



National Survey of Student Engagement

The College Student Report

NSSE

TECHNICAL AND NORMS REPORT



Supported by a grant from The Pew Charitable Trust

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OVERVIEW

The National Survey of Student Engagement (NSSE) is designed to provide institutions of higher education and the public with reliable, meaningful information about collegiate quality. The project is supported by The Pew Charitable Trusts and cosponsored by The Carnegie Foundation for the Advancement of Teaching and the Pew Forum on Undergraduate Learning. A major focus is an annual survey of first-year and senior students at about 300 four-year colleges and universities.

The Technical and Norms Report is designed to provide detailed project information and data from the inaugural NSSE 2000 survey administration. This report is divided into four major sections:

■ **Background and History.** This section includes the initial design team parameters, project goals, and potential uses.

■ **Technical and Statistical Information.**

This section reviews information related to the reliability and validity of the NSSE, including a summary of the psychometric properties of the NSSE survey instrument, survey methodology, and various ways to interpret NSSE data.

■ **NSSE Project Information.** This section includes information on how to participate in the NSSE program, how the survey is administered, costs of participating, NSSE reports, and other NSSE services. A copy of the survey and a list of participating institutions organized by Carnegie classification are included in the appendix.

■ **Descriptive Statistics.** This section provides detailed descriptive statistics on the first-year experience and senior experience, including means and standard deviations and frequency distributions on all questions. These statistics are broken down by gender, enrollment status, race, age, major field of study, and Carnegie classification.

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NSSE Background

The media influences how people think and talk about collegiate quality. At the same time news magazines and college guidebooks are criticized for lacking substance and nuance in their descriptions of students' educational experiences. Most emphasize an institution's financial, physical, and human resources, which we know from the research are relevant to student learning only if students use them.

In February 1998, The Pew Charitable Trusts convened a working group of higher education leaders to discuss the role of media-generated college ranking systems and other measures of institutional effectiveness. After a thorough discussion, the group concluded that results of a survey of undergraduate quality, if available, could provide colleges and universities—as well as a potential range of stakeholders—with far more valuable information about institutional quality than could established resource and reputation measures.

This proposed initiative became the National Survey of Student Engagement (NSSE—pronounced “nessie”). It is designed to query undergraduates directly about their educational experiences. An extensive research literature relates particular classroom activities and specific faculty and peer practices to high-quality undergraduate student

outcomes (Astin, 1993; Chickering and Gamson, 1987; Pascarella and Terenzini, 1991; Sorcinelli, 1991). For example, level of challenge and time on task are positively related to persistence and subsequent success in college. Research studies also show that the degree to which students are engaged in their studies has a direct impact on the quality of student learning and their overall educational experience. As such, indicators of student engagement can serve as a proxy measurement of quality. Equally important, calling attention to the presence or absence of such practices can highlight specific things that individual colleges can address, and can provide information that external constituencies will readily understand. A technically sound, broadly representative national survey focused on such practices, then, can help focus discussions about quality on the right questions rather than relying on the traditional indicators of institutional resources and reputation.

Designing and Field Testing the NSSE Survey

To begin the process of developing the survey, The Pew Charitable Trusts asked Peter Ewell of the National Center for

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Higher Education Management Systems (NCHEMS) to coordinate the development of a survey instrument. Ewell convened a series of meetings designed to explore the utility and feasibility of the project, to develop a strategy for pilot administration of the survey, and to determine who should conduct the pilot of the survey. In the late spring of 1998, Ewell brought together a design team—Alexander Astin, Gary

Barnes, Arthur Chickering, Peter Ewell, John Gardner, George Kuh, Richard Light, and Ted Marchese, with input from C. Robert Pace—to help draft a survey instrument.

The design team took the NSSE instrument through several drafts and revisions; the resulting survey was reviewed by several groups, including representatives of the press such as *U.S. News & World Report*, accrediting agencies like the Middle States Association, state higher education oversight agencies, and higher education constituency organizations including the American Council on Education. Institutional representatives from potential institutional participants were also provided with the opportunity to review and react to the survey instrument.

Chancellor's Professor George Kuh of Indiana University was selected to direct the pilot project in partnership with NCHEMS and the IU Center for Survey Research. The primary objectives of the pilot year were to test the



survey instrument and associated administration procedures from a technical standpoint and to examine the feasibility of the NSSE as a national approach to collecting data about college quality. The survey was tested in two waves: a "try-out" phase in the Spring of 1999 involving a dozen four-year institutions and a larger pilot test in the Fall of 1999 with 56 institutions. Due to the success of the pilot, The Pew Charitable Trust awarded a multi-year grant to Indiana University to launch the inaugural national administration in spring 2000.

NSSE Guiding Principles

The NSSE project and survey instrument were established in accordance with the following principles:

■ **The survey consists principally of items that are known to be related to important college outcomes.** NSSE is providing information about the extent to which different colleges exhibit characteristics and commitments known to be related to high-quality undergraduate student outcomes. To that end, NSSE's survey

instrument, *The College Student Report*, is relatively short and contains items directly related to institutional contributions to student engagement, important college outcomes, and institutional quality. The NSSE design team selected

items according to three general criteria:

- (1) Is the item arguably related to student outcomes as shown by research?
- (2) Is the item useful to prospective students in choosing a college?
- (3) Is the item straightforward enough for its results to be readily interpretable by a lay audience with a minimum of analysis?

Items on actual student behavior and perceptions of the extent to which the institution actively encourages high levels of engagement are included in *The College Student Report*. In general, the questions fall into three broad categories. **Student behavior** includes items about how students spend their time inside and outside of the classroom (e.g., have you worked with other students outside of class to prepare class assignments?). **Institutional actions and requirements** include specific items about the curriculum (e.g., how much reading and writing have you done?) and about faculty behavior (e.g., have

you worked with a faculty member on a significant scholarly task such as a research project?). **Student reactions to college** include items that seek students' perceptions about the quality of their own experiences (how would you rate the overall quality of your experience here?). This last category also includes questions about self-reported gains in skills that students feel they have developed as a result of attending college (e.g., has college helped you to develop your ability to think critically and analytically?).

Using a small number of carefully chosen items in a special-purpose survey helps focus student attention and promotes high rates of response. The emphasis on student engagement and good practice is intended to shift the focus of current conversations about quality away from resources and inputs and toward outcomes, while being specific enough about processes to concretely indicate the kinds of improvements in which colleges should invest. The ability to compare results among peer institutions to identify best practices is also an important feature.

■ **The survey is administered to students at both public and private four-year colleges and universities.** Excluding two-year institutions at the outset was a strategic decision made by The Pew Trusts to reduce the complexity introduced by assessing student engagement at institutions with multiple

educational missions. Most students attending four-year institutions intend (eventually) to earn a baccalaureate degree and are not simply engaging in classwork to enhance job skills or to pursue a personal interest. At the same time, baccalaureate-granting institutions share common curricular features at the undergraduate level, including general education and upper-division majors, and all purport to prepare students in similar areas consistent with similar objectives. Moreover, virtually all claim to enhance student abilities in such areas as communication, critical thinking, and higher-order reasoning. A two-year college version of the NSSE is now under development at the University of Texas at Austin with support from The Pew Trusts and the USA Foundation.

- **The survey is administered to first-year and senior-level students who have attended the institution for at least two terms.** Research studies show that the experiences of lower-division and upper-division students are quite different at most colleges and that what happens in upper-level courses in a student's major is especially distinctive. Such variations are captured by sampling students at two points in their academic careers in order to paint a fair picture of an overall collegiate experience. Deliberate sampling of students at different levels



also helps adjust for the fact that “survivors” generally have had more successful experiences than dropouts at any given institution.

- **The survey is administered to adequate samples at participating institutions.** To ensure meaningful and credible results, random samples, typically ranging from 450 to 1,000 students based upon total undergraduate enrollment and mode of administration, are drawn from each institution's pool of first-year and senior students. While smaller samples might produce consistent results, sufficient numbers of cases are needed to allow the kinds of disaggregation (e.g., by student level or major) required to make sense of the data and to guide meaningful discussion and improvement on both the local and national level. As a result, the NSSE incorporates “best practices” in its survey administration in order to maximize institutional response rates.
- **The survey is flexible.** Recognizing that institutions also need tailored information to guide improvement,

The College Student Report

is designed to accommodate alternative sets of questions especially suited to particular types of institutions—as well as the ability to add questions designed by colleges and universities themselves. A layered data design permits identification of a common core of questions appropriate for universal distribution and

broad comparison while also permitting the addition of customized consortia questions.

- **The survey is administered by an independent third-party survey organization.** The organization administering the NSSE, a joint venture between the Indiana University Center for Postsecondary Research and Planning and the Indiana University Center for Survey Research (with consultation from NCHEMS), is not part of the existing accountability structure of colleges and universities. As such, it is in a position to report results to the public with high credibility and remain free from the direct control of outside stakeholders. Guidance for the NSSE project is provided by a national advisory board composed of distinguished educators and by a technical advisory panel made up of experts in institutional research and assessment. These public representatives and educational researchers play a key role in insuring the project's independence and objectivity.

Project Goals

The NSSE gathers directly from students information that has a wide range of uses. The findings can be used to estimate collegiate quality at the national level through the use of benchmarking. Equally important, the results can help focus institutional improvement efforts, inform accountability measures, and provide an alternative lens for the public to better understand what makes for a quality undergraduate education.

Benchmarking

Benchmarking is the process of continuously comparing and measuring an institution against high-performing colleges and universities to help the institution take action to improve its own performance (Alstete, 1995). In essence, benchmarking is adapting best practices to improve quality. This does not happen by solely comparing resource allocation and costs. It happens by looking at the entire process of providing quality education.

Through the various reports that NSSE generates for colleges and universities, institutional representatives are given the ability to identify high performance on certain areas of the survey and target those areas that require improvement. Benchmarking can be done on a criterion basis, whereby the performance of a college or university is measured to a predetermined value or level. For instance, institutional representatives might agree that spending two hours per credit hour preparing for class is the standard that their respective students should strive for, and that anything less than this is unacceptable. Benchmarking can also be normative- or comparative-based, whereby performance is compared to other colleges and universities. Both NSSE's means summary report and the institutional benchmark report provide statistical tests to determine how an institution's students or the aggregated scores from the institution compares against institutional peers and the national norms.

National Benchmarks of Effective Educational Practice

To help facilitate institutional benchmarking, five benchmarks of effective educational practice were distilled from 40 items that appear on *The College Student Report*. These benchmarks capture the key elements that research studies show to be important to student learning. The benchmarks seem to resonate well with audiences both inside and outside the academy. Their face validity is strong and their psychometric properties are adequate, especially considering that three of the benchmarks are made up of only 6 to 7 items. Here we provide a brief overview of the national benchmarks. A more detailed discussion of the benchmarks and how they were calculated is presented on page 30.

The five benchmarks of effective educational practice are:

Level of academic challenge

Active and collaborative learning

Student interactions with faculty members

Enriching educational experience

Supportive campus environment

- **Level of academic challenge**—time spent preparing for class, amount of reading and writing, and institutional expectations for academic performance.
- **Active and collaborative learning**—participating in class, working collaboratively with other students inside and outside of class, tutoring, and so forth.
- **Student interactions with faculty members**—talking with faculty members and advisors, discussing ideas from classes with faculty members outside of class, getting prompt feedback on academic performance, and working with faculty members on research projects.
- **Enriching educational experience**—interacting with students with different racial or ethnic backgrounds or with different political opinions or values, using electronic technology, and participating in such activities as internships, community service, study abroad, co-curricular activities, or a culminating senior experience.
- **Supportive campus environment**—the extent to which students perceive the campus helps them succeed academically and socially; assists them in coping with non-academic responsibilities; and promotes supportive relations among students and their peers, faculty members, and administrative personnel and offices.

Educationally effective colleges and universities score above average on all

five benchmarks in a manner that is consistent with their mission and students' aspirations and educational goals. Students who are engaged at a reasonable level in all five of these areas gain more than do those who are engaged in only one or two areas. Thus, students' scores on the benchmarks are best interpreted together, taking into account the institution's mission and its learning and personal development objectives for undergraduate students.

Institutional Improvement

All participating colleges and universities receive customized institutional reports that include item-by-item and benchmark comparisons of their students' responses with those at similar type schools and with the national norms. NSSE data is particularly powerful when combined with other institutional data in order to identify areas where teaching and learning can be improved. Toward this end, college and university representatives can use NSSE data to:

- Evaluate the relative strengths and weaknesses of the undergraduate experience (e.g., first year student experience, senior student experience).
- Answer campus and department-specific questions about student learning and retention.
- Focus discussions about the quality of undergraduate education at faculty retreats and governing board meetings.

- Inform internal academic reviews and strategic planning processes.
- Prepare self-studies for accreditation and other external reviews.
- Support student recruitment, alumni and public relations, and fundraising efforts.
- Identify aspects of the student experience needing additional study.
- Look to high-performing schools in certain areas of educational practice to discover what these institutions are doing and how they achieved this high level of performance.
- Use student engagement findings to inform complementary teaching and learning initiatives, such as those sponsored by the local chapter of The Carnegie Academy for the Scholarship of Teaching and Learning and other faculty and staff development activities.

Accountability

Results from *The College Student Report* are also helpful to a range of external stakeholders of higher education, including accrediting bodies and state oversight agencies. For example, the data could be used as part of an assessment of "institutional effectiveness" component of a self-study or to strengthen benchmarking processes. State college and university systems typically rely on input measures and other things that are fairly easy to count,

though they are not always related to outcomes. Because NSSE data provide measures that are actually related to learning, state systems could:

- Incorporate NSSE data in their accountability programs.
- Develop campus and statewide estimates of "institutional effectiveness."
- Compare student performance at different types of colleges and universities and academic units.

Accrediting bodies expect colleges and universities to provide evidence of student learning and how institutions are using assessment data to improve. External evaluators could ask that institutions:

- Include student engagement results in self-studies and accreditation reports.
- Use student engagement data to track the impact of institutional improvement efforts and to document student learning.

Public Information

If institutions choose to make their NSSE results public, they might prove interesting to the media, including news magazines and college guides. Between the two extremes of proprietary, institutionally owned data and publicly reported data incorporated into the college rankings of the mass circulation magazines, there are many other poten-

tial uses for the data. By publishing student engagement information, magazines and college guides could:

- Focus the public conversation about collegiate quality on aspects of colleges and universities that are central to student learning.
- Assist students and parents in the college selection process by providing more accurate and realistic descriptions of campus life and helping them formulate more specific questions to ask college officials about the student experience.
- Buttress anecdotes about student experiences with reliable survey information.
- Clarify expectations for prospective students.
- Share information with parents, prospective students, and high school counselors about the kind of experi-

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ences that their sons or daughters are having or will have at their chosen institution.

Institutional Consortia

Another valuable way the NSSE can be used is to promote data sharing by schools in a consortium.

For example, for peer

comparison purposes, colleges and universities are sorted into the appropriate Carnegie classification or they can choose to form a self-determined consortium. One consortium made up of public research universities is sharing student-level data (without identifiers) within their peer group. University state systems have also found it useful to form a NSSE consortium as one way to obtain state performance indicators related to student learning and development.

A NSSE consortium typically consists of at least six participating colleges and universities, although in certain instances, such as the university state

system example, fewer schools will be accepted. These institutions do not need to belong to another preexisting consortium or system to form a NSSE consortium, but all of the participating institutions must be registered and confirmed for NSSE 2001. Types of consortiums that have formed in the past include women's colleges, Christian colleges, public research institutions, urban institutions, and various state systems.

Another unique advantage of forming a consortium is the ability to ask additional questions to the core survey that address unique characteristics of the consortium. Some consortiums formulate their own questions and send the final versions to NSSE. However, other consortiums involve the NSSE project staff in finalizing their questions. Both NSSE and Indiana University's Center for Survey Research staff review potential questions and make recommendations based on best practices in survey administration and compatibility with items in *The College Student Report*.

TECHNICAL AND PSYCHOMETRIC INFORMATION

Survey Instrument: *The College Student Report*

The National Survey of Student Engagement (NSSE) was 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. The main content of the NSSE instrument, *The College Student Report*, represents student behaviors that are highly correlated with many desirable college learning and personal development outcomes. Responding to the questionnaire requires that students reflect on what they are putting into and getting out of their college experience. This is consistent with a value-added approach to outcomes assessment in that students' reports of the progress or gains they have made are value-added judgments on their part (Pace, 1984).

Many of the items included on *The College Student Report* are derived from other long-running, well-regarded college student research programs, such as UCLA's Cooperative Institutional Research Program (Astin, 1993; Sax et al., 1997), Indiana University's College Student Experiences Questionnaire Research Program (Kuh, Vesper, Connolly, and Pace, 1997; Pace, 1984, 1990), and student and alumni surveys

administered by the University of North Carolina system.

Structure of the Instrument

The College Student Report asks students to report the frequency with which they engage in several dozen activities that represent good educational practice, such as using the institution's human resources, curricular programs, and other opportunities for learning and development. 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 school work, extracurricular activities, employment, and family matters, and the nature of their examinations and coursework.

Students report whether they participated in or planned to take advantage of such learning opportunities as internships, community service, and study abroad. They 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 and 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. Direct measures of student satisfaction are obtained from two questions: "How would you evaluate your entire educational experience at this institution?" and "If you could start over again, would you go to the same institution you are now attending?"

The Report also collects background information including the student's 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

The National Survey of Student Engagement (NSSE) was 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.

and practical competence. For many indicators of educational practice, such as how students use their time, student reports are often the only source of useful data.

The validity and credibility of self-reports have been examined extensively (Baird, 1976; Berdie, 1971; Pace, 1985; Pike, 1995; Pohlmann and Beggs, 1974; Turner and Martin, 1984). The accuracy of self-reports can be affected by two general problems. The first, considered to be the most important factor affecting response accuracy (Wentland and 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 accurate information (Aaker, Kumar, and Day, 1998). In the former instance, students simply may not have enough experience with the institution to render an accurate 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 and Sudman, 1988).

The validity of self-reported time use has also been examined (Gershuny and 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 fewer), providing a frame of reference or landmark to use, such as the period of time to be considered (Converse and 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, and 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,” in which students may slightly inflate certain aspects of their behavior or performance—such as their grades, the amount they gain from attending college, and the level of effort they put forth in certain activities. To the extent that 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 be different 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 compared with another.

With this in mind, self-reports are likely to be valid under five general conditions (Bradburn and Sudman, 1988; Brandt, 1958; Converse and Presser, 1989; DeNisi and Shaw, 1977; Hansford and

Hattie, 1982; Laing, Swayer, and Noble, 1989; Lowman and Williams, 1987; Pace, 1985; Pike, 1995). They are: (1) 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 College Student Report is administered during the spring academic term. The students randomly selected to complete *The Report* are first-year and senior students 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 are asked to 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 that helps students to accurately recall and record the requested information, thereby minimizing this as a possible source of error.

Responses to the *Educational and Personal Growth* items in *The Report* have been shown to be generally consistent with other evidence, such as results from achievement tests (Brandt, 1958; Davis and Murrell, 1990; DeNisi and Shaw, 1977; Hansford and Hattie, 1982; Lowman and Williams, 1987; Pike, 1995; Pace, 1985). For example, Pike found that student reports to gains items from the College Student Experience Questionnaire (CSEQ), an instrument conceptually similar to *The College Student Report*, were highly correlated with relevant achievement test scores. 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 psychometrically reliable. 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—because for some areas students may be the best qualified to indicate how 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 have gained from them (Pace, 1984).

Psychometric Properties of The College Student Report

Validity is arguably the most important property of an assessment tool such as *The Report*. For this reason the NSSE design team that developed the survey 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 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.

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The degree to which an instrument is reliable is another important indicator of the psychometric quality of instruments such as *The Report*. 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. This is because of the short amount of time available to implement the original survey and then locate and convince respondents to complete the instrument again. It's also 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 test and retest. Second, attempts to estimate the stability of an instrument assume that the items have not changed or been reworded. Minor editing and item substitutions were made across the two years *The Report* has been used.

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 approximately + or - 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 working with a faculty member on a research project—where, because of a combination of factors (student interest, faculty–student ratios), relatively few students will respond something other than “never.”

To establish the validity and reliability of *The College Student Report*, we conducted psychometric analyses of the data from each of the three administrations of the instrument. These analyses are based on 3,226 students at 12 institutions in spring 1999; 12,472 students at 56 institutions in fall 1999; and 63,517 students at 276 institutions in spring 2000.

Based on the results of the psychometric analysis of the field-testing done during spring and fall 1999, we made a number of changes to *The College Student Report* for NSSE 2000, including the deletion of several items that did not discriminate between institutions or among students within an institution. Most of the other changes were efforts to increase precision and face validity of items.

The following is information based on the psychometric analysis of *The College Student Report* items from the first national administration of the NSSE, spring 2000. For all practical purposes the results were similar to the results of the analysis of the 1999 field test data.

College Activities Items

This section includes the 20 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 doing various activities

(studying, socializing, working, extracurricular involvement).

As expected, the “coming to class unprepared” item was not highly correlated with the other 19 *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 20 CA items (page 1 of *The Report*) was .82. The intercorrelations for the CA items, highlighted in Table 5, range from .06 (between “rewrote a paper several times” and “worked with a faculty member on activities other than coursework”) to .58 (between “had serious conversations with other students with different views” and “had serious conversations with students of a different race or ethnicity”). Most of the lowest item intercorrelations are associated with the aforementioned “coming to class unprepared” item and the item about rewriting a paper several times. Other highly correlated CA items include “discussing ideas from classes and readings with faculty members” with “talking about career plans with a faculty member” (.50), “talking about career plans with a faculty member” with “discussing grades or assignments with instructors” (.42), “using e-mail to communicate with instructors or students” with “using an electronic medium to discuss or complete assignments” (.42), and “discussing ideas from classes and readings with others” with “having serious conversations with students with different beliefs” (.41).

A series of principal components factor analyses (oblique rotation) were produced from the 20 CA activities (see page 1 of *The Report*). Exploratory analysis showed that five eigen values were greater than 1, suggesting that five factors may account for the underlying relationships in the activities data. However, the scree plot shows an obvious break in the slope at the second component, suggesting fewer than five factors may produce a simple solution. Principal components analysis using 3, 4, and 5 factors helped narrow the choice down to 4 or 5 factors.

The four-component solution (Table 1) produces factors that may be described as such:

1. Student–faculty and student–student active learning
2. Engaging and educationally meaningful conversations
3. Cooperative communication among students, especially through technology
4. Academic challenge

Table 1. College Activities Four-Factor Solution: Factor Loadings from Principal Components Analysis, Oblique Rotation

Pattern Matrix ¹	Component			
	1	2	3	4
FACPLANS	0.69			
FACIDEAS	0.68			
FACOTHER	0.67			
FACRESCH	0.65			
FACFEED	0.52			0.26
CLQUEST	0.47			
FACGRADE	0.42			0.25
TUTOR	0.38		-0.26	
COMMPROJ	0.37		-0.29	
DIFSTUD		-0.84		
DIVRSTUD		-0.82		
OOCIDEAS		-0.58		
OCCGRP			-0.67	
ITACADEM			-0.65	
EMAIL			-0.57	
CLASSGRP			-0.56	0.29
CLPRESEN	0.29		-0.44	
PREPARE				0.59
WORKHARD				0.56
REWROPAP			-0.28	0.44

Extraction Method: Principal Component Analysis
 Rotation Method: Oblimin with Kaiser Normalization
 Rotation converged in 22 iterations

¹See Appendix B, page 276, for variable names and item descriptions.

The five-component solution (Table 2) mainly sorted out the technology items (EMAIL and ITACADEM) into a separate factor that may be called something like “active learning with technology.” It is generally not recommended to list a factor composed of only two items. Though it may not seem so at first glance, upon reading the actual wording of these items there seems to be a good conceptual argument for including them in the third factor listed above. Also, the item COMM-PROJ jumped up to the first factor in the four-component solution where it doesn’t seem to fit as well.

Table 2. College Activities Five-Factor Solution: Factor Loadings from Principal Components Analysis, Oblique Rotation

Pattern Matrix ¹	Component				
	1	2	3	4	5
FACPLANS	0.68				
FACIDEAS	0.67				
FACRESCH	0.63				
FACOTHER	0.63				
FACFEED	0.53				0.29
FACGRADE	0.43				0.29
CLQUEST	0.41				
TUTOR	0.31				
DIFSTUD		-0.87			
DIVRSTUD		-0.85			
OOCIDEAS		-0.61			
EMAIL			-0.79		
ITACADEM			-0.77		
PREPARE				0.58	
WORKHARD				0.57	
REWROPAP			-0.28	0.50	
CLASSGRP					-0.76
CLPRESEN					-0.67
OCCGRP			-0.25		-0.64
COMMPROJ					-0.51

Extraction Method: Principal Component Analysis
 Rotation Method: Oblimin with Kaiser Normalization
 Rotation converged in 16 iterations

As intended, the underlying constructs of engagement represented by the 20 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. Two noteworthy exceptions are the faculty interaction items related to working with faculty on a research project or other types of activities (e.g., committees), as about 70% answered “never” to the former and 63% said “never” to the latter. It is worth mentioning that the national College Student Experiences Questionnaire database shows that the proportion of students saying they have at least “occasionally” 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 and Siegel, 2000; Kuh, Vesper, Connolly, and Pace, 1997).

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, aspects that directly and indirectly affect their engagement. For example, the items about the extent to which the institution emphasizes different kinds of mental activities represent some of the skills in Bloom’s Taxonomy of educational objectives (1956). The alpha for these items is .63 when the memorization item (reverse scored) is included. However, the alpha jumps to .79 when the lowest order mental function item, memorization, is deleted. 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, negative correlations exist between the amount of time spent preparing for class and socializing (-.09) and working for pay off campus (-.18). The items related to reading and writing and the nature of examinations, though not highly correlated (.42), have considerable face validity among faculty members, administrators, and students. The set of educational program experiences (e.g., internships, study abroad, community service) have an alpha of .63. Also, students who had taken foreign language coursework were more likely to study abroad (.35).

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. The vast majority of 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 participating in a community-based project as part of a regular course (66% said “never”), the number of hours spent working on campus (73% work five or fewer hours per week), the number of papers of 20 pages or more (65% said “none”), number of non-assigned books read (77% said fewer than 5), and the number of hours students spend caring for dependents (78% said 5 or fewer hours).

Educational and Personal Growth

These 14 items have an alpha coefficient of .88 (Table 5). The intercorrelations for these items range from .20 to .64. The lowest intercorrelations are between voting in elections and analyzing quantitative problems (.20), computer and technology skills (.21), and acquiring a broad general education (.21), and between computer and technology skills and contributing to the welfare of one’s community (.22). Five correlations were at .5 or higher: between self-understanding and being honest and truthful (.57), learning on one’s own (.56), and understanding people of other racial and ethnic backgrounds (.51), and between being honest and truthful and contributing to the welfare of one’s community (.54) and understanding people from different racial and ethnic backgrounds (.52).

Principal components analysis of the educational and personal growth items yielded three factors (Table 3). 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, labeled “general education,” is composed of four items that are earmarks of a well-educated person. The final 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.

Table 3. Education and Personal Growth Factors: Factor Loadings from Principal Components Analysis, Oblique Rotation

Pattern Matrix ¹	Component		
	1	2	3
FACPLANS	0.69		
GNDIVERS	0.75		
GNCOMMUN	0.74		
GNSELF	0.74		
GNCITIZN	0.60		
GNINQ	0.52		
GNOTHERS	0.49		0.28
GNWRITE		0.88	
GNSPEAK		0.72	
GNGENLED		0.65	
GNANALY		0.60	0.33
GNCMPTS			0.85
GNQUANT			0.71
GNWORK			0.50

Extraction Method: Principal Component Analysis
 Rotation Method: Oblimin with Kaiser Normalization
 Rotation converged in 11 iterations

¹See Appendix B, page 276, for variable names and item descriptions.

Skewness and kurtosis estimates indicate a fairly normal distribution of responses. However, the “voting in elections” item is somewhat positively skewed (1.20) because 56% reported making “very little” progress in this area.

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 the 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. For example, seniors reported 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 and 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 represent students' views of important aspects of their college's environment. The alpha coefficient for these 10 items (including the two items on students' overall satisfaction with college) is .83 (Table 5). The inter-item correlations fall between .15 and .64, 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 modest 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.

Exploratory principal components analysis of the *Opinion About Your School* items showed that two eigen values were greater than 1, suggesting that two factors may account for the underlying relationships in the activities data (Table 4). The scree plot also suggests that two factors may produce a simple solution. The first factor, student satisfaction with college and personal relations, is made up of five items. The second factor is labeled "campus climate" and is also based on five items. Thus, students perceive their institution's environment has two related dimensions. The first represents their level of satisfaction with the overall experience and their interactions with others. The second is a broad construct that reflects the degree to which students believe their school's

programs, policies and practices are supportive and instrumental in helping them attain their personal and educational goals.

Table 4. Opinions About Your School Two-Factor Solution: Factor Loadings from Principal Components Analysis, Oblique Rotation

Pattern Matrix ¹	Component	
	1	2
ENTIREXP	0.81	
ENVFAC	0.77	
SAMECOLL	0.77	
ENVADM	0.67	
ENVSTU	0.65	
ENVNACAD		0.87
ENVDIVRS		0.82
ENVSOCIAL		0.78
ENVSUPRT	0.33	0.53
ENVSCHOL		0.36

Extraction Method: Principal Component Analysis
 Rotation Method: Oblimin with Kaiser Normalization
 Rotation converged in 6 iterations

¹See Appendix B, page 276, for variable names and item descriptions.

Summary

The pattern of responses from first-year students and seniors suggest the items are measuring what they are supposed to measure. For example, seniors are, on average, more engaged in their education compared with first-year students, scoring higher on most *College Activities* items and reporting that their coursework places more emphasis on higher order intellectual skills such as analysis and synthesis rather than memorization. Among the exceptions is that seniors reported rewriting papers and assignments less frequently than first-year students. On the two other items, both of which are related to conversing with peers from different backgrounds, first-year students and seniors were comparable. On balance, the items on *The Report* appear to be measuring what they are intended to measure and discriminate among students in expected ways.

Table 5. Reliability Coefficients and Intercorrelations of College Activities, Educational and Personal Growth, and Opinions About Your School

	CLQUEST	EMAIL	CLPRESEN	REWROPAP	CLUNPREP	CLASSGRP	OCCGRP	TUTOR	COMMPROJ	ITACADEM	FACGRADE	FACPLANS	FACIDEAS	FACFEED	WORKHARD	FACRESCH	FACOTHER	OOCIDEAS	DIFFSTUD	DIVRSTUD
<i>College Activities Items¹</i>	<i>Standardized Item Alpha Reliability = .82</i>																			
CLQUEST	1.00																			
EMAIL	.16	1.00																		
CLPRESEN	.30	.18	1.00																	
REWROPAP	.07	.10	.10	1.00																
CLUNPREP	-.06	.05	-.02	-.03	1.00															
CLASSGRP	.14	.10	.28	.14	.00	1.00														
OCCGRP	.17	.28	.36	.10	.04	.33	1.00													
TUTOR	.22	.20	.18	.08	.02	.13	.30	1.00												
COMMPROJ	.15	.12	.26	.07	.00	.17	.23	.22	1.00											
ITACADEM	.11	.42	.17	.11	.04	.17	.27	.19	.16	1.00										
FACGRADE	.33	.23	.25	.18	-.01	.20	.26	.21	.17	.23	1.00									
FACPLANS	.29	.22	.26	.10	-.02	.16	.23	.25	.22	.16	.42	1.00								
FACIDEAS	.36	.18	.25	.13	-.01	.15	.23	.29	.22	.18	.42	.50	1.00							
FACFEED	.28	.16	.21	.07	-.05	.13	.17	.17	.14	.14	.33	.35	.37	1.00						
WORKHARD	.19	.12	.20	.21	-.14	.15	.21	.14	.15	.13	.28	.25	.26	.28	1.00					
FACRESCH	.18	.15	.20	.09	.01	.11	.17	.22	.19	.14	.23	.31	.35	.21	.18	1.00				
FACOTHER	.24	.22	.23	.06	.04	.10	.22	.29	.27	.16	.25	.37	.36	.23	.16	.35	1.00			
OOCIDEAS	.26	.11	.15	.08	-.03	.11	.18	.17	.13	.13	.26	.25	.33	.26	.23	.15	.21	1.00		
DIFFSTUD	.23	.19	.13	.10	.07	.10	.19	.22	.13	.17	.24	.23	.29	.19	.16	.15	.24	.41	1.00	
DIVRSTUD	.20	.14	.13	.10	.04	.11	.16	.19	.12	.16	.22	.19	.24	.16	.15	.13	.19	.30	.58	1.00

Table 6. All College Report Item Correlations

Unshaded: First-Year Students

Shaded: Seniors

	CLQUEST	EMAIL	CLPRESEN	REWROPAP	CLUNPREP	CLASSGRP	OCCGRP	TUTOR	COMMPROJ	ITACADEM	FACGRADE	FACPLANS	FACIDEAS	FACFEED	WORKHARD	FACRESCH	FACOTHER	OOIDEAS	DIFSTUD	DIVRSTUD	READASGN	READOWN	WRITEMOR	WRITEFEW	EXAMS	MEMORIZE	ANALYZE	SYNTHEZ	EVALUATE	APPLYING
CLQUEST		.16	.24	.09	-.05	.14	.17	.20	.12	.11	.33	.25	.32	.26	.19	.13	.22	.25	.24	.21	.12	.14	.06	.14	.19	-.04	.19	.21	.20	.16
EMAIL	.14		.15	.10	.03	.09	.27	.18	.14	.38	.21	.19	.17	.17	.14	.09	.17	.12	.18	.14	.15	.01	.02	.15	.05	.03	.13	.13	.11	.15
CLPRESEN	.26	.19		.15	-.04	.22	.24	.12	.19	.14	.21	.20	.20	.15	.17	.17	.17	.12	.12	.12	.06	.05	.10	.14	.12	.00	.12	.16	.18	.14
REWROPAP	.12	.11	.20		-.03	.17	.14	.08	.09	.12	.21	.14	.15	.09	.23	.12	.08	.09	.09	.10	.05	.02	.06	.13	.03	.06	.09	.12	.13	.10
CLUNPREP	-.10	.06	-.07	.00		.00	.01	.02	.00	.04	-.03	-.05	-.02	-.05	-.14	-.01	.01	-.03	.08	.06	.02	-.01	-.03	.00	-.01	-.03	-.02	-.04	-.04	-.04
CLASSGRP	.13	.10	.33	.14	-.02		.28	.12	.13	.14	.19	.16	.16	.13	.14	.15	.11	.11	.10	.11	-.01	.03	.06	.06	.03	.06	.12	.14	.16	.14
OCCGRP	.11	.28	.39	.13	.03	.37		.33	.19	.25	.24	.22	.24	.18	.22	.17	.20	.20	.22	.18	.11	.02	.06	.13	.09	.04	.18	.19	.16	.23
TUTOR	.21	.21	.17	.11	.01	.13	.26		.22	.19	.18	.19	.23	.16	.15	.15	.23	.17	.22	.18	.07	.09	.07	.08	.08	.01	.15	.17	.13	.19
COMMPROJ	.14	.10	.25	.10	-.03	.19	.21	.19		.16	.15	.18	.21	.12	.13	.19	.26	.11	.14	.11	.05	.06	.10	.10	.06	.02	.09	.12	.13	.12
ITACADEM	.10	.45	.19	.13	.03	.19	.29	.19	.17		.21	.15	.18	.15	.14	.13	.16	.14	.17	.16	.10	.05	.07	.10	.05	.02	.15	.17	.15	.17
FACGRADE	.31	.23	.24	.20	-.02	.20	.25	.22	.17	.24		.39	.40	.32	.29	.21	.23	.25	.23	.21	.08	.06	.07	.13	.11	.05	.18	.20	.21	.20
FACPLANS	.29	.24	.24	.14	-.03	.16	.20	.28	.21	.16	.44		.43	.30	.25	.22	.29	.22	.21	.19	.07	.08	.07	.10	.08	.03	.15	.18	.19	.18
FACIDEAS	.35	.19	.21	.18	-.03	.14	.17	.30	.20	.18	.42	.52		.34	.25	.30	.31	.29	.26	.22	.11	.14	.11	.11	.17	-.01	.20	.26	.25	.20
FACFEED	.27	.15	.19	.11	-.08	.12	.13	.16	.13	.11	.31	.36	.37		.28	.17	.20	.26	.19	.16	.11	.09	.03	.11	.11	-.03	.20	.21	.19	.20
WORKHARD	.17	.10	.23	.22	-.15	.16	.20	.13	.17	.12	.27	.25	.26	.28		.18	.15	.24	.17	.17	.10	.03	.09	.11	.09	.08	.21	.24	.22	.22
FACRESCH	.17	.19	.13	.14	-.01	.08	.13	.24	.16	.15	.22	.33	.34	.21	.17		.31	.11	.11	.11	.02	.07	.12	.05	.08	.01	.10	.14	.14	.12
FACOTHER	.23	.24	.19	.10	.03	.09	.19	.30	.24	.16	.25	.39	.36	.23	.15	.34		.20	.22	.18	.07	.10	.09	.10	.11	.00	.12	.15	.15	.14
OOIDEAS	.26	.10	.14	.11	-.04	.10	.14	.17	.13	.11	.25	.25	.35	.26	.22	.16	.21		.41	.29	.15	.15	.04	.12	.10	.02	.21	.22	.19	.18
DIFSTUD	.23	.20	.17	.12	.07	.10	.18	.24	.14	.17	.26	.27	.33	.19	.15	.20	.27	.42		.57	.16	.17	.04	.15	.12	.00	.20	.22	.21	.19
DIVRSTUD	.20	.15	.15	.11	.03	.10	.14	.19	.13	.16	.23	.21	.27	.16	.15	.15	.20	.32	.59		.12	.13	.04	.11	.11	.02	.18	.20	.20	.18
READASGN	.12	.13	.10	.08	.02	.00	.06	.09	.08	.08	.11	.12	.16	.10	.11	.11	.13	.17	.19	.13		.11	.04	.33	.15	-.03	.15	.15	.12	.09
READOWN	.15	.04	.05	.06	-.02	.02	-.01	.14	.04	.06	.08	.08	.16	.09	.02	.10	.08	.17	.17	.14	.17		.13	.05	.07	-.04	.05	.08	.08	.05
WRITEMOR	.11	.10	.19	.12	-.05	.08	.15	.11	.13	.12	.11	.12	.17	.06	.14	.18	.13	.08	.12	.10	.20	.15		.01	.07	.00	.04	.09	.09	.07
WRITEFEW	.13	.15	.18	.09	.02	.07	.13	.11	.12	.11	.12	.13	.15	.13	.10	.10	.15	.14	.18	.12	.41	.12	.20		.13	-.02	.14	.13	.13	.08
EXAMS	.13	.09	.04	.07	-.01	-.02	.02	.12	-.03	.04	.07	.11	.17	.10	.07	.13	.10	.11	.14	.10	.15	.10	.11	.13		-.18	.20	.22	.19	.12
MEMORIZE	-.08	-.03	-.03	.03	.01	.05	.02	-.01	.00	.00	.02	-.01	-.04	-.06	.04	-.01	-.03	-.03	-.01	.00	-.04	-.06	-.01	-.04	-.24		.04	-.03	.00	.01
ANALYZE	.16	.12	.15	.09	-.03	.11	.16	.13	.12	.14	.17	.17	.20	.19	.19	.15	.13	.20	.18	.17	.13	.05	.12	.14	.16	-.01		.54	.43	.42
SYNTHEZ	.21	.13	.17	.11	-.05	.12	.14	.18	.16	.16	.19	.21	.27	.22	.22	.18	.16	.22	.21	.19	.16	.11	.16	.14	.22	-.13	.53		.53	.44
EVALUATE	.18	.11	.21	.12	-.05	.15	.14	.13	.18	.16	.19	.21	.24	.19	.21	.17	.16	.19	.21	.19	.14	.08	.16	.15	.15	-.06	.44	.55		.44
APPLYING	.15	.14	.21	.08	-.06	.16	.23	.16	.18	.16	.20	.21	.19	.20	.21	.15	.15	.18	.16	.16	.07	.05	.12	.10	.11	-.09	.44	.47	.46	

	ACADPREP	WORKON	WORKOFF	COCURRIC	SOCIAL	CAREDEPD	NGENLED	GNWORK	GNWRITE	GNSPEAK	GNANALY	GNQUANT	GNCMPTS	GNOTHERS	GNCITIZN	GNINQ	GNSELF	GNDIVERS	GNTRUTH	GNCOMMUN	ENVSCHOL	ENVSUPRT	ENVDIRS	ENVNACAD	ENVSOCAL	ENVSTU	ENVFAC	ENVADM	ENTREXP
CLQUEST	.15	.04	.02	.11	-.09	.06	.16	.14	.19	.23	.21	.13	.06	.17	.13	.13	.14	.13	.11	.17	.11	.16	.12	.10	.10	.13	.23	.10	.20
EMAIL	.17	.05	-.21	.14	.01	-.16	.13	.13	.12	.10	.15	.13	.21	.17	.11	.13	.14	.10	.13	.17	.13	.16	.12	.14	.16	.15	.14	.10	.18
CLPRESEN	.09	.04	.01	.08	-.06	.02	.11	.17	.17	.28	.14	.11	.13	.22	.14	.10	.12	.15	.14	.16	.09	.12	.13	.13	.12	.09	.12	.08	.10
REWROPAP	.10	.02	.01	.05	-.07	.03	.08	.08	.21	.16	.12	.10	.12	.14	.08	.11	.10	.12	.13	.09	.11	.07	.09	.09	.08	.06	.02	.03	.04
CLUNPREP	-.14	.03	-.06	.05	.18	-.09	-.09	-.07	-.11	-.11	-.09	-.08	-.06	-.09	-.03	-.08	-.05	-.05	-.09	-.04	-.11	-.10	-.05	-.05	-.03	-.05	-.09	-.09	-.08
CLASSGRP	.00	.02	.03	.04	-.01	.04	.08	.14	.13	.17	.13	.13	.15	.26	.10	.10	.11	.14	.12	.10	.08	.11	.14	.12	.12	.09	.08	.08	.08
OCCGRP	.21	.04	-.16	.15	-.04	-.10	.14	.19	.12	.16	.20	.23	.20	.32	.15	.17	.16	.14	.18	.21	.19	.19	.17	.16	.20	.21	.14	.13	.19
TUTOR	.16	.06	-.10	.14	-.03	-.05	.09	.16	.06	.10	.15	.22	.15	.16	.14	.15	.13	.11	.12	.18	.09	.12	.12	.12	.14	.14	.11	.08	.15
COMMPROJ	.08	.07	-.05	.13	-.04	.00	.08	.14	.08	.12	.09	.09	.08	.16	.16	.09	.12	.14	.14	.27	.06	.08	.12	.14	.13	.09	.09	.08	.09
ITACADEM	.11	.03	-.10	.10	.01	-.07	.09	.13	.09	.11	.14	.17	.26	.14	.11	.12	.10	.10	.10	.12	.10	.11	.11	.11	.13	.09	.07	.05	.12
FACGRADE	.16	.05	-.01	.11	-.07	.00	.15	.17	.20	.21	.21	.17	.15	.21	.16	.17	.17	.17	.16	.19	.15	.17	.14	.14	.14	.10	.20	.11	.14
FACPLANS	.12	.08	-.05	.10	-.09	-.01	.16	.22	.19	.22	.20	.17	.15	.23	.18	.18	.20	.20	.21	.24	.15	.23	.20	.23	.21	.15	.24	.20	.19
FACIDEAS	.17	.09	-.03	.12	-.09	.02	.15	.19	.19	.21	.22	.18	.13	.20	.20	.17	.19	.20	.18	.24	.13	.18	.19	.20	.18	.11	.23	.15	.16
FACFEED	.14	.03	-.05	.07	-.02	-.02	.22	.20	.21	.20	.25	.19	.14	.19	.14	.20	.18	.16	.16	.21	.16	.30	.20	.21	.22	.17	.36	.24	.30
WORKHARD	.28	.02	-.01	.05	-.15	.05	.23	.20	.28	.26	.29	.23	.18	.26	.14	.28	.25	.21	.26	.21	.27	.20	.16	.16	.16	.12	.15	.12	.20
FACRESCH	.06	.06	.00	.09	-.05	.04	.07	.14	.12	.15	.11	.13	.12	.15	.14	.10	.11	.13	.13	.14	.08	.10	.12	.15	.12	.07	.12	.09	.08
FACOTHER	.11	.14	-.10	.22	-.06	-.04	.10	.18	.11	.16	.14	.11	.11	.19	.20	.11	.15	.15	.15	.26	.07	.15	.15	.19	.18	.14	.17	.14	.15
OOCIDEAS	.17	.02	-.01	.03	-.04	.04	.21	.13	.18	.17	.24	.14	.09	.17	.13	.19	.20	.17	.14	.19	.16	.18	.15	.12	.15	.12	.19	.11	.19
DIFFSTUD	.13	.07	-.11	.13	.04	-.09	.12	.11	.12	.14	.19	.13	.08	.15	.15	.15	.18	.21	.13	.19	.08	.11	.17	.11	.14	.12	.10	.04	.13
DIVRSTUD	.09	.08	-.04	.10	.01	-.03	.10	.10	.11	.14	.16	.13	.10	.15	.12	.12	.14	.31	.12	.16	.08	.09	.24	.11	.11	.11	.06	.03	.09
READASGN	.27	.03	-.14	.08	.03	-.12	.13	.02	.10	.04	.12	.04	.00	.04	.04	.09	.06	.05	.05	.09	.12	.08	.04	.03	.06	.04	.09	.03	.12
READOWN	.06	.05	.05	.01	-.02	.07	.01	.04	.03	.05	.04	.02	-.01	.00	.07	.04	.03	.05	.01	.07	-.01	.01	.06	.04	.02	-.01	.04	.01	.03
WRITEMOR	.07	.06	.08	.05	-.06	.11	.01	.07	.06	.09	.05	.08	.08	.07	.10	.05	.04	.08	.06	.08	.04	.01	.05	.06	.04	.00	.00	.01	-.01
WRITEFEW	.21	.03	-.14	.11	.05	-.13	.11	.04	.19	.09	.11	.03	.02	.08	.04	.08	.08	.05	.05	.09	.08	.09	.04	.04	.07	.08	.10	.05	.10
EXAMS	.12	.05	-.01	.06	-.06	.02	.08	.06	.12	.11	.15	.09	.02	.06	.08	.06	.06	.08	.06	.10	.08	.09	.08	.06	.04	.02	.12	.06	.09
MEMORIZE	.02	-.01	.00	.01	.01	.00	.07	.06	.02	.03	-.02	.03	.04	.07	.02	.08	.05	.04	.06	.02	.11	.02	.01	.02	.04	.01	-.06	-.01	-.02
ANALYZE	.18	.02	-.05	.05	-.04	-.02	.21	.17	.22	.20	.36	.30	.16	.19	.12	.21	.17	.17	.14	.17	.21	.20	.16	.12	.14	.10	.17	.11	.19
SYNTHESZ	.18	.03	-.03	.06	-.07	.01	.19	.20	.24	.24	.36	.32	.19	.21	.15	.22	.20	.21	.18	.21	.20	.19	.19	.16	.16	.10	.16	.11	.18
EVALUATE	.11	.04	.02	.06	-.06	.03	.18	.20	.25	.27	.32	.27	.17	.23	.18	.19	.20	.24	.20	.22	.16	.18	.20	.18	.16	.09	.13	.10	.14
APPLYING	.16	.01	-.04	.08	-.05	-.01	.18	.24	.19	.22	.35	.38	.23	.24	.14	.23	.20	.19	.19	.21	.21	.20	.19	.17	.19	.15	.16	.13	.20

Table 6, continued. All College Report Item Correlations

Unshaded: First-Year Students

Shaded: Seniors

	CLQUEST	EMAIL	CLPRESEN	REWROPAP	CLUNPREP	CLASSGRP	OCCGRP	TUTOR	COMMPROJ	ITACADEM	FACGRADE	FACPLANS	FACIDEAS	FACFEED	WORKHARD	FACRESCH	FACOTHER	OOIDEAS	DIFSTUD	DIVRSTUD	READASGN	READOWN	WRITEMOR	WRITEFEW	EXAMS	MEMORIZE	ANALYZE	SYNTHESZ	EVALUATE	APPLYING
ACADPREP	.13	.13	.09	.12	-.14	.00	.13	.18	.08	.09	.14	.14	.19	.12	.26	.13	.12	.18	.12	.09	.26	.09	.15	.20	.14	-.03	.16	.19	.12	.15
WORKON	.03	.11	.02	.04	.05	.00	.05	.16	.04	.05	.06	.11	.10	.01	.01	.11	.20	.02	.10	.08	.06	.06	.07	.06	.06	-.01	.01	.02	.02	.00
WORKOFF	.00	-.21	.00	.00	-.07	.04	-.13	-.17	-.03	-.06	-.07	-.14	-.11	-.07	.00	-.12	-.21	-.03	-.11	-.04	-.14	.00	.00	-.14	-.09	.03	-.03	-.04	.01	-.03
COCURRIC	.08	.17	.10	.04	.08	.03	.13	.15	.11	.10	.11	.17	.13	.07	.02	.12	.32	.03	.18	.11	.11	.03	.11	.15	.08	.00	.04	.05	.06	.05
SOCIAL	-.08	.05	-.05	-.06	.18	.00	.01	-.03	-.05	.02	.00	-.02	-.04	-.01	-.15	-.01	-.01	-.02	.05	.00	.03	.02	-.04	.08	.00	.03	-.03	-.06	-.05	-.05
CAREDEPD	.09	-.20	.00	.03	-.14	.02	-.12	-.10	.01	-.06	-.03	-.09	-.03	-.01	.07	-.07	-.15	.04	-.11	-.04	-.09	.04	.02	-.12	-.06	.01	.00	.02	.02	-.01
GNGENLED	.14	.07	.10	.06	-.05	.07	.06	.04	.07	.05	.12	.16	.15	.21	.17	.09	.11	.18	.12	.10	.10	.01	.04	.09	.07	.01	.19	.17	.17	.15
GNWORK	.11	.10	.19	.05	-.08	.16	.19	.10	.17	.12	.14	.22	.13	.20	.17	.09	.15	.11	.05	.06	-.01	.00	.04	.04	-.04	.00	.16	.15	.16	.27
GNWRITE	.18	.10	.16	.12	-.09	.09	.07	.06	.10	.08	.15	.20	.20	.25	.22	.14	.13	.19	.13	.11	.15	.05	.12	.16	.14	-.04	.22	.24	.23	.19
GNSPEAK	.22	.11	.26	.11	-.09	.14	.14	.09	.13	.10	.18	.24	.22	.23	.23	.13	.17	.18	.14	.14	.10	.04	.12	.11	.09	-.02	.21	.23	.25	.22
GNANALY	.19	.13	.15	.09	-.07	.10	.14	.13	.11	.11	.18	.23	.23	.25	.23	.17	.15	.23	.18	.15	.12	.04	.10	.11	.16	-.09	.34	.35	.30	.33
GNQUANT	.09	.12	.11	.08	-.06	.11	.20	.16	.08	.16	.14	.15	.15	.18	.18	.16	.10	.12	.10	.11	.00	.01	.11	.00	.07	.01	.28	.26	.24	.34
GNCMPTS	.02	.25	.14	.09	-.02	.15	.23	.12	.07	.26	.13	.14	.10	.12	.15	.11	.10	.05	.06	.08	-.02	-.02	.07	.01	.01	.03	.16	.12	.14	.21
GNOTHERS	.12	.17	.27	.09	-.06	.25	.33	.13	.19	.14	.19	.24	.16	.20	.24	.12	.21	.13	.14	.13	.05	-.03	.09	.09	.02	.01	.18	.18	.19	.25
GNCITIZN	.10	.05	.11	.09	-.04	.09	.08	.07	.14	.07	.11	.16	.17	.13	.15	.10	.17	.10	.13	.12	.06	.06	.10	.03	.07	.01	.11	.13	.17	.11
GNINQ	.11	.10	.12	.09	-.07	.09	.12	.12	.10	.09	.15	.19	.19	.19	.24	.14	.14	.18	.15	.13	.09	.05	.09	.08	.08	.01	.19	.21	.20	.20
GNSELF	.12	.11	.14	.09	-.02	.10	.12	.11	.13	.07	.16	.24	.20	.20	.21	.14	.18	.19	.18	.14	.10	.04	.07	.08	.07	-.01	.16	.19	.19	.17
GNDIVERS	.09	.04	.12	.10	-.05	.11	.07	.07	.15	.07	.12	.16	.17	.15	.19	.10	.11	.15	.20	.31	.08	.03	.07	.05	.04	.01	.15	.18	.21	.15
GNTRUTH	.08	.10	.16	.10	-.07	.12	.15	.10	.15	.08	.15	.22	.18	.17	.24	.12	.17	.12	.11	.10	.07	.00	.08	.05	.03	.02	.14	.16	.19	.18
GNCOMMUN	.15	.11	.17	.09	-.05	.11	.13	.14	.32	.09	.17	.26	.23	.21	.21	.15	.27	.18	.18	.15	.10	.05	.10	.10	.04	-.02	.17	.21	.22	.21
ENVSCHOL	.09	.07	.11	.10	-.11	.06	.14	.07	.08	.08	.13	.13	.13	.17	.27	.09	.06	.14	.07	.07	.11	-.01	.09	.06	.07	.05	.20	.18	.16	.20
ENVSUPRT	.15	.13	.14	.07	-.08	.11	.13	.11	.12	.08	.18	.28	.23	.35	.20	.17	.19	.16	.10	.07	.06	.00	.06	.08	.09	-.04	.19	.19	.18	.21
ENVDIVRS	.10	.06	.14	.08	-.08	.14	.11	.09	.14	.10	.12	.17	.18	.21	.16	.11	.13	.13	.15	.24	.03	.04	.08	.04	.04	-.01	.15	.17	.20	.17
ENVNACAD	.09	.10	.14	.07	-.04	.11	.10	.12	.15	.09	.14	.25	.22	.23	.15	.14	.22	.11	.10	.09	.04	.03	.07	.05	.05	-.01	.11	.14	.16	.15
ENVSOCAL	.07	.13	.13	.07	-.01	.10	.14	.12	.15	.09	.13	.25	.20	.22	.14	.14	.23	.11	.12	.09	.05	.02	.06	.08	.04	.01	.11	.13	.14	.15
ENVSTU	.13	.12	.15	.03	-.05	.10	.18	.10	.11	.07	.11	.16	.12	.19	.11	.08	.17	.11	.09	.07	.02	-.01	.02	.07	.03	-.04	.09	.10	.10	.14
ENVFAC	.23	.12	.12	.03	-.08	.05	.05	.12	.08	.04	.18	.31	.28	.41	.13	.19	.22	.18	.10	.06	.06	.05	.02	.09	.12	-.11	.15	.17	.14	.16
ENVADM	.10	.06	.07	.04	-.07	.05	.06	.05	.07	.04	.08	.15	.14	.24	.10	.07	.14	.09	.01	.02	-.02	-.01	.01	.01	.04	-.04	.10	.09	.08	.10
ENTIREXP	.19	.15	.14	.05	-.08	.06	.12	.12	.10	.09	.14	.25	.21	.33	.18	.16	.20	.18	.12	.09	.08	.03	.05	.11	.11	-.11	.18	.19	.16	.21

	ACADPREP	WORKON	WORKOFF	COCURRIC	SOCIAL	CAREDEPD	NGENLED	GNWORK	GNWRITE	GNSPEAK	GNANALY	GNQUANT	GNCMPTS	GNOTHERS	GNCITIZN	GNINQ	GNSELF	GNDIVERS	GNTRUTH	GNCOMMUN	ENVSCHOL	ENVSUPRT	ENVDIVRS	ENVNACAD	ENVSOCAL	ENVSTU	ENVFAC	ENVADM	ENTIREXP
ACADPREP		.03	-.16	.12	-.08	-.06	.14	.11	.12	.08	.19	.17	.09	.10	.05	.19	.12	.07	.11	.14	.30	.13	.06	.05	.08	.07	.13	.08	.17
WORKON	.04		-.12	.04	-.06	.02	.01	.09	.01	.03	.01	.01	.03	.04	.04	.00	.02	.05	.02	.05	.00	.02	.04	.05	.02	.01	.02	.04	.01
WORKOFF	-.20	-.29		-.15	-.12	.31	-.06	-.04	.00	.04	-.05	-.04	-.05	-.04	-.02	-.05	-.07	-.01	-.06	-.09	-.05	-.11	-.03	-.09	-.14	-.11	-.10	-.08	-.14
COCURRIC	.05	.15	-.21		.03	-.09	.04	.08	.03	.07	.06	.07	.06	.10	.12	.06	.09	.06	.09	.15	.03	.05	.05	.09	.11	.13	.05	.04	.09
SOCIAL	-.09	-.01	-.15	.12		-.08	-.03	-.06	-.08	-.10	-.07	-.07	-.04	-.07	-.06	-.05	-.03	-.07	-.09	-.08	-.14	-.06	-.04	-.03	.01	.01	-.05	-.05	-.04
CAREDEPD	-.02	-.10	.24	-.18	-.18		.00	.04	.04	.08	.00	.02	.01	.01	.03	.00	-.01	.04	.01	.01	.00	-.04	.02	-.01	-.06	-.05	-.02	.00	-.06
NGENLED	.05	.00	-.03	.04	.00	.00		.35	.41	.35	.42	.31	.24	.33	.21	.34	.32	.28	.29	.29	.29	.33	.23	.24	.28	.21	.27	.23	.38
GNWORK	.08	.02	-.04	.03	-.03	.01	.28		.31	.36	.33	.33	.31	.37	.25	.27	.28	.26	.29	.33	.21	.28	.25	.29	.28	.21	.21	.21	.29
GNWRITE	.09	.01	-.01	.04	-.03	.02	.42	.28		.61	.52	.34	.28	.36	.22	.33	.31	.31	.32	.29	.25	.30	.23	.24	.25	.17	.22	.19	.28
GNSPEAK	.06	.01	.01	.09	-.05	.01	.37	.32	.66		.51	.37	.31	.45	.29	.33	.36	.37	.39	.34	.22	.27	.28	.29	.29	.19	.20	.18	.25
GNANALY	.15	.01	-.05	.05	-.02	-.02	.39	.32	.52	.53		.59	.35	.40	.23	.43	.39	.34	.37	.33	.31	.34	.26	.25	.28	.20	.26	.20	.35
GNQUANT	.11	-.01	-.01	.03	-.03	.02	.27	.31	.32	.35	.57		.43	.33	.22	.34	.28	.26	.29	.28	.26	.27	.23	.23	.25	.17	.18	.18	.27
GNCMPTS	.06	.05	-.05	.04	.00	-.03	.20	.31	.24	.28	.32	.42		.36	.22	.28	.26	.26	.30	.24	.20	.23	.22	.22	.24	.16	.13	.16	.20
GNOTHERS	.07	.05	-.10	.14	-.01	-.08	.30	.36	.33	.43	.38	.29	.33		.32	.39	.42	.42	.48	.41	.25	.31	.32	.32	.35	.29	.22	.22	.29
GNCITIZN	.01	.04	.00	.12	-.04	.02	.21	.17	.24	.28	.22	.18	.19	.32		.28	.28	.30	.29	.39	.12	.17	.21	.26	.25	.14	.12	.13	.17
GNINQ	.14	.01	-.06	.06	-.02	-.02	.30	.24	.35	.35	.42	.31	.24	.41	.30		.55	.37	.43	.33	.29	.28	.22	.24	.29	.18	.19	.16	.29
GNSELF	.08	.03	-.09	.11	.01	-.06	.32	.25	.34	.38	.38	.24	.21	.44	.32	.55		.51	.56	.42	.21	.29	.27	.32	.36	.23	.20	.19	.29
GNDIVERS	.04	.04	.01	.04	-.06	.03	.28	.20	.30	.33	.31	.22	.21	.38	.34	.37	.50		.53	.43	.17	.24	.43	.31	.31	.19	.15	.16	.20
GNTRUTH	.07	.04	-.07	.10	-.05	-.04	.27	.26	.31	.37	.33	.25	.23	.49	.35	.46	.57	.51		.51	.24	.29	.31	.35	.37	.23	.19	.20	.26
GNCOMMUN	.09	.05	-.08	.15	-.07	-.01	.27	.27	.30	.34	.31	.22	.18	.42	.41	.36	.45	.46	.56		.21	.28	.32	.37	.37	.23	.22	.21	.29
ENVSCHOL	.29	-.02	-.05	-.01	-.12	.04	.22	.20	.22	.20	.27	.24	.18	.22	.12	.24	.18	.16	.22	.19		.41	.26	.22	.23	.16	.19	.20	.29
ENVSUPRT	.10	.01	-.09	.06	-.03	-.04	.32	.30	.31	.32	.33	.26	.23	.32	.20	.27	.30	.23	.30	.31	.37		.42	.45	.44	.28	.44	.39	.46
ENVDIVRS	.04	.03	.03	.03	-.06	.03	.23	.21	.23	.26	.23	.21	.20	.28	.25	.21	.25	.43	.30	.32	.23	.43		.50	.46	.25	.24	.25	.29
ENVNACAD	.03	.07	-.07	.12	.00	-.04	.22	.23	.22	.25	.22	.19	.18	.29	.27	.23	.30	.28	.34	.34	.17	.47	.47		.64	.27	.30	.32	.33
ENVSOCAL	.04	.06	-.13	.16	.03	-.11	.25	.24	.24	.27	.24	.19	.19	.34	.26	.25	.34	.28	.37	.37	.17	.45	.43	.64		.39	.31	.33	.40
ENVSTU	.05	.02	-.08	.12	-.01	-.04	.19	.21	.16	.21	.18	.15	.15	.30	.13	.15	.20	.16	.21	.22	.15	.30	.25	.26	.34		.37	.36	.44
ENVFAC	.08	.02	-.10	.06	.00	-.04	.26	.22	.25	.24	.27	.17	.13	.23	.12	.18	.22	.15	.20	.23	.16	.49	.25	.31	.31	.40		.57	.48
ENVADM	.05	.03	-.05	.04	-.06	.03	.20	.19	.18	.20	.19	.16	.16	.20	.14	.14	.17	.15	.20	.21	.17	.40	.25	.32	.31	.33	.49		.42
ENTIREXP	.11	.02	-.13	.10	-.02	-.05	.37	.33	.33	.33	.38	.26	.21	.32	.18	.26	.32	.22	.28	.30	.25	.50	.30	.34	.38	.41	.52	.43	

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 assure that the number of respondents will be 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, but also 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 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 both 2000 and 2001.

Correlation of Concordance

The first stability estimate is a correlation of concordance, which measures



the strength of the association between scores from the two time periods (spring 2000 and spring 2001). We computed Spearman's rho for the five benchmarks of effective educational practice described in the NSSE 2000 Report: *National*

Benchmarks of Effective Educational Practice (2000) using only the unweighted student responses to survey items that were essentially the same in both years. These benchmarks and their rho values range from .76 to .92 as shown in Table 7. Clearly, there is a very strong (stable) relationship between institution-level benchmark scores from the first two years of the survey. This analysis is based on 28,271 first-year students at 126 institutions that administered the NSSE survey in both 2000 and 2001 (14,174 from 2000 and 14,097 from 2001) and on 29,684 seniors at 123 common institutions (14,697 from 2000 and 14,987 from 2001). These findings suggest that the NSSE data at the institutional level are relatively stable from year to year.

Table 7: Correlation of Concordance of Institutional Benchmark Scores for Colleges and Universities Participating in Both NSSE 2000 and 2001^a

<i>Benchmarks of Effective Educational Practice</i>	<i>Spearman's rho Freshmen (N=126)^b</i>	<i>Spearman's rho Seniors (N=123)^b</i>
Level of Academic Challenge	.84	.77
Active and Collaborative Learning	.84	.76
Student Interaction with Faculty Members	.83	.83
Enriching Educational Experiences	.92	.89
Supportive Campus Environment	.87	.85

^a Based on 14,174 first-year students and 14,697 seniors from 2000 and 14,097 first-year students and 14,987 seniors from 2001.

^b N is the number of institutions that participated in both NSSE 2000 and 2001 for which usable data are available for this comparison.

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 and 2001, these results are what one would expect. The higher correlations are associated with institutional characteristics that are less likely 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.

Comparison of Means

A second approach to estimating stability matched sample t-tests to determine if differences existed in student responses to the survey in 2000 and 2001. There are a total of 63 comparable items. For both first-year students and seniors, NSSE items are highly or moderately correlated between the two years, with all coefficients being statistically significant, ranging from .60 to .96

with a few exceptions where changes were made in item wording or response options. We also compared mean differences in student responses for each common item. About half of the comparisons for both first-year students and seniors were statistically significant, though the effect sizes were generally small. Interestingly, the differences generally favored the 2001 cohort, meaning that they tended to score higher than their counterparts who completed the NSSE survey the previous year. It's important to note that these analyses were computed with unweighted data; subsequent analyses that hold student and institutional variables constant may yield a somewhat different picture.

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 is to examine test–retest data. We have two sources of test-retest data

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 psychometrically reliable.

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 “test” (first administration) and “retest” 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 that 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 is 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 on page 37.

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.

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

Survey Methodology

This section summarizes important information about survey design and administration from the spring 2000 administration of the NSSE. It begins with a discussion of sampling procedures and sampling error, and continues with a description of survey procedures and response rate analysis. The design and implementation of the NSSE study carefully accounted for potential sources of error such as sampling error and measurement error, as will be made clear below.

Sampling Procedures

The College Student Report is annually administered during the spring academic term. The NSSE 2000 program started contacting students in the third week of February 2000 and continued with follow-ups and mailings of survey packets throughout the next three and a half months. Final follow-ups were sent at the end of May 2000 and data collection was officially closed on June 12, 2000.

The NSSE 2000 sampling procedures called for an equal number of first-year and senior students to be sent the survey with the sample size determined by the number of undergraduate students enrolled at the institution and the mode of administration. Three sample size levels were established based on small, medium, and large enrollment sizes and model of administration, as shown in Table 8.

Table 8. NSSE 2000 Sample Size

<i>Undergraduate Enrollment</i>	<i>Standard Administration^a Sample Size</i>	<i>Web-Only Administration^b Sample Size</i>
Less than 4,000	450	800
4,000 to 15,000	700	1,300
More than 15,000	1,000	1,800

^aStandard administration. Students received a paper invitation to participate, a hard copy of *The College Student Report*, a complete follow-up packet, and the option of completing a Web version of the survey.

^bWeb-only administration. Students received all correspondence by e-mail and completed the Web version of *The Report*.

Participating institutions provided NSSE with a data file of their total first-year and senior student populations based on fall enrollments. The total NSSE 2000 sample was comprised of 151,910 first-year and senior students who were randomly selected from electronic data files provided by the 276 participating four-year colleges and universities listed in Appendix A. Because the survey was administered in the spring, a potential source of coverage error was introduced into the sample as it did not account for students who left the institution at the end of fall semester, or for students (particularly first-year students) who matriculated the second semester.

Sampling Error

Sampling error results when a sample size is not large enough to allow the researcher to confidently generalize from the sample to the entire population represented by the sample. Sampling error in NSSE 2000 may be addressed at both the national level (the total of all first-year students and seniors completing *The College Student Report*) and at the institutional level. At the national level, the population of first-year and senior students attending NSSE 2000 participating institutions is over 400,000 per class. At this level, a conservative number of responses to achieve a sampling error of $\pm 3\%$ is approximately 1,060 (95% confidence level). Given that the number of responses by class was over 30,000 per class, sampling error at the national level is understood to be extremely small.

Of course, any sampling error estimate becomes less precise each time you disaggregate in order to examine subsets of a population. For this reason, the

large numbers of respondents in the NSSE 2000 database also secure confidence that analyses by gender, race and ethnicity, enrollment status, and so on, are also convincingly precise.

At the institutional level, given the smaller population and sample sizes, sampling errors are typically within a range of $\pm 5\%$ and $\pm 10\%$ (95% confidence level). Of course, this depends on the size of the population, number of respondents, and the smallest subgroup within the population for which sampling error estimates are needed. Some institutions were aware that the predetermined sample size in all likelihood would not have met their own preferred criterion for sampling error, either because they wanted more precision or needed to look at subgroups of students. These institutions were able to increase their sample size for local purposes. However, such data obtained from oversampling were not included in the norms dataset for NSSE 2000 reporting purposes.

Sample Representativeness

In spring 2000, about 75,015 students at 276 schools completed *The College Student Report*. Of this number, 63,383 randomly selected first-year and senior students make up the respondent pool used for the national benchmark analysis and this report. The remainder represents additional students who were surveyed at the request of some institutions as part of an optional oversampling strategy. The students and participating colleges and universities represent a broad cross-section of students and institutional types from every region of the country.

Tables 9 through 12 indicate the degree to which NSSE 2000 participating institutions and respondents approximate

the characteristics of students enrolled at the participating schools as well as the national profile of all four-year colleges and universities. The source of the comparative data is the 1997–98 IPEDS database, the most recent complete data file available at the time of NSSE 2000 administration. Because the IPEDS data are now about three years old, the comparisons may not accurately reflect some institutional and student characteristics for the 1999–2000 academic year. For example, the proportion of women participating in higher education continues to grow annually so that the actual difference between NSSE 2000 respondents and undergraduates at NSSE 2000 schools may not be quite as large as the 8% shown in Table 12.

Profile of NSSE 2000 Institutions

Table 9 shows that NSSE 2000 schools mirror the national profile of four-year colleges and universities in terms of region of the country and location. However, NSSE 2000 institutions included more Doctoral Extensive and Baccalaureate Liberal Arts Colleges as defined by the 2000 Carnegie Classification of Institutions of Higher Education. NSSE 2000 was slightly over-represented by Doctoral Extensive, Doctoral Intensive, and Master's Colleges and Universities (65% for NSSE and only 60% nationally). However, these three institutional types enroll more than three-quarters of all undergraduates. At the same time, ample numbers of smaller, independent colleges also took part in NSSE 2000, insuring that the results would reflect the experiences of a broad cross-section of students attending four-year colleges and universities from all regions of the country.

Table 9. Comparison of NSSE 2000 Institutions and All Four-Year Colleges and Universities

	NSSE 2000	National
<i>Carnegie 2000 Classification*</i>		
Doctoral-Extensive	17%	10%
Doctoral-Intensive	8%	8%
Master's Colleges and Universities	40%	42%
Baccalaureate Liberal Arts	19%	15%
Baccalaureate General	14%	21%
Baccalaureate/Associate Colleges	1%	2%
<i>Sector</i>		
Public 4-year	46%	3.5%
Private 4-year	54%	69.5%
<i>Region</i>		
US Service Schools	N/A	.3%
New England	6.5%	9.3%
Mid East	25%	18.8%
Great Lakes	19.9%	15.4%
Plains	10.5%	11.1%
Southeast	20.7%	22.9%
Southwest	6.9%	7.2%
Rocky Mountains	4%	2.3%
Far West	6.5%	9.8%
Outlying Areas	N/A	2.8%
<i>Location</i>		
Large city (>250,000)	22.1%	21.8%
Mid-size city (<250,000)	30.8%	27.0%
Urban fringe large city	16.7%	17.0%
Urban fringe small city	5.8%	7.5%
Large town (>25,000)	4.3%	3.4%
Small town (2,500-25,000)	15.6%	14.9%
Rural	4.7%	5.5%

Source: 1997 IPEDS Enrollment Data File

* The totals for these categories do not include Carnegie classes below the baccalaureate level.

Table 10. Characteristics of NSSE 2000 Respondents

Age	Freshmen		Seniors		NSSE 2000	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
19 or younger	26,295	86%	63	1%	26,358	42%
20-23	2,479	8%	21,142	64%	23,621	37%
24-29	636	2%	5,507	17%	6,143	10%
30-39	563	2%	3,245	10%	3,808	6%
40-55	428	1%	2,565	7%	2,993	5%
Over 55	45	1%	231	1%	276	0%
Total	30,446	100%	32,753	100%	63,199	100%
<i>Enrollment</i>						
	Freshmen		Seniors		NSSE 2000	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than half-time (less than 2 courses/term)	406	2%	1,359	4%	1,765	3%
About half-time (about 2 courses/term)	646	2%	2,562	8%	3,208	5%
Almost full-time (3-4 courses/term)	1,307	4%	2,603	8%	3,910	6%
Full-time	28,023	92%	26,088	80%	54,111	86%
Total	30,382	100%	32,612	100%	62,994	100%
<i>Living Arrangements</i>						
	Freshmen		Seniors		NSSE 2000	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Dormitory or other campus housing (not fraternity/sorority)	20,748	68%	6,604	20%	27,352	43%
Residence (house, apt, etc) w/in walking distance of campus	1,173	4%	6,900	21%	8,073	13%
Residence (house, apartment, etc.) within driving distance	8,165	27%	18,250	56%	26,415	42%
Fraternity or sorority house	256	1%	848	3%	1,104	2%
Total	30,342	100%	32,602	100%	62,944	100%

Table 11. Characteristics of NSSE 2000 Respondents

<i>Majors*</i>	<i>Freshmen</i>		<i>Seniors</i>	
	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
Agriculture	261	.9%	287	.9%
Biological/life sciences	3,260	10.7%	2,915	8.9%
Business	5,447	17.8%	6,217	18.9%
Communication	2,213	7.2%	2,032	6.2%
Comp. & infor. sciences	2,298	7.5%	2,148	6.5%
Education	4,197	13.7%	4,843	14.7%
Engineering	1,935	6.3%	1,754	5.3%
Cultural studies	293	1.0%	378	1.2%
Foreign languages	1,174	3.8%	1,077	3.3%
Health-related fields	3,079	10.1%	3,372	10.3%
Humanities	2,037	6.7%	2,513	7.6%
Liberal/General studies	532	1.7%	826	2.5%
Mathematics	867	2.8%	811	2.5%
Multi/interdisci. studies	601	2.0%	805	2.4%
Parks, rec., & sports mgmt.	354	1.2%	456	1.4%
Physical sciences	982	3.2%	1,056	3.2%
Public administration	486	1.6%	501	1.5%
Social sciences	4,838	15.8%	6,610	20.1%
Visual & performing arts	2,344	7.7%	2,035	6.2%
Undecided	2,664	8.7%	32	.1%
Fashion	156	.5%	132	.4%
Architecture	202	.7%	160	.5%
Criminology	158	.5%	168	.5%
Social Work	95	.3%	254	.8%
<i>Other Postsecondary Education</i>				
	<i>Freshmen</i>		<i>Seniors</i>	
	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
Vocational-technical school	522	1.7%	655	2.0%
Community college	1,493	5.0%	6,169	19.2%
4-year college other than this one	1,251	4.2%	4,491	14.0%
None	25,248	84.9%	15,029	46.8%
Other	582	2.0%	1,145	3.6%
Multiple schools	655	2.2%	4,597	14.3%
Total	29,751	100%	32,086	100%

* Students could check more than one major, so the percentages exceed 100%.

Profile of NSSE 2000 Respondents

In Table 12, the first column represents NSSE 2000 respondents, the second column shows the characteristics of students at the four-year schools that participated in NSSE 2000 as reflected by 1997 IPEDS data, and the third column represents the national profile of students at four-year colleges and universities from the 1997 IPEDS file.

Class. Of the 63,383 respondents, 30,890 (49%) were students in their first year of college and 32,493 (51%) were seniors.

Gender. Women made up two-thirds (67%) of the respondents compared with 59% of the students enrolled at NSSE 2000 schools and 57% nationally (Table 10). The larger proportion of women respondents is consistent with the widely reported survey research phenomenon that women are more likely than men to return questionnaires. However, the percentages of men and women responding via the Web (59% women, 41% men) more closely matched the national enrollment profile.

Age. Students 19 years of age or younger made up the largest proportion (42%) of respondents, reflecting the fact that half the students selected to receive the survey were in their first year of college. Thirty-seven percent were 20–23; 10%, 24–29; and 11%, 30 years of age or older (Table 10).

Race and ethnicity. White students and African American students were somewhat underrepresented (Table 12).

Enrollment status. About 86% of all students were enrolled full time (Table 10). More than a third (36%) of all students had attended one or more other institutions in addition to the one at which they were currently enrolled (Table 11). Of this group of multiple-institution attenders, 53% had gone to a community college, 42% to another four-year college, 12% to a vocational–technical school, and 12% to some other form of postsecondary education.

Table 12. Characteristics of NSSE 2000 Respondents, Students at NSSE 2000 Institutions, and Students at All Four-Year Institutions

	NSSE Respondents	All NSSE 2000 Schools	National
<i>Gender</i>			
Men	33.4%	41.3%	43.3%
Women	66.6%	58.7%	56.7%
<i>Race/Ethnicity</i>			
African American/Black	6.8%	8.4%	10.5%
American Indian/Alaska Native	1.5%	N/A	N/A
Asian/Pacific Islander	5.6%	3.7%	3.6%
Caucasian/White	77.5%	82.3%	79.7%
Hispanic	7.2%	5.6%	6.3%
Other	4.9%	N/A	N/A
Multiple	3.8%	N/A	N/A
<i>Enrollment Status</i>			
Full-time	85.9%	80.3%	77.7%
Part-time	14.1%	19.7%	22.3%

Living arrangements. Forty-four percent (44%) of all students lived in campus housing (69% first-year students, 20% seniors). The remainder lived within driving distance (41%), within walking distance (13%), or in a fraternity or sorority house (2%). (Table 10)

Major field. The percentages of students majoring in different fields exceeds 100% as students could indicate more than one major, if applicable. In fact, about 27% of students reported that they had two or more majors. Women were overrepresented in health-related fields, social sciences, and education and underrepresented in computer and information sciences, engineering, mathematics, and business. (Table 11)

Mode of Administration

NSSE 2000 was a mixed-mode survey, utilizing both mail and Internet formats. Students at the majority of participating colleges and universities (n=223 or 81%) were given the option to respond via a traditional paper questionnaire or

via the Internet, while students at 53 (n=53 or 19%) schools were given only the option to complete the survey online.

NSSE 2000 survey procedures followed the basic recommendations of Salant and Dillman (1994) with personalized contacts, repeated mailings, and pre-paid return envelopes. Students at standard administration colleges and universities were cordially addressed by an official at their own institution in a cover letter on the institution's letterhead. The cover letter asked students to complete the enclosed survey and to return it in a postage-paid envelope, or to consider using the URL and unique login codes provided to complete the survey online. Aggressive follow-up activities occurred throughout the data collection period. Non-respondents at standard administration institutions received a brief reminder follow-up (approximately half of the non-respondents were sent a postcard reminder and the rest were sent a reminder via e-mail),

a second full survey packet with cover letter and another paper survey, and another e-mail follow-up when possible. All follow-up activities with Web-only schools were distributed via e-mail.

Students at Web-only administration institutions were treated similarly, with personalized e-mail invitations and at least three follow-ups sent by e-mail. With each e-mail contact, the URL for the online survey and the student's unique login codes were embedded within the message. A detailed analysis of potential mode effects between paper and Web is included later in this section. Two Web-only institutions that originally were included were dropped from the NSSE 2000 program due to technical problems that inhibited their students from responding via the Web.

Response Rates

The overall response rate for the NSSE 2000 administration was 42%. When we examine the response rate by administration mode, schools that employed the Web version of the instrument had a 40% overall response rate versus 43% at schools whose administration was primarily paper. The 42% overall response rate for NSSE 2000 is comparable to the 43% response rates realized in the 12-institution spring 1999 field test and the 56-institution fall 1999 pilot study. However, the NSSE 2000 response most likely underestimates the actual adjusted rate. Student postal service and e-mail addresses were based on fall 1999 enrollment information provided by the institutions. An unknown number of students in the sample were no longer eligible to complete the survey because they had dropped out or transferred to another institution. Even though first-class postage

Table 13. Breakdown of Response Rates

	Standard Administration			Web-Only		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum
All NSSE Institutions	43.1%	19.5%	75.0%	40.2%	17.1%	70.0%
Doctoral-Extensive Universities	40.9%	31.8%	69.3%	34.7%	24.4%	46.0%
Doctoral-Intensive Universities	40.6%	28.9%	64.1%	29.5%	27.3%	31.0%
Master's Institutions	43.1%	30.2%	60.4%	35.3%	17.1%	53.0%
General Colleges	43.5%	19.5%	70.7%	40.2%	18.6%	70.0%
Liberal Arts Institutions	46.8%	28.7%	75.0%	48.2%	31.3%	63.4%

NSSE 2000 Strategies to Increase Response Rate

Response rates are in part a function of the number of times a student is contacted and encouraged to complete the survey (Salant and Dillman, 1994). Multiple cordial contacts with the student are likely to help realize a higher overall response rate. Institutions that participated in NSSE 2000 implemented a variety of local strategies to boost their response rate. These supplemented the standard measures taken by NSSE and the Indiana University Center for Survey Research. The local interventions ranged from more costly direct contacts with students (cash incentives, postcard reminders, prize drawings) to indirect contacts (flyers, newspaper ads, word-of-mouth advertising through student staff and organizations).

Below are the direct and indirect strategies that were used by some NSSE 2000 institutions to increase response rates.

Direct Contacts with Students

- Incentives (e.g., free sodas or other goods or services) for each respondent
- Personalized announcements and reminder letters from the president
- Personalized e-mail announcements and reminders
- Academic advisors mentioned the survey when meeting with their advisees
- Respondents entered in a drawing, with better prizes for early respondents

was used to guarantee the return of survey packets that could not be delivered, experience suggests that packets were not returned for some students who were no longer in school or living at the fall 1999 address. In addition, many students have multiple e-mail accounts (e.g., Yahoo!, AOL, Hotmail) and do not routinely use their institution-assigned e-mail, which was the electronic address where the invitation to participate in NSSE 2000 was sent for students attending Web-only schools. Therefore, the actual response rate for Web-only institutions, when corrected for the unknown number of students who were no longer in school or did not receive the invitation to participate, is probably several percentage points higher than 40%.

To determine the response rates, we first adjusted the number of surveys mailed or e-mailed to reflect bad addresses, deceased students, or “not applicable.” We then divided the number of surveys received by the adjusted number of surveys mailed or e-mailed. Students who were away or notified us that they refused to complete the survey remained as non-responders, therefore reducing

the overall response rate. As for students who reported the survey was not applicable, most of these students had already graduated or were no longer attending that institution.

Overall, the institutional response rates where students had the option of completing either the paper or the Web version of *The Report* ranged from 20% to 75%. At standard administration schools, the paper mode accounted for 39% to 97% of an institution’s respondents and the Web mode accounted for 3% to 61% of an institution’s respondents. Response rates for Web-only institutions ranged from 17% to 70%. Factors that may have affected the response rate at Web-only schools included whether or not students actually use their institution-assigned e-mail address, computer accessibility on campus (number of computer labs, internet connection in residence halls, etc.), and speed of computers. In all, about 36% of all respondents completed *The College Student Report* using the Web and 64% completed the paper version. Table 13 provides a breakdown of response rates by mode of administration and by Carnegie classification.

Indirect Contacts with Students

- Flyers posted on campus
- Faculty and staff members asked to discuss the importance of the survey and to prompt those who have direct contact with freshmen or seniors (in or out of class) to encourage them to fill it out
- Press releases, articles, and ads sent to the school newspaper.
- Residence hall staff asked to mention it at floor meetings and hall functions
- Student clubs and organizations asked to discuss it at meetings and functions

Interpreting NSSE Data

There are a number of different techniques that are used to better understand and interpret the meaning of NSSE items and benchmarks. In this section we describe the creation of the national benchmarks of effective educational practice, the weighting scheme used in producing the benchmarks, the findings from focus groups conducted to understand the clarity and meaning of NSSE survey items, the rationale for using effect size as the indicator of practically significant results, and our preliminary analysis of mode of administration (paper, Web) effects.

Creating the Benchmarks

Forty questions from *The College Student Report* capture many important aspects of the student experience related to learning and personal development. As mentioned earlier, we assigned each question to a cluster of similar type activities to develop five national benchmarks of effective educational practice.

The benchmarks were created with a blend of theory and empirical analysis. Initially, we conducted principal components analyses with oblique rotation. We also subsequently examined factors produced using an oblique rotation. The results were comparable. Then theory was employed to crystallize the final item groupings.

The five national benchmarks of effective educational practice are:

Level of Academic Challenge

Challenging intellectual and creative work is central to student learning and collegiate quality. Ten questions from *The College Student Report* correspond to integral components of academic challenge that represent the nature and amount of assigned academic work, the complexity of cognitive tasks presented to students, and the standards faculty members use to evaluate student performance. Specifically, these questions are related to:

- Preparing for class (studying, reading, writing, rehearsing).
- Reading and writing.
- Using higher-order thinking skills.
- Working harder than students thought they could to meet an instructor's standards.
- An institutional environment that emphasizes studying and academic work.



Active and Collaborative Learning

Students learn more when they are intensely involved in their education and have opportunities to think about and apply what they are learning in different settings. And when

students collaborate with others in solving problems or mastering difficult material they acquire valuable skills that prepare them to deal with the messy, unscripted problems they will encounter daily during and after college. The seven survey questions that contribute to this benchmark are:

- Asking questions in class or contributing to class discussions.
- Making class presentations.
- Working with other students on projects during class.
- Working with classmates outside of class to prepare class assignments.
- Tutoring or teaching other students.
- Participating in community-based projects as part of a regular course.
- Discussing ideas from readings or classes with others.

Student Interactions with Faculty Members

In general, the more contact students have with their teachers the better. Working with a professor on a research project or serving with faculty members on a college committee or community organization lets students see first-hand

how experts identify and solve practical problems. Through such interactions teachers become role models, mentors, and guides for continuous, life-long learning. The six questions used in this benchmark are:



experiences include internships, community service, and senior capstone courses that provide students with opportunities to synthesize, integrate, and apply their knowledge. As a result, learning is deeper, more meaningful, and ultimately

- Discussing grades or assignments with an instructor.
- Talking about career plans with a faculty member or advisor.
- Discussing ideas from readings or classes with faculty members outside of class.
- Working with faculty members on activities other than coursework (committees, orientation, student-life activities, etc.).
- Getting prompt feedback on academic performance.
- Working with a faculty member on a research project.

Enriching Educational Experiences

Educationally effective colleges and universities offer a variety of learning opportunities inside and outside the classroom that complement the goals of the academic program. One of the most important is exposure to diversity, from which students learn valuable things about themselves and gain an appreciation for other cultures. Technology is increasingly being used to facilitate the learning process, and—when done appropriately—can increase collaboration between peers and instructors, which actively engages students in their learning. Other valuable educational

more useful because what students know becomes a part of who they are. The 11 questions from the survey representing these kinds of experiences are:

- Talking with students with different religious beliefs, political opinions, or values.
- Talking with students of a different race or ethnicity.
- An institutional climate that encourages contact among students from different economic, social, and racial or ethnic backgrounds.
- Using electronic technology to discuss or complete assignments.

Participating in:

- internships or field experiences.
- community service or volunteer work.
- foreign language coursework.
- study abroad.
- independent study or self-designed major.
- co-curricular activities.
- a culminating senior experience.

Supportive Campus Environment

Students perform better and are more satisfied at colleges that are committed to their success and cultivate positive

working and social relations among different groups on campus. The six survey questions contributing to this benchmark describe a campus environment that:

- Helps students succeed academically.
- Helps students cope with non-academic responsibilities (work, family, etc.).
- Helps students thrive socially.
- Promotes supportive relations between students and their peers, faculty members, and administrative personnel and offices.

Scoring the Benchmarks

The benchmarks were created with a blend of theory and empirical analysis. Initially, we conducted principal components analyses with oblique rotations (see page 12 of this report for details). Then theory was employed to crystallize the final item groupings. Only cases that were part of the National Norms were included in institutional benchmarks (SMPL variable with values of 1 or 2); e.g., oversampled cases were not included in benchmark calculations.

Benchmarks for (1) level of academic challenge, (2) enriching educational experiences, and (3) supportive campus environment were constructed from items that did not have identical response sets, e.g., many of the items ran 1 to 4, others ran 1 to 5, and still others, 1 to 7. To make the response sets comparable between items that contributed to level of academic challenge and enriching educational experiences, we first determined which response set occurred most frequently among items that comprised each bench-

mark. For each item with a response set that was not the most frequently occurring set, we divided each student's response on the item by the maximum possible response on the item. Finally, we multiplied this quotient by the maximum possible response from the most frequently occurring response set, yielding a group of items with identical maximum values. For instance, the most frequently occurring response set on items contributing to academic challenge ran 1 to 4. We divided each student's response on the item, "Preparing for class" by seven and multiplied this quotient by four. Similarly, for "Number of assigned textbooks," "Number of written papers or reports of 20 pages or more," and "Number of written papers and reports of fewer than 20 pages," we divided each student's response by five and multiplied the quotient by four. The benchmark for supportive campus environment was comprised of equal numbers of items with 1 to 4 and 1 to 7 response sets; we used the 1 to 4 set as the standard.

Enriching educational experiences contained six items (internships, community service or volunteer work, foreign language coursework, study abroad, independent study, and culminating senior experience) that were recoded prior to creating the bench-

mark. Specifically, we recoded "undecided" student responses on all six items to missing. In turn, we coded "no" responses as 1 and "yes" responses as 2. After this recoding, response sets for items contributing to enriching educational experiences were made comparable as described in the preceding paragraph.

After ensuring that response sets were comparable for items at the student level, we created the benchmarks at the institutional level. Specifically, weighted institutional means were obtained for each item for both first-year students and seniors. In other words, we aggregated student responses from each school into weighted means on each item. Next, institutional means for each item were summed to obtain five raw institutional benchmarks for both first-year students and seniors. Finally, we equalized the raw institutional benchmark metrics by transforming each raw benchmark onto a 100-point scale. To do this, we took the difference between each raw institutional benchmark and the minimum score possible on that benchmark, divided by the maximum possible range on the benchmark, and multiplied by 100 percent. The formula to convert raw institutional benchmarks into benchmarks on 100-point scales is:

National Report Weighting Scheme

In order to increase the likelihood that the national benchmark results would mirror each institution in terms of student representativeness, student cases were weighted for gender and enrollment status (full-time, less than full-time) with a post-stratification weighting algorithm to minimize non-response bias (Little, 1993). This resulted in the creation of four cells for first-year students and another four cells for seniors. The weight for student cell b is given by: $w_h = rP_h/r_h$

Where r is the total number of institutional respondents of a given class, P_h is the Fall 1997 IPEDS institutional proportion corresponding to cell b , and r_h is the number of institutional respondents in cell b . The Fall 1997-98 IPEDS data were the most recent available when *The NSSE 2000 Report* went to press.

If gender or enrollment status could not be determined for a particular student, no weight was assigned to this student. There were 3.8% missing values for student-reported gender. However, using gender provided by the institution when student-reported gender was unavailable, we were able to reduce the

$$\text{Final Benchmark} = \frac{(\text{Raw Institutional Benchmark}) - (\text{Minimum Possible Raw Institutional Benchmark})}{(\text{Maximum Possible Raw Institutional Benchmark}) - (\text{Minimum Possible Raw Institutional Benchmark})} \times 100\%$$

percentage of missing values for gender to .2%. In addition, .7% of the student-reported values for enrollment status were missing. In total, we were unable to assign weights to 529 students out of 63,413 because of missing values for gender or enrollment status (.8%). Further, 132 students (.2%) were not assigned weights because their corresponding institutional IPEDS proportion was zero for their particular cell. If a student was not assigned a weight, the student was not included in the calculation of institution benchmarks.

In general, missing weights did not result in a substantial loss of information at each institution. However, 10 institutions had between 5 and 10 percent missing weights for their first-year students. In addition, one institution lost 29% of its first-year students due to missing weights. For this institution, we conducted t-tests to investigate whether students with weights had significantly different benchmark scores than students without weights. We found that means for each of the five benchmarks did not differ significantly for these two student groups ($p < .05$, equal variances assumed). Among seniors, five institutions had between 5 and 10 percent missing weights. Two other institutions had 12–15% missing weights. T-tests of mean difference for these two institutions suggest that students with weights and those without do not differ significantly on any of the five benchmarks ($p < .05$, equal variances assumed).

Part-time Adjustment for Academic Challenge Benchmark in National Report

Post hoc, one-way ANOVA tests (using Sheffe and Dunnett's C methods) indicate that, on average, the greater the number of courses students enroll in, the more they 1) write papers of less than 20 pages, 2) write papers of more than 20 pages, 3) read books for class, and 4) prepare for class. In other words, full-time students score higher on these four items than three-quarter time counterparts, three-quarter time students score higher than half-time counterparts, and half-time students score higher than those enrolled at less than half-time.

Overall, NSSE 2000 institutions did not vary a great deal in their percentages of part-time respondents; i.e., respondents enrolled less than full-time (mean=8.4 percent, standard deviation=10.7 for first-year students, mean=19.0 percent, standard deviation=16.0 for seniors). However, there are a small number of institutions with much higher percentages of part-time respondents. For example, part-time respondents comprised greater than 50% of first-year respondents for seven institutions, and more than 50% of seniors for 12 institutions. Given the one-way ANOVA results, institutions with many part-time students should score lower on these four items, *ceteris paribus*. To compensate, we adjusted the responses of part-time students at each school to resemble those of full-time students on each of the four items.

To compute part-time adjustments, we first calculated mean scores for each institution by class and enrollment on each of the items. To calculate the adjustment for three-quarter time students on a particular item, we divided the institutional mean for full-time students by the institutional mean for three-quarter time students. If the ratio was greater than unity, it meant that full-time students scored higher than three-quarter time students at this institution, on average. The item responses of three-quarter time students at this institution were then multiplied by this ratio greater than unity. If, for a particular student, the resulting product was greater than the maximum possible score on that item, the student's score was capped at the maximum. In contrast, if the ratio was less than unity, an uncommon occurrence, no adjustment was applied to three-quarter time responses on this item. Similar ratios were calculated and applied for half time and less-than-half-time students for each of the four items.

Focus Groups

We conducted focus groups between March and May 2000 at eight colleges and universities that participated in NSSE 2000. These institutions included: Colgate College, Eckerd College, New Mexico State University, Randolph—Macon Woman's College; St. Lawrence University, Southwest Texas State University, The University of Texas at Austin, and University of Missouri—Columbia. The site visits were two to

four days in duration, with three to six student focus groups per campus averaging six students per group. Most of the students were first-year students or about-to-graduate seniors.

The purpose of this study was to discover the meaning students make of the items on the *NSSE College Student Report*. More specifically, do students interpret the questions consistent with what was intended by the NSSE design team? What is the frequency of behavior or activity that students associate with various response options, such as “very often,” “often,” or “never?” Are the queries clearly worded and specific enough to produce reliable and valid information? Finally, do the items and response categories accurately represent students’ behaviors and perceptions with how they—in their own words—describe their college experiences? The answers to these questions, especially the last one, are very important to the validity and credibility of college student research because much of what we know about the undergraduate experience is based on student self-reports.

We recruited participants by providing a NSSE institutional liaison with a list of 200 students from their school who were in the NSSE 2000 sample and asked them to personally invite students to participate in the focus groups. When time permitted, the liaison was encouraged to use reminder e-mails, flyers, and phone calls to insure a strong turnout. In the few instances when this approach did not yield enough participants, we asked the liaison to invite other interested first-year students and seniors. To encourage participation, a \$10 phone

card or a bookstore gift certificate was provided as a token of appreciation as suggested by Krueger (1994). The number of students participating in each focus group ranged from 1 to 17 students, for a total of 221 student participants. More women (73%) and first-year students (49%) participated than men (26%) and seniors (45%). Approximately 37% were students of color.

The focus groups lasted between 75 to 90 minutes. To create a welcoming atmosphere, we provided snacks and beverages during the focus groups. Adapting a format suggested by Krueger (1998), the first 10 minutes consisted of introductions and a brief overview of the background and purposes of the focus group. During the next 10 minutes we read up to 10 items from *The Report* and asked students to record their answers in their own words on an index card. Next, we asked students to complete *The Report* to familiarize them with the items and response categories in order to facilitate a rich, informed, and nuanced discussion. This step was important because not all participants had been selected for their school’s random NSSE sample; thus, they had not completed the instrument. This also helped to refamiliarize those who had previously completed the instrument with the items and answer categories. The remaining time was devoted to discussing the cover letter and survey process, the instrument, specifically students’ interpretations of the instructions, items, and response categories.

Overall, students interpreted the response categories on *The College Student Report* in similar ways. While respondents varied somewhat in their interpretations, the focus groups revealed a general consensus for the vast majority of items. For example, when students marked “very 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 frequency. When answering the “made a class presentation” item, “very often” meant about once a week (Table 14). In addition, the meaning of the response categories were item specific; that is, the meaning of “very often” to one question did not necessarily represent the same frequency of occurrence as another item.

Once the NSSE research team digested the focus group findings, we used the information to guide and inform revisions to the 2001 version of *The College Student Report* and to assist in the preparation of *The NSSE 2000 Report: National Benchmarks of Effective Educational Practice*. Specifically, we worked closely with survey expert, Don Dillman (2000) to redesign *The Report* so that it had a more inviting look and feel. In addition, we improved and shortened the instructions, and modified a small number of items with additional prompts to guide students in their interpretations. For additional detail about the focus group project, see the Ouimet, Carini, Kuh, and Bunnage (2001) paper on the NSSE Web site.

Table 14. Selected Focus Group Responses to College Activity Items

<i>Item</i>	<i>Response Category</i>		
	<i>Very often</i>	<i>Often</i>	<i>Occasionally</i>
Asked questions in class or contributed to class discussion	Every class	Every week	Every other class
Used e-mail to communicate with an instructor or other students	2–3 times per week	2 times per week	1–2 times per week
Made a class presentation	Once per week	7–10 times per semester	1–2 per semester
Rewrote a paper or assignment several times	Rewrite 75–100% of papers or assignments	Rewrite 50–75% of papers or assignments	Rewrite 25% of papers or assignments
Came to class unprepared	Daily	1–2 per week	2–3 times per semester
Worked with other students on projects during class	Weekly	Every other week	1–2 per semester
Worked with classmates outside of class to prepare class assignments	1–2 per week	5–6 per semester	2–3 per semester
Tutored or taught other students	Weekly	Every other week	1–2 per semester
Participated in a community-based project as part of a regular course	Weekly	In at least one class	1–2 times per semester
Used an electronic medium (e-mail, list-serve, chat group, etc.) to discuss or complete an assignment	Daily	Weekly	1–2 per month
Discussed grades or assignments with an instructor	Once per week	Once every 2–3 weeks	1–2 per semester
Talked about career plans with a faculty member or advisor	Weekly	1–2 per semester	1–2 per semester
Discussed ideas from your reading or classes with faculty members outside of class	3–4 times per week	Once per week	1–2 per month
Received prompt feedback from faculty on your academic performance	Weekly	2–3 times per month	1–2 per semester
Worked with a faculty member on a research project	Daily	Once per week	Once per semester
Worked with faculty members on activities other than coursework (committees, orientation, student-life activities, etc.)	Weekly	Monthly or bi-weekly	More than once
Discussed ideas from your reading or classes with others outside of class (students, family members, co-workers, etc.)	Daily	1–2 per week	Once every 2–3 weeks
Had a serious conversation with other students whose religious beliefs, political opinions, or personal values were very different from yours	Daily	Every other day	1–2 per month
Had serious conversations with student of a different race or ethnicity than your own	Daily	Every other day	1–2 per month

Cognitive Testing Interviews

During the summer and early fall of 2000 we used the 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 redesigned the look by substituting check boxes for the traditional bubbles so the instrument looked less like a test. 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:

- 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.
- All of the respondents found the directions and examples helpful.
- 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).
- Several students were not entirely sure who was included in the survey item dealing with relationships with administrative personnel.
- Of the 20 students who discussed the Web versus paper survey option, 9 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, 9 other students indicated that they preferred the paper version, and the remaining 2 students were undecided. This suggests that it is important to offer students alternative modes to complete the survey.

The results of the cognitive interviews suggest that respondents to *The College Student Report* 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.

Effect Sizes

Because of the large numbers of students in NSSE 2000, we set the level of statistical significance at a high level ($p < .001$) to reduce the probability that differences would occur by chance. Even so, the

actual magnitude of some item score differences may seem trivial (.2 or .3), even though they are highly reliable and statistically significant. For this reason, NSSE institutional reports reported the effect sizes associated with those item comparisons that were

statistically significant. This standardized mean difference (Cohen's d) was calculated by subtracting the comparison group mean from the institution mean and dividing by the comparison group's standard deviation (Cohen, 1988). Thus, the mean differences were evaluated in terms of standard deviations. A similar approach was used in NSSE's institutional benchmark reports.

This effect size analysis helps identify areas where real differences may exist between institution's students and their



counterparts at other schools. That is, the magnitude of the discrepancy in the student or institutional behavior represented by the item is such that this may be an area where the quality of the student experience is appreciably different and, therefore, may be of practical as well as statistical significance.

The general guidelines for determining the relative importance of an effect size is that .20 is a small effect, .50 is a medium effect, and .80 is a large effect (Cohen, 1988). Finding large effect sizes is not that common in most areas of non-experimental educational and social science research including the NSSE project. Thus, if institutional results include some medium or large effects, something out of the ordinary may be occurring, especially if other empirical or anecdotal information corroborate NSSE data.

Mode Effects

We analyzed NSSE 2000 to determine if students who completed the survey on the Web responded differently than those who responded via a traditional paper format. All told, we analyzed responses from 56,501 students who had complete data for all control variables. Specifically, our sample included 9,933 students from Web-exclusive institutions and another 10,008 students who received a paper survey, but exercised the Web option. We present results from multivariate ordinary least squares (OLS) and logistic regressions. We controlled for the following student and institutional characteristics that may be linked to both engagement and mode: class, enrollment

Table 15. 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.
Academic challenge	.916***	.06	.594***	.04	.322	NS ^e
Active/collaborative learning	2.781***	.18	1.900***	.13	.881***	.05
Student-faculty interaction	.930***	.05	1.536***	.09	-.606	NS
Enriching educational experiences	2.049***	.12	1.323***	.08	.726	NS
Supportive campus environment	.975***	.05	1.063***	.06	-.088	NS
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
SYNTHESZ	.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

*** 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 Profiles of American Colleges admissions selectivity, urbanicity, and academic support per student

^cNs range from 29,028 to 56,457

^dE.S.=Effect Size (y-standardized coefficient for OLS regression; discrete 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 15 (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.
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
INTERN ^g	1.078	NS	.986	NS	1.094	NS
VOLUNTER ^g	1.113	NS	.972	NS	1.145***	.15
INTRDISC ^g	1.119***	.12	1.051	NS	1.065	NS
FORLANG ^g	1.133***	.13	.978	NS	1.159***	.16
STUDYABR ^g	.951	NS	.969	NS	.981	NS
INDSTUDY ^g	.901	NS	.978	NS	.930	NS
SENIORX ^g	.889***	-.12	.975	NS	.912	NS
NGENLED	-.003	NS	.021	NS	-.024	NS
GNWORK	.099***	.10	.041***	.04	.058***	.06
GNWRITE	-.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 Profiles of American Colleges admissions selectivity, urbanicity, and academic support per student

^cNs range from 29,028 to 56,457

^dE.S.=Effect Size (y-standardized coefficient for OLS regression; discrete 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)

status, housing, gender, age, race/ethnicity, major field, 2000 Carnegie Classification, sector, undergraduate enrollment from IPEDS, Barron's Profiles of American College (2000) admissions selectivity, urbanicity from IPEDS, and academic support expenses per student from IPEDS.

While we considered hierarchical modeling techniques, we do not present their results here for several reasons. First, where only effect magnitudes are of interest and intraclass correlations are small, OLS regression and hierarchical linear models yield similar results (Ethington, 1997). OLS regressions will likely produce biased standard errors for this sample, but given the statistical power accompanying our large N, we did not rely only on tests of significance to reach conclusions. Instead, we computed effect sizes to ascertain if mode coefficients achieved practical import. Further, the intraclass correlations for NSSE 2000 items are very small; the percentage of the variance that exists between institutions is typically between 3 and 10 percent. While these intraclass correlations are modest, they are generally consistent with those reported by others in higher education (Ethington, 1997; Pascarella and Terenzini, 1991). Finally, hierarchical models cannot be used to compare Web-only versus paper respondents within Web-only institutions. This is obviously because there are no paper respondents at Web-only institutions; as a result, there is no within-school variance on the mode variable. However, in analyses not shown there, we found similar patterns for the Web-option versus paper contrast whether we used hierarchical or OLS regressions. Finally, for all survey items, we applied post-stratification weights at the student level to minimize

nonresponse bias related to gender and enrollment status. For the benchmarks, we performed unweighted analyses due to the distortions associated with rescaling weighted student responses to a 100-point scale.



We analyzed Web-only and Web-option separately since they involve different processes. In particular, the Web-option stems from an individual's decision to put aside the paper survey and access the NSSE Web site. When we predicted Web-option with a multivariate logistic regression (not shown here), the following variables were found to increase the odds of selecting the Web-option by at least 25 percent over their range: living on campus, being younger, male, or Caucasian, majoring in math and science fields or having multiple majors, and attending a more selective institution or one that invests more in academic support per student. Those who exercise the Web-option are likely among the more computer-savvy students. Even though Web-option is ultimately a student's decision, it is clearly filtered through institutional characteristics such as the availability and quality of on-campus computers and email. In contrast, Web-only responses are initially shaped by an institutional decision to administer via the Web. Yet, it is likely that student agency remains operative: varying student enthusiasm for computing technology likely sways whether a particular student completes the survey.

As Table 15 shows, we regressed each benchmark and item on survey mode and all controls. We analyzed Web-only (Model 1) and Web-option (Model 2)

separately against paper. Finally, we compared Web-only against Web-option in Model 3. For all benchmarks and 39 of the 67 items, the unstandardized coefficients for Model 1 were more favorable for Web-only over paper and

statistically significant. In this tally, we excluded the positive effect for CLUNPREP, since coming to class unprepared more often works against effective educational practice. In addition, we included the negative effect for WORKOFF, which is inversely linked to student engagement (Astin, 1993; Pascarella and Terenzini, 1991). For Model 2, all benchmarks and 40 of the 67 items showed favorable and statistically significant effects for Web-option over paper. For Model 2, we interpreted the positive effects for WORKON and SOCIAL as favorable educational outcomes, although clearly too much of either leads to diminished engagement. In contrast, there are only eight 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. Indeed, if selection processes are accounted for by appropriate control variables, response differences between these two administration types should disappear.

To ascertain whether these generally favorable Web effects achieve practical as well as statistical significance, we computed effect sizes for OLS regressions by computing y -standardized coefficients, i.e., dividing the unstandardized coefficient by the standard deviation of the item for paper-mode respondents

(Glass, 1977; Light and Pillemer, 1982). For logistic regressions, we computed the discrete change in predicted probabilities for each mode for the "average" NSSE student at the "average" NSSE school. Specifically, we predicted probabilities at median values for interval and ratio control variables, and at mode values for categorical controls. As depicted in Table 1, effect sizes for most benchmarks and items in both Model 1 and Model 2 are small—generally .15 or less. Exceptions for Model 1 include: ITACADEM (.32), EMAIL (.25), CLASSGRP (.24), GNCMPTS (.20), active/collaborative learning (.18), and OCCGRP (.18). Model 2 displays only two effects larger than .15: ITACADEM (.20), and CLASSGRP (.20). In analyses not presented here, we examined incremental changes in R^2 by introducing the mode variable last into multivariate models. For logistic regressions, we examined differences in adjusted count R^2 (Long, 1997). For all but 4 of the 67 items, the improvement in variance explained was less than .005 after mode was added. The largest R^2 improvement was for ITACADEM (.012).

Interestingly, effect sizes for three computer-related items (EMAIL, ITACADEM, and GNCMPTS) were among the largest, with responses to Web modes more favorable than to paper. Although our models took into account many student and school characteristics, 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 "wired" campuses who are, in fact, more exposed to a greater array of

computing and information technology. For example, Hu and Kuh (2000) found that undergraduates attending “more wired” campuses as determined by the Yahoo!’s “America’s Most Wired Colleges” surveys more frequently used computing and information technology than their counterparts at less-wired campuses. While the academic support measure used here included computing support, and was a predictor of whether students exercised the Web-option in these data, it may not fully capture the state of computing technology at particular campuses. We explored this possibility by employing data from “America’s Most Wired Colleges 2000” (Yahoo! Internet Life 2001) in supplementary analyses. Unfortunately, raw scores are publicly available only for the top scoring 300 colleges and universities. We added the wired measure as an additional control for these three computing items using only the 77 NSSE 2000 schools with publicized “wired” scores. With the range on the wired variable restricted to only the highest scoring schools, the coefficients for used e-mail, electronic media for class, and college gains: computing changed little after the introduction of the wired variable. Thus, the favorable Web-effects for computing-related items do not appear to be shaped by the degree of wiredness for schools from

“America’s Most Wired Colleges” that also participated in NSSE 2000. The implication for our analysis is not clear; we cannot judge whether we would find such stability in mode effects across less-wired schools.

The possibility of mode effects for computer-oriented items clearly merits further study. It would also be profitable to explore the meanings and implications of computer usage, such as whether extensive use of computers by college students may have positive or negative implications depending on the nature of the application (e.g., surfing the Web for pleasure, playing games and developing personal Web pages contrasted with seeking additional relevant sources for class papers and projects). In particular, to the extent that computing applications are substituted for face-to-face social interaction, they might be viewed as less positive outcomes (Gatz and Hirt, 2000; Kuh and Vesper, 2001). For instance, Gatz and Hirt (2000) suggest e-mail may not wield an academic or socially integrative role on campus, but may instead signal a more passive and indirect form of communication. One exception to this more passive student voice via e-mail often occurs if the content involves a confrontational message. Further, their research suggests that many students

consider e-mail to be an impediment or distraction to completing coursework.

Our analysis of NSSE 2000 suggests that responses of college students to Web and paper surveys, when they differ, typically exhibit small distinctions. These findings, especially for items unrelated to computing and information technology, generally dovetail with studies in single postsecondary settings (Layne, DeCristoforo, and McGinty, 1999; Olsen, Wygant, and Brown, 1999; Tomsic, Hendel, and Matross, 2000). However, it would be premature to conclude that survey mode does not shape college students’ responses. First, while we generally found small differences, responses tend to be more favorable for Web over paper on a majority of items. Second, items pertaining to computing and information technology exhibited some of the largest effects favoring Web. Finally, there may be specific populations of students wherein mode wields different effects than seen here. In auxiliary multivariate analyses, we found little evidence for mode-age (net of differential experiences/expectations attributable to class) or mode-gender interactions, suggesting that mode effects are not shaped uniquely by either student characteristic.

NSSE PROJECT INFORMATION

Participating in NSSE

All public and private year four-year colleges and universities are eligible to participate in the annual administration of the NSSE survey. Normally institutional participation is confirmed on a “first-come, first-serve” basis.

Depending on how participating schools incorporate NSSE into their overall assessment program, some colleges and universities will want to participate every third or fourth year and others will decide to participate annually for a several-year period.

Other survey programs can be used to articulate with NSSE. Included among these are the Cooperative Institutional Research Program (CIRP), Student Information Form (Freshman Survey), and College Student Survey administered by the UCLA Higher Education Research Institute (HERI), and the College Student Experiences Questionnaire (CSEQ) and the College Student Expectations Questionnaire out of Indiana University’s Center for Postsecondary Research and Planning. NSSE staff can assist institutions in identifying which students have been randomly selected for NSSE in the event the school is administering multiple

In order to maintain a current set of comparable and credible national and sector benchmarks, NSSE’s goal is to maintain a “fresh data set” from about 1,000 different colleges and universities.

surveys in the same year, thereby reducing over-surveying to a degree.

In order to maintain a current set of comparable and credible national and sector benchmarks, NSSE’s goal is to maintain a “fresh data set” from about 1,000 different colleges and universities. The shelf life of NSSE data is estimated to be three to four years,

meaning that the general results from any given campus will not change substantially within that period of time. In its first two years of administration, just under 500 different college and universities participated. A list of these institutions by NSSE program year and Carnegie type is included in Appendix A.

Although only four-year institutions are invited to participate in NSSE, a new Community College Survey of Student Engagement (CCSSE) is currently under development. For more information on this project, please contact the NSSE office or check www.ccsse.org for more information.

Registration

Institutions can register for NSSE online at www.iub.edu/~nsse. Space is limited so we encourage colleges and universities to register early the preceding

summer. To enroll, an institutional representative needs to:

- Provide information about the institutional contact (address, e-mail, phone, fax).
- Electronically sign the Institutional Participant Agreement.
- Select survey administration mode and sample size.
- Agree to pay a non-refundable institutional participation fee (even if for some reason the institution must withdraw before the survey begins).

Participation Agreement

In order to participate, institutions must agree to the following:

- Institutions can use their NSSE data for internal and external institutional purposes.
- NSSE results specific to the institution and identified as such will not be made public except by agreement between the NSSE project and the institution.
- NSSE project staff will use the data in the aggregate for national and sector reporting purposes and other undergraduate improvement initiatives.

Administration

The NSSE is administered to first-year students and seniors at participating institutions. Administration is typically a four-step process.

Step 1: Institution chooses mode of survey administration, either standard or Web-only.

- **Standard version.** Students receive a paper invitation to participate, a hard copy of *The Report*, and the option of completing a Web version of *The Report*.
- **Web-only version.** Students receive most correspondence by e-mail and complete the Web version of *The Report*. Requires an accurate list of student e-mail addresses.

Administering a Web-only survey may not be appropriate at some colleges and universities. NSSE designed a Web decision-making tree to assist institutions in making a correct choice in terms of which mode of administration to choose. Please refer to Table 16.

Step 2: Institution provides information and materials to NSSE.

The participating college or university is required to send the following to NSSE:

- An institutional data file of ALL first-year and senior students—NSSE selects a random sample from this file.
- Customized “invitation to participate” and “follow-up” letters endorsed by an institutional representative (e.g., president, chief academic officer, dean of students, etc.). NSSE provides samples of these letters. The letters are included with the surveys when they are mailed. An “announcement letter” is sent to students at Web-only institutions to alert them of the e-mail invitation and follow-up.

**Table 16. Web Decision-making Tree
Should Your Institution be Standard or Web-only?**

- *Standard version.* Students receive a paper invitation to participate, a hard copy of *The College Student Report*, and the option of completing a Web version of *The Report*.
- *Web-only version.* Students receive all correspondence by e-mail and complete the Web version of *The Report*. Requires an accurate list of student e-mail addresses.

Start here. Consider answering “yes” if the following are true:

1. Does your institution have accurate e-mail addresses for all students?

- Students have institutionally assigned e-mails OR you have accurate e-mail addresses for your students.
- Your students use an e-mail system from which they can click on an embedded link (URL) to the NSSE survey.
- Students maintain their own e-mail addresses on the system, thus keeping them current.

YES

NO

2. Do your students actually use the e-mail addresses on the list?

- Students use the institution’s e-mail system and prefer not to use AOL, Hotmail, Yahoo! or other e-mail providers.
- Most students do not forward their institutionally assigned e-mail to a different e-mail provider.
- Students regularly check their messages at the e-mail address on the list you will provide NSSE. This is more likely if faculty use these e-mail addresses for class purposes.

YES

NO

3. Does your institution have adequate computing facilities for your students to access e-mail and the Web version of the NSSE?

- There are plenty of open labs for reading e-mail, and several are open 24 hours.
- Computers in the labs have up-to-date browsers and are well-serviced, fast, and reliable.
- Students generally don’t wait in line to use computing facilities.
- Most students have their own fast computer with an up-to-date browser where they live.
- Institution’s technology staff can obtain required information and quickly address problems when they arise.
- Institution’s e-mail server can process 1,000 e-mails at the same time (concurrently).

YES

NO

Our recommendation is:

Web only

Standard

- Electronic signature for the letters
(Not required for Web-only version)
- Institutional letterhead—Quantity equals two times the number of students sampled.

Once NSSE receives these materials, the Indiana University Center for Survey Research, in conjunction with the NSSE project team, administers the survey distribution, collection, and scoring process.

Step 3: NSSE contacts students and collects surveys.

NSSE selects a random sample (half first-year students and half seniors) of students from the institutional data file based upon undergraduate enrollment. In February, selected students at standard administration colleges and universities receive a personalized “invitation to participate” letter on institutional letterhead, a copy of *The College Student Report*, and postage-paid reply envelope. Students at Web-only institutions receive an announcement letter followed by an electronic invitation to complete the Web version of the report. When students are finished completing the survey (typically 12 minutes or less), they submit their responses directly to NSSE.

Table 17. Fees Institutional Participation Fee (required)

■ This is a nonrefundable fee \$275 required for registration and payable to NSSE even if the institution withdraws before the study begins.

Student Sampling Fee (required)

<i>Undergraduate Enrollment</i>	<i>Standard Administration Sample Size</i>	<i>Web-only Administration Sample Size</i>	<i>Fee</i>
Less than 4,000*	450	900	\$2,250
4,000 to 15,000	700	1,400	\$3,500
More than 15,000	1,000	2,000	\$5,000

Institutions that do not meet the minimum sample size should calculate the per-student cost at \$5/standard or \$2.50/Web-only.

Oversampling Fee that includes scoring (optional)

<i>Oversampling Mode</i>	<i>Fee</i>
Standard Administration (NSSE administered)	\$5.00 each
Web-only Administration (NSSE administered)	
■ First 1,000 students	\$2.00 each
■ Additional students over 1,000	\$1.50 each
Local Administration (Administered by local campus representative. Surveys are shipped to campus representative, who distributes, collects, and sends completed surveys back to NSSE for scoring.)	\$1.50 each

Consortium Fee (optional)

■ \$150 fee charged to each institution participating in a consortium.

Step 4: NSSE conducts follow-up with students.

NSSE works with Indiana University’s Center for Survey Research to track survey returns and conducts follow-up procedures with non-respondents. Non-respondents receive a postcard or e-mail follow-up, then a second survey with a personalized letter, followed by additional e-mail reminders to complete the survey.

Another way that NSSE attempts to improve response rates is by giving all

students at both standard and Web-only institutions the ability to complete the survey online. The URL of the Web-based version of *The College Student Report* is included in all correspondence to students. With a unique login code, all students have the opportunity to complete the survey online. NSSE also encourages institutions to use local incentives to increase response rates.

Program Fees

Table 17 shows the program fees associated with participating in the NSSE 2002 program. The fees for NSSE 2003 will increase slightly.

NSSE Reports

Colleges and universities that participate in the NSSE receive a number of useful reports. These reports are formatted to be used immediately by institutional representatives to provide general results to various target audiences, including president's cabinets, faculty committees, assessment committees, and groups of administrators.

All participating institutions receive the following reports:

- **Institutional Report.** This is a customized institutional profile that includes a user-friendly *Means Summary Report* that compares the average response of the institution's first-year and senior students against comparison groups and national norms. It also includes a *Frequencies Report* that includes a detailed percent breakdown of how an institution's students responded to each survey item. The *Frequencies Report* also provides peer group and the national norms comparisons. All participating institutions receive the actual respondent data file that has been pre-programmed in SPSS with variable names and value labels. Please refer to Appendix C and D for sample pages from these reports.
- **Institutional Benchmark Report.** This report provides a summary of an institution's performance on the five

national benchmarks of effective educational practice. The institution's benchmark scores are presented and compared to comparison group (consortium or Carnegie classification), and to the national norms. The reports also provide some statistical differences and a table of NSSE and Carnegie Classification Percentiles against which institutions can gauge their relative performance on each of the benchmarks. Please refer to Appendix G for sample pages from this report.

- **National Report.** This annual report provides detailed narrative and general themes and story lines at the national level from the most recent administration of the survey. All participating institutions are listed in this report. Institutions use this report to complement their own institutional-specific information.
- **NSSE Technical and Norms Report.** This annual report is designed to provide detailed project information and data to institutional users and the general public based upon the annual administration of the survey. This report includes information on the history of the project, technical and statistical information, descriptive statistics for first-year students and seniors, and general project information.

Other NSSE Products and Services

Customized reports and other types of special analyses can be requested. All participating colleges and universities have the opportunity to form post-hoc peer comparison groups with other participating NSSE institutions.

Institutions select a group of 6 to 10 institutions or a Carnegie Classification. NSSE provides aggregated comparison reports identical to the means summary reports and frequency distribution reports detailed above. Other customized analyses can be done upon request. Once a specific request is made, the time for completion is estimated and a price quote is sent to the institution for approval.

Workshops

NSSE also conducts workshops for current and prospective users. At these workshops, representatives from colleges and universities learn how to participate in the NSSE; learn more about the survey administration process, data collection, how to link other data sources to NSSE results; and receive assistance in interpreting NSSE reports and results. Workshops can be done at the regional level or at the state level for a group of institutions or a university state system. Please contact the NSSE office for more information.