreed that they would probably complete the survey if they were invited to do so, though four students said that the survey length might give them pause.
2. All of the respondents found the directions and examples helpful.
3. The majority of students interpreted the questions in identical or nearly identical ways (e.g., the meaning of primary major and secondary major, length of typical week).

4. Several students were not entirely sure who was included in the survey item dealing with relationships with administrative personnel.

5. Of the 20 students who discussed the web versus paper survey option, nine indicated that they would prefer to complete the survey via the web. Reasons for preferring the web included that it was "more user-friendly, more convenient, easier." However, nine other students indicated that they preferred the paper version, and the remaining two students were undecided. This suggests that it is important to offer students alternative modes to complete the survey.

Summary. The results of the cognitive interviews suggest that respondents to *The College Student Survey* understand what is being asked, find the directions to be clear, interpret the questions in the same way, and tend to formulate answers to questions in a similar manner. NSSE staff used these and other results from the cognitive testing to make final revisions to the instrument for 2001. These revisions included several minor changes that were mostly related to formatting of response options and a few wording changes.

Next Steps

The NSSE project staff is continuing to examine the psychometric properties of the instrument as a whole and on the five benchmarks of effective educational practice featured in NSSE reports. We are also working with some partner institutions and organizations on these some of these efforts. For example:

- Peter Ewell of the National Center on Higher Education Management Systems is doing a special analysis of NSSE results from the universities in the South Dakota system as a cross validation study, comparing

NSSE data with direct outcome measures from students' ACT and CAAP scores.

- NSSE is also examining information collected by the University of South Carolina National Resource Center for First Year Programs and Students in Transition to gauge whether students at institutions that have "model" first year experience programs are more engaged than their peers elsewhere.
- Selected NSSE questions will be included on the collegiate oversample as part of the National Assessment of Adult Learning that will be administered during 2003.

We will update this psychometric report when the results of these analyses become available.

Conclusion

In general, the psychometric properties of the NSSE are very good, as the vast majority of items equal or exceed recommended measurement levels. Those items that are not in the normal range on certain indicators, such as kurtosis and skewness, are due to the nature of the student experience, not because of psychometric shortcomings of the instrument. The face and construct validity of the survey are strong. This is not surprising because national assessment experts designed the instrument and most of the items have been used for years in established college student assessment programs. In addition, we made improvements to individual items and the overall instrument based on what was learned from focus groups, cognitive testing, and the psychometric analyses on the results from the spring 1999 field test, the inaugural national administration in spring 2000, and the spring 2001 administration. The results seem to be relatively stable from one year to the next and non-respondents are generally comparable respondents in many ways, though contrary to popular belief non-respondents appear to be slightly more engaged than respondents.

References

- Aaker, D.A., Kumar, V., & Day, G.S. (1998). Marketing research (6 ed.). New York: Wiley.
- American Association of Higher Education. (1992). Principles of good practice for assessing student learning. Washington, DC: American Association for Higher Education.
- Anastasi, A., & Urbina, S. (1997). Psychological testing. Upper Saddle River, NJ: Prentice Hall.
- Anaya, G. (1999). College impact on student learning: Comparing the use of self-reported gains, standardized test scores, and college grades. Research in Higher Education, 40, 499-527.
- Astin, A.W. (1984). Student involvement: A developmental theory for higher education. Journal of College Student Personnel, 25, 297-307.
- Astin, A.W. (1985). Achieving educational excellence: A critical assessment of priorities and practices in higher education. San Francisco: Jossey-Bass.
- Astin, A.W. (1991). Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education. New York: American Council on Education/Macmillan.
- Astin, A.W. (1993). What matters in college? Four critical years revisited. San Francisco: Jossey-Bass.
- Baird, L.L. (1976). Using self-reports to predict student performance. New York: The College Board.
- Banta, T.W., and Associates. 1993. Making a difference: Outcomes of a decade of assessment in higher education. San Francisco: Jossey-Bass.
- Barron's Profiles of American Colleges. (1996). Hauppauge, NY: Barron's Educational Series.
- Benjamin, R. & Hersh, R.H. (2002). Measuring the difference college makes: The RAND/CAE value added assessment initiative. Peer Review, 4(2/3), 7-10.
- Berdie, R.F. (1971). Self-claimed and tested knowledge. Educational and Psychological Measurement, 31, 629-636.
- Bloom, B. (1956). Taxonomy of educational objectives: The classification of educational goals: Handbook I. Cognitive domain. London: Longmans, Green.
- Bradburn, N.M., & Sudman, S. (1988). Polls and surveys: Understanding what they tell us. San Francisco: Jossey-Bass.
- Brandt, R. M. (1958). The accuracy of self estimates. Genetic Psychology Monographs, 58, 55-99.
- Bruffee, K.A. (1993). Collaborative learning: Higher education, interdependence, and the authority of knowledge. Baltimore: The Johns Hopkins University Press.
- Carini, R.M., Hayek, J.H., Kuh, G.D., Kennedy, J.M., & Ouimet, J.A. (in press). College student responses to web and paper surveys: Does mode matter? Research in Higher Education.
- Carini, R.M. & Kuh, G.D. (2003). 2002 NSSE-RAND cross-validation study: Some insights into the role of student engagement to student learning. Unpublished manuscript.
- Chickering, A.W., & Gamson, Z.F. (1987). Seven principles for good practice in undergraduate education. AAHE Bulletin, 39(7), 3-7.
- Chickering, A.W., & Reisser, L. (1993). Education and identity (2nd ed.). San Francisco: Jossey-Bass.
- Converse, J.M., & Presser, S. (1989). Survey questions: Handcrafting the standardized questionnaire. Newbury Park, CA: Sage.
- Crocker, L., & Algina, J. (1986). Introduction to classical and modern test theory. New York: Harcourt Brace Jovanovich.
- Davis, T.M., & Murrell, P.H. (1990). Joint factor analysis of the College Student Experiences Questionnaire and the ACT COMP objective exam. Research in Higher Education, 31, 425-442.
- DeNisi, A.S., & Shaw, J.B. (1977). Investigation of the uses of self-reports of abilities. Journal of Applied Psychology, 62, 641-644.
- Dillman, D. A. (2000). Mail and Internet surveys: The tailored design method. New York: Wiley.
- Dillman, D.A., Sangster, R.L., Tarnai, J., & Rockwood, T. (1996). Understanding differences in people's answers to telephone and mail surveys. In M.T. Braverman & J.K. Slater (Eds.), New Directions for Evaluation Series, Vol. 70, (pp. 45-62). San Francisco: Jossey-Bass.
- Dumont, R.G., & Troelstrup, R.L. (1980). Exploring relationships between objective and subjective measures of instructional outcomes. Research in Higher Education, 12, 37-51.
- Education Commission of the States. (1995). Making quality count in undergraduate education. Denver, CO: Education Commission of the States.
- Ethington, C. (1997). A hierarchical linear modeling approach to studying college effects. In J.C. Smart (Ed.),

- Higher education: Handbook of theory and research (Vol. 12, pp. 165-94). New York: Agathon.
- Ewell, P.T., & Jones, D.P. (1993). Actions matter: The case for indirect measures in assessing higher education's progress on the National Education Goals. Journal of General Education, 42, 123-48.
- Ewell, P.T., & Jones, D.P. (1996). Indicators of "good practice" in undergraduate education: A handbook for development and implementation. Boulder, CO: National Center for Higher Education Management Systems.
- Gershuny, J., & Robinson, J.P. (1988). Historical changes in the household division of labor. Demography, 25, 537-552.
- Glass, G.V. (1977). Integrating findings: The meta-analysis of research. In L.S. Shulman (Ed.), Review of Research in education (Vol. 5, pp 351-379). Itasca, IL: F.E. Peacock.
- Goodsell, A., Maher, M., & Tinto, V. (Eds.). (1992). Collaborative learning: A sourcebook for higher education. University Park: National Center on Postsecondary Teaching, Learning and Assessment, The Pennsylvania State University.
- Hansford, B.C., & Hattie, J.A. (1982). The relationship between self and achievement/performance measures. Review of Educational Research, 52, 123-142.
- Hu, S., & Kuh, G.D. (2001). Computing experience and good practices in undergraduate education: Does the degree of campus wiredness matter? Presented at the meeting of the American Educational Research Association, Seattle.
- Johnson, D.W., Johnson, R., & Smith, K.A. (1991). Cooperative learning: Increasing college faculty instructional productivity. ASHE-ERIC Higher Education Report No. 4. Washington, DC: The George Washington University, School of Education and Human Development.
- Kerlinger, F.N. (1973). Foundations of behavioral research (2nd ed.). New York: Holt, Rinehart and Winston.
- Kuh, G.D. (2001). Assessing what really matters to student learning: Inside the National Survey of Student Engagement. Change, 33(3), 10-17, 66.
- Kuh, G.D., Hayek J. et al. NSSE 2000 Norms. Bloomington: Indiana University Center for Postsecondary Research and Planning.
- Kuh, G. D., Pace, C. R., & Vesper, N. (1997). The development of process indicators to estimate student gains associated with good practices in undergraduate education. Research in Higher Education, 38, 435-454.
- Kuh, G.D., Schuh, J.S., Whitt, E.J., & Associates. (1991). Involving colleges: Successful approaches to fostering student learning and personal development outside the classroom. San Francisco: Jossey-Bass.
- Kuh, G.D., & Siegel, M.J. (2000). College Student Experiences Questionnaire: Tentative norms for the fourth edition. Bloomington, IN: Indiana University Center for Postsecondary Research and Planning.
- Kuh, G. D., & Vesper, N. (1997). A comparison of student experiences with good practices in undergraduate education between 1990 and 1994. The Review of Higher Education, 21, 43-61.
- Kuh, G.D., & Vesper, N. (2001). Do computers enhance or detract from student learning? Research in Higher Education, 42, 87-102.
- Kuh, G.D., Vesper, N., Connolly, M.R., & Pace, C.R. (1997). College Student Experiences Questionnaire: Revised norms for the third edition. Bloomington, IN: Indiana University Center for Postsecondary Research and Planning.
- Laing, J., Swayer, R, & Noble, J. (1989). Accuracy of self-reported activities and accomplishments of college-bound seniors. Journal of College Student Development, 29, 362-368.
- Layne, B. H., DeCristoforo, J.R. and McGinty, D. (1999). Electronic versus traditional student ratings of instruction. Research in Higher Education, 40, 221-232.
- Light, R. & Pillemer, D. (1982). Numbers and narrative: Combining their strengths in research reviews. Harvard Educational Review, 52, 1-26.
- Long, J.S. (1997). Regression models for categorical and limited dependent variables. Thousand Oaks, CA: Sage.
- Lowman, R.L., & Williams, R.E. (1987). Validity of self-ratings of abilities and competencies. Journal of Vocational Behavior, 31, 1-13.
- McKeachie, W.J., Pintrich, P.R, Lin, Y., & Smith, D. (1986). Teaching and learning in the college classroom: A review of the research literature. Ann Arbor: National Center for Research to Improve Postsecondary Teaching and Learning, University of Michigan.
- National Center for Educational Statistics. (1991). Education counts: An indicator system to monitor the nation's educational health. Washington, DC: U.S. Government Printing Office.
- National Center for Higher Education Management Systems. (1994). A preliminary study of the feasibility and utility for national policy of instructional "good practice" indicators in undergraduate education. Boulder, CO: National Center for Higher Education Management Systems.
- National Survey of Student Engagement (2000). The NSSE 2000 report: National benchmarks of effective educational practice. Bloomington, IN: Indiana University Center for Postsecondary Research and Planning.

- Olsen, D. R., Wygant, S.A., & Brown, B.L. (1999). Entering the next millennium with Web-based assessment: Considerations of efficiency and reliability. Paper presented at the Conference of the Rocky Mountain Association for Institutional Research, Las Vegas.
- Ouimet, J.A., Carini, R.M., Kuh, G.D., & Bunnage, J. (2001, June). Using focus groups to establish the validity and reliability of a college student survey. Paper presented at the annual meeting of the Association for Institutional Research, Long Beach.
- Pace, C.R. (1980). Measuring the quality of student effort. Current Issues in Higher Education, 2, 10-16.
- Pace, C.R. (1984). Measuring the quality of college student experiences. Los Angeles: University of California, Center for the Study of Evaluation.
- Pace, C.R. (1985). The credibility of student self-reports. Los Angeles: University of California, The Center for the Study of Evaluation, Graduate School of Education.
- Pace, C.R. (1990). The undergraduates: A report of their activities and college experiences in the 1980s. Los Angeles: Center for the Study of Evaluation, UCLA Graduate School of Education.
- Pace, C.R. (1995, May). From good practices to good products: Relating good practices in undergraduate education to student achievement. Paper presented at the meeting of the Association for Institutional Research, Boston.
- Pascarella, E.T. (2001). Identifying excellence in undergraduate education: Are we even close? Change, 33(1), 18-23.
- Pascarella, E.T., & Terenzini, P.T. (1991). How college affects students: Findings and insights from twenty years of research. San Francisco: Jossey-Bass.
- Pike, G.R. (1989). Background, college experiences, and The ACT-COMP exam: Using construct validity to evaluate assessment instruments. Review of Higher Education, 13, 91-117.
- Pike, G.R. (1993). The relationship between perceived learning and satisfaction with college: An alternative view. Research in Higher Education, 34, 23-40.
- Pike, G.R. (1995). The relationships between self reports of college experiences and achievement test scores. Research in Higher Education, 36, 1-22.
- Pike, G. R. (1996). Limitations of using students' self-reports of academic development as proxies for traditional achievement measures. Research in Higher Education, 37, 89-114.
- Pike, G.R. (1999). The constant error of the halo in educational outcomes research. Research in Higher Education, 40, 61-86.
- Pohlmann, J.T., & Beggs, D.L. (1974). A study of the validity of self-reported measures of academic growth. Journal of Educational Measurement, 11, 115-119.
- Sax, L.J., Astin, A.W., Korn, W.S., & Mahoney, K. (1997). The American college freshman. Los Angeles: University of California, Los Angeles, Higher Education Research Institute.
- Singleton, R.A. Jr., Straits, B.C. & Straits, M.M. (1993). Approaches to social research. New York: Oxford University Press.
- Sorcinielli, M.D. (1991). Research findings on the seven principles. In A.W. Chickering and Z.F. Gamson (Eds.), Applying the Seven Principles for Good Practice in Undergraduate Education, New Directions for Teaching and Learning, No. 47 (pp. 13-25). San Francisco: Jossey-Bass.
- The Study Group on the Conditions of Excellence in American Higher Education. (1984). Involvement in learning: Realizing the potential of American higher education. Washington, DC: U.S. Department of Education.
- Tinto, V. (1993). Leaving college: Rethinking the causes and cures of student attrition (2nd Ed.). Chicago: University of Chicago Press.
- Tomsic, M.L., Hendel, D.D., & Matross, R.P. (2000). A world wide web response to student satisfaction surveys: Comparisons using paper and Internet formats. Paper presented at the Annual Meeting of the Association for Institutional Research, Cincinnati.
- Turner, C.F., & Martin, E. (Eds.) (1984). Surveying subjective phenomena (Vol. 1). New York: Russell Sage Foundation.
- Wentland, E.J. & Smith, K.W. (1993). Survey responses: An evaluation of their validity. New York: Academic Press.
- Wingspread Group on Higher Education. (1993). An American imperative: Higher expectations for higher education. Racine, WI: Johnson Foundation.
- Yahoo! Internet Life. (2001). America's Most Wired Colleges 2000. http://www.zdnet.com/yil/content/college/College2000/wired_ivy.html.