NSSE national survey of student engagement

NSSE Research Brief #1

May 2013

Promoting High-Impact Practices: Maximizing Educational Gains

Because of their positive effects on student learning and retention, special undergraduate opportunities such as learning communities, service-learning, research with a faculty member, study abroad, internships, and culminating senior experiences have been labeled high-impact practices (HIPs) (Kuh, 2008).

High-impact practices share several traits. They:

- Demand considerable time and effort
- Provide learning opportunities outside of the classroom
- Require meaningful interactions with faculty members and students
- Encourage interaction with diverse others
- Provide frequent and meaningful feedback.

Participation in these activities can be life-changing.

For high-impact activities to make more of a difference to student learning and success, institutions need to:

- Provide opportunities for students to participate in at least two high impact activities during their undergraduate program, one in the first year, and one later related to their major field.
- Ensure that all students have a chance to participate in these experiences. Examine whether students in some majors are less likely to participate and to what extent first-generation students take advantage of these experiences.
- Reduce barriers to participation, encourage all students to see potential for their involvement.
- Ensure that programs are of high quality and provide evidence of their effectiveness.
- Know how students benefit from the experience.

After controlling for a host of student and institutional characteristics, HIPS were found to be moderately related to the three deep approaches to learning and perceived gains in general education and personal and social development. Deep approaches to learning (DAL) help students make richer, more lasting connections to material through an emphasis on activities such as integration, synthesis, and reflection (Kuh, 2008, NSSE *Annual Report 2007*, p. 17).

Beginning with NSSE data from 2007, this report explores HIPs in more depth, relates them to educational gains and valued learning outcomes, and discusses approaches to shape programs. The following HIPs are featured in this report: service-learning, learning communities, internships and career preparation experiences, research with faculty, study abroad, and senior culminating experiences.

California Lutheran University

Service-Learning

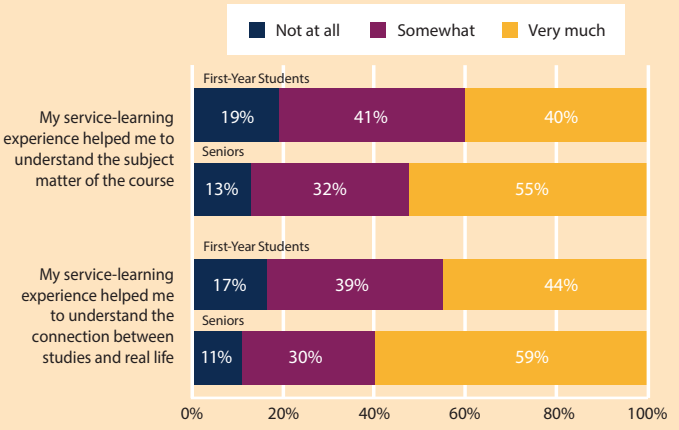
Service-learning is associated with a wide range of positive educational outcomes, including increased academic engagement and learning (Jacoby and Associates, 2009). Common to most is the connection between in- and out-of-class learning environments. Service-learning is often infused across the curriculum or in programs such as learning communities, senior capstone courses, study abroad, and mentoring programs.

In 2012, about 41% of first-year students and 48% of seniors responding to the NSSE survey, participated in a service-learning project during the year. (*NSSE Annual Results 2012*, p. 22) An additional set of items appended to the 2012 survey followed up with students who said they participated in service-learning, asking them about connections with coursework, faculty involvement, and hours per week on site. Data were collected from 1,856 first-year students and 2,930 seniors enrolled at 42 institutions.

Of all participants, 61% of first-years and 58% of seniors indicated that one of their classes had a service-learning component, with the remaining percentage indicating that two or more classes had a service-learning component. Service-learning experiences helped most students, particularly seniors, to understand the connections between their service experience and their studies, and to better

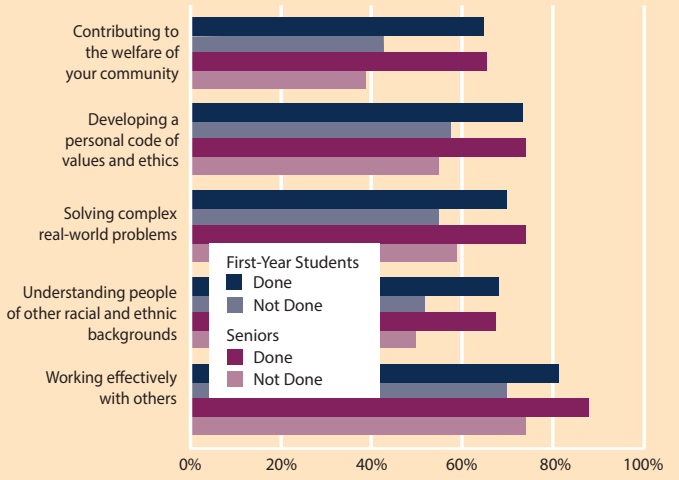
understand their course material— both important goals of service-learning (Figure 1).

Figure 1: The Service-Learning Experience



First-year students and seniors who participated in service-learning perceived more gains in several areas of learning and development related to their experiences engaging with the community (Figure 2). For both class levels, those who participated in service-learning reported larger gains than their peers in their ability to contribute to the welfare of the community, develop a personal code of ethics, and understand people of different racial and ethnic backgrounds.

Figure 2: Substantial[a] Perceived Gains by Service-Learning Participation



a. Percentage responding "Very much" or "Quite a bit."

Finally, adjusting for student and institutional characteristics, students who participated in service-learning were more engaged in Academic Challenge, Student-Faculty Interaction, and Enriching Educational Experiences, and they perceived higher levels of Supportive Campus Environment. These results support claims for the educational benefits of service-learning.

Service-Learning and the First-Year Experience

For new students, service-learning creates meaningful connections with the community and deeper interactions with faculty and peers while enhancing their sense of civic responsibility (Bringle & Hatcher, 2009). In spring 2011, approximately 40% of fulltime, first-year students participated in a course that included a community-based project (*NSSE Annual Results 2011*). Those attending private institutions (49%) were more likely to participate than those attending public institutions (38%).

Consistent with previous studies, students who participated in service-learning reported significantly higher gains in several areas of learning and development (Table 1). The differences were moderate in size, with the largest being self-reported gains in knowledge and skills related to contributing to community welfare.

Table 1: Comparison of Service-Learning Participants to Non-Participants[a]

Institutional Contribution to Perceived Gains	Sig.[b]	ES[c]
Working effectively with others	***	.29
Voting in local, state (provincial), or national (federal) elections	***	.29
Understanding yourself	***	.27
Understanding people of other racial and ethnic backgrounds	***	.32
Solving complex real-world problems	***	.31
Developing a personal code of values and ethics	***	.32
Contributing to the welfare of your community	***	.49

[a] t-tests comparing mean score differences between SL and non-SL students
[b] *p<.05, **p<.01, ***p<.001
[c] ES (effect size) = mean difference divided by the pooled standard deviation. Generally an effect size of .20 is considered small, .50 medium, and .80 and higher large.

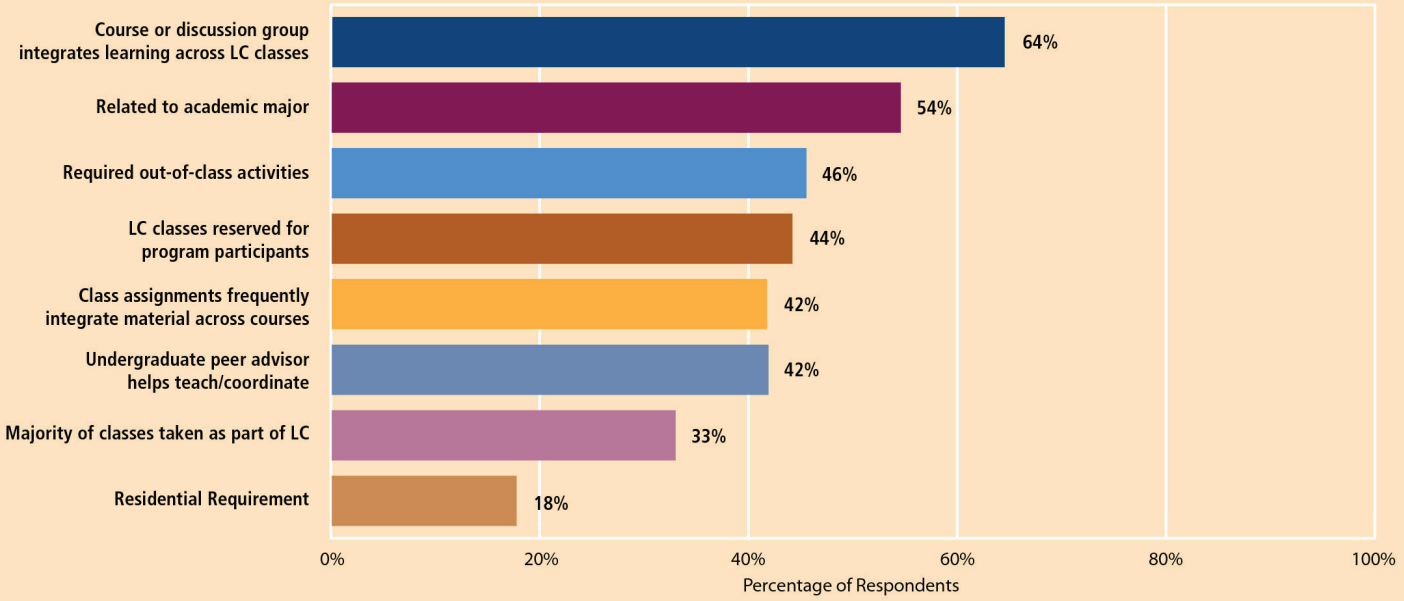
Faculty and staff directing service-learning programs may want to assess their participants for similar results and whether service-learning is related to other engagement experiences.

Learning Communities

Participating in a learning community (LC) is associated with a variety of desirable learning and personal development outcomes, but not all students take part. Adult learners and first generation college students were less likely to participate in a LC; students who live on campus, full-time students, and members of Greek organizations were more likely. After controlling for various background characteristics, the LC experience is positively correlated with both deep learning and gains in a number of areas.

Because LCs take different forms, it is difficult to know which of their features is most effective. In 2007, NSSE developed a set of experimental questions to obtain additional information about learning communities where students take two or more classes together. (*NSSE Annual Report 2007*, p. 14) About 2,800 respondents from 39 colleges and universities answered these questions.

Figure 3: Description of Learning Community Experience for First-Year Respondents (N=1,373)



Learning Community Characteristics and Student Engagement

- Two thirds (64%) of the students said their LC included a course or discussion group designed to help integrate their learning across the LC courses (Figure 3).
- Students in LC programs that integrated material across courses—either by discussion group or class assignments— had higher scores on all five NSSE benchmarks.
- First-year students in LCs with undergraduate peer advisors reported more supportive campus environments.

Self-Reported Gains Attributed to Selected Learning Community Features

- When the LC included discussion groups and class assignments that frequently integrated material from LC classes, students reported gaining more across the three outcome domains, more frequently used deep approaches to learning, and reported an enriched social life.
- Requiring out-of-class activities as part of LC requirements for first-year students was related to substantial gains in self-understanding, deep learning, and an enriched social life.
- Assigning an undergraduate peer advisor to the LC instructional team was linked to greater gains in vocational skill development and an enriched social life.
- All things being equal, requiring first-year LC participants to live together on campus had a positive effect on the quality of social life and student-faculty interaction, but no discernable effects on engagement measures and the other selected outcomes.

Results suggest that LC faculty and staff should design structures and other program features that will maximize the chances that the LC experience will have the desired effects.

Internships and Career Preparation Experiences

Certain high-impact experiences, such as internships, field experiences, and clinical assignments, are essential for career preparation. Students not only gain post-graduation advantages (i.e., higher salaries, more job offers, and greater job satisfaction), they also acquire better communication skills and self-understanding. While the vast majority of U.S. colleges and universities facilitate or require programs for career preparation, the reasons students participate and their experiences with such programs vary.

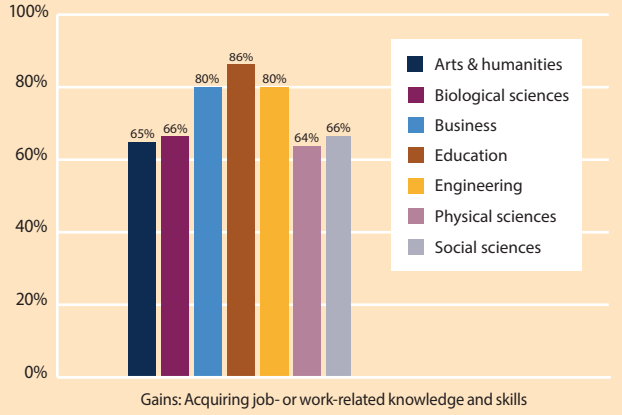
NSSE annually asks students if they have participated in a "practicum, internship, field experience, co-op experience, or clinical assignment."

Career Services

One of the many expectations students and their families have of college is to prepare students for work. NSSE data can help administrators in career services assess how well this expectation is being addressed, specifically by examining students' perceptions of work-related gains, the quality of advising, and experiences that help prepare students for work, such as internships. On average, 83% of seniors who responded to NSSE 2011 had a conversation with a faculty member or advisor about their career plans; three-quarters perceived substantial gains in job- or work-related knowledge and skills; and half participated in an internship or practicum (*NSSE Annual Results 2011*).

Institutions may be interested in knowing whether such results differed by major. Results from NSSE 2011 revealed that self-reported gains in work-related knowledge and skills differed greatly among major field categories (Figure 4). Not surprisingly, seniors majoring in more career-oriented fields, such as education, business, and engineering, perceived higher gains in work-related knowledge and skills than students majoring in non-occupation specific fields, such as the arts and humanities, biological and physical sciences, and social sciences. However, no differences were found in how often students discussed career plans with faculty.

Figure 4: Percentage of Seniors with Substantial[a] Perceived Gains in Job- or Work-Related Skills by Major



[a] "Very much" or "Quite a bit"

Seniors who participated in certain high-impact practices differed from their peers in their perceptions of gains in job- or work-related knowledge and skills. Seniors who participated in internships and service-learning projects perceived more substantial gains in job- or work-related knowledge and skills than their counterparts. In addition, nearly 80% of seniors who participated in at least two high-impact practices perceived substantial gains in job- or work-related knowledge and skills.

Administrators in career services could use their NSSE data to gauge students' perceptions of career preparation and advising. These same analyses could also be used to examine other meaningful subgroups, such as transfer students, commuter students, or STEM majors. NSSE data could also be used to investigate other important work-related outcomes and skills, such as working effectively with others, solving complex real-world problems, applying theories or concepts to practical problems, or speaking and writing effectively.

Participation Patterns in Career Experiences

The most striking difference between participants and non-participants in career preparation experiences was disciplinary. (*NSSE Annual Results 2011*, pp. 21-22) Participation rates ranged from a high of 71% for education majors to a low of 43% for business majors. (Table 2) Smaller differences occurred between institutions, where students attending private, not-forprofit, and bachelor's degree-granting institutions were more likely to have career preparation experiences. Additionally, participants were more likely to be White, female, and enrolled on a full-time basis, and less likely to spend time working off-campus and caring for dependents.

Table 2: Participation in Career Preparation Experiences by Major Category

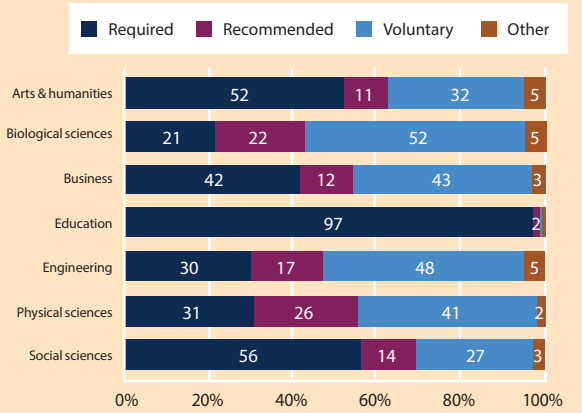
Major Category	Percentage of Seniors Who Participated
Arts & humanities	47
Biological sciences	55
Business	43
Education	71
Engineering	57
Physical sciences	48
Social sciences	52

Encouragingly, seniors who had completed a career preparation experience also had more frequent or higher quality interactions with faculty members. It is unclear, however, whether interaction with faculty encouraged students to participate or if participation increased contact with faculty. It could, in fact, be both.

Reasons for Participation

In 2011 we followed up with 3,785 seniors at 28 colleges who reported they had a career preparation experience to learn more. More than half of seniors who participated in a career preparation experience were required to do so, while nearly one-third did so voluntarily. The remaining students participated primarily on the recommendation of faculty, administrators, or peers. Figure 5 shows large differences by major category in the primary reasons students participated. For example, education majors are often required to do student teaching, while fewer seniors majoring in the biological sciences (about one in five) had a career preparation requirement.

Figure 5: Motivation for Career Experience by Major Category



Quality of Career Experiences

The quality of students' experiences with their career preparation programs was overwhelmingly positive, with more than 90% of seniors reporting an "Excellent" or "Good" experience. A majority of seniors believed their experiences placed significant emphasis on a variety of skills. Not surprisingly, developing career-related skills was strongly emphasized in the programs for nine out of 10 students. In contrast, about two out of three participants indicated that their experience emphasized having serious conversations with diverse people.

Research with Faculty

Students doing research with faculty are more likely to persist, gain more intellectually and personally, and choose researchrelated field as a career. NSSE 2007 results show that they also more frequently used deep approaches to learning and report more learning and growth from their college years (*NSSE Annual Report 2007*, pp. 15-16). Yet, most students do not have such opportunities. For example, seniors attending bachelor's-granting institutions were more likely to work with a faculty member on research; while two fifths of the students majoring in biological and physical sciences, and 10% of students majoring in business had such an experience.

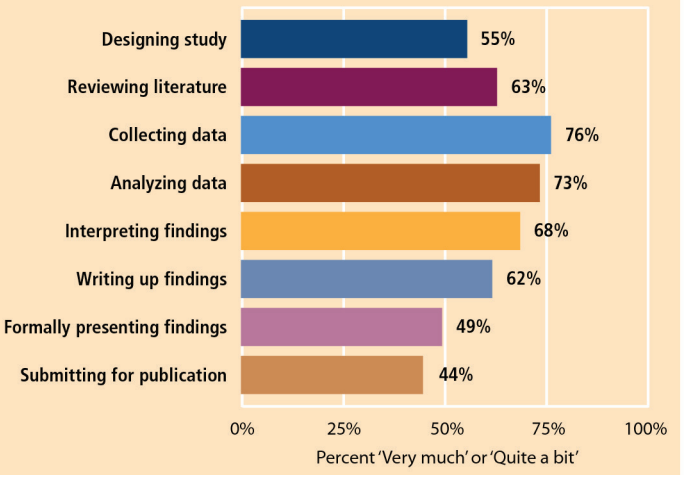
To better understand the experience of working with a faculty member on research, we asked experimental questions about the amount of time students devoted to the project, the nature of their activities and contributions, and what they gained from the experience. The results reported here are based on 2,674 senior students at 63 institutions.

- More than one third (37%) of the seniors said that doing research with faculty was a course requirement, and more than one fifth (22%) reported it was a degree requirement.
- About a third (31%) said they initiated their involvement by asking a faculty member if they could join their research team, whereas three of ten students were invited by a faculty member to become involved.

The majority (55%) of students to a substantial degree used existing information available from libraries or the Web, and almost half used data from a laboratory setting in their research projects. Relatively few students drew upon their creative, artistic impulses, probably because the majority of the students participating in research with faculty are from science and engineering fields. We also asked students about the nature of their contributions to the research project and what they gained from the experience (Figure 6). The most common activities were collecting data, analyzing, and interpreting findings. Submitting a paper or presenting the findings to people other than the research team were not nearly as common.

An advantage of doing research with a faculty member is that students spend a fair amount of time in the company of faculty and learn firsthand how they think and deal with the inevitable challenges that crop up in the process. Perhaps as a result, students who received feedback during or after the project were more likely to report that their relationships with faculty were more friendly or supportive. Students were asked to report when and for how long they conducted their research projects: Nine of ten seniors worked on the research project during a regular academic term, 13% worked during a January or May term, and 30% worked during summer. About a fifth of students spent more than 10 months on the project, a quarter devoted between 5-10 months, and 29% spent less than two months working on the research. Not surprisingly, results show that the more time students spent on the project, the better they came to understand the research process and the more they gained overall. Finally, we examined the relationships between different aspects of what students did when working with a faculty member on research and three types of deep learning activities. Reviewing the literature and interpreting findings were the most strongly related to deep learning; data collection had the weakest relationship.

Figure 6: Seniors Reporting Substantial Contributions to Different Aspects of the Research Project



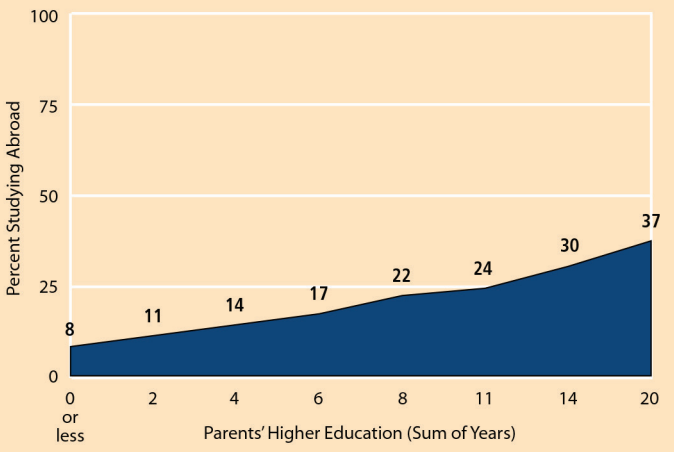
Study Abroad

Study abroad is an educationally enriching and potentially life-changing experience. Students who study abroad often expand their perspective on world affairs, better comprehend diverse cultures and languages, and grow in self-understanding. Overall, about one in six seniors responding in 2007 said they studied abroad. (*NSSE Annual Report 2007*, pp. 17-18) These students were more likely to:

- Attend private, selective, bachelor's-granting institutions
- Earn better grades in college.
- Be female and White.
- Have started college at their current institution.

- Major in the arts and humanities and the social sciences.
- Have parents with higher levels of education (Figure 7).

Figure 7: Percent Studying Abroad by Parents' Education



After controlling for a host of student and institutional characteristics, study abroad was moderately related to the three deep learning subscales, especially integrative learning and reflective learning, and self-reported gains in general education and personal-social development.

In 2007 NSSE asked additional questions of 1,499 senior students from 58 colleges and universities about their experiences abroad including with whom they lived, how long they were abroad, the gains they attributed to this experience, and their engagement in college upon their return.

- Students who studied overseas engaged more frequently in educationally purposeful activities upon returning to their home campus, and reported gaining more from college compared with their peers who have not had such an experience.
- Students who lived with host nationals – in home stays or in dorms – benefited more in terms of integrative and reflective learning, and personal and social gains.
- The length of time spent overseas did not make a difference in the frequency with which students used deep learning approaches after returning to their campus or their selfreported gains.

It appears that the amount of time one is abroad is not as important as whether a student has such an experience. This suggests that there is value in increasing the number of short-term cross-cultural or "study away" opportunities for students who for some reason cannot be away from their home institution for an extended period of time. On many campuses this could include athletes, musicians, and those majoring in fields that have highly prescribed course-taking patterns.

Senior Culminating Experiences

Opportunities to integrate, synthesize, and apply knowledge are essential to deep, meaningful learning experiences. Toward this end, many colleges and universities offer senior culminating experiences. NSSE results show a net positive relationship for students who do such experiences after controlling for a host of student and institutional variables (*NSSE Annual Report 2007*, Table 3, p.17). A third (32%) of all seniors reported having completed such an experience and another 29% said they planned to do so before graduating. Students attending bachelors-granting institutions and private institutions were more likely to have such experiences, as were students majoring in engineering (*NSSE Annual Report 2007* , Table 4, p.18). Although these activities take different forms, such as a thesis, comprehensive exam, or field placement, all are intended to help students connect what they have learned in various courses with other experiences on and off the campus.

To examine more closely the nature and impact of senior culminating experiences NSSE added a series of questions to the 2007 online survey. These items were completed by 2,162 seniors at 33 institutions who had completed a culminating senior experience.

Nature of the Culminating Experience

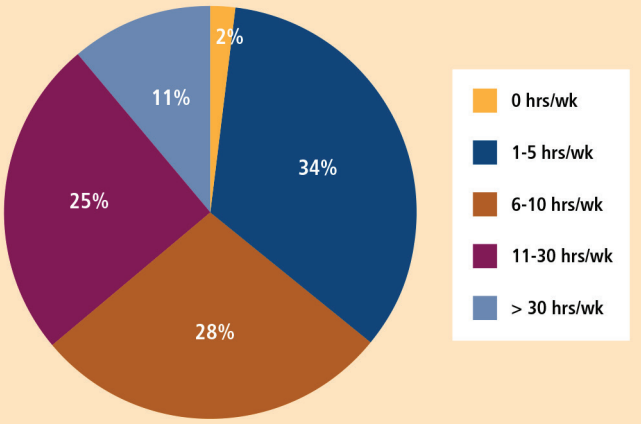
- The most common form of culminating experience was a thesis (58%) (Table 3).
- Three quarters (77%) of the respondents indicated that their culminating experience was required for graduation.
- Half (49%) of the students worked alone on their project; 40% worked with other students to complete the project.
- The amount of time spent each week on the project varied, with a third (34%) of students spending five or fewer hours to 11% who devoted more than 30 hours (Figure 8).

Table 3: Percent of Seniors Participating in Selected Culminating Activities

Activity	%
Major paper, project, or thesis	58%
Capstone course in my major	46%
Formal presentation or demonstration	36%
Comprehensive exam	29%
Field placement or experience	25%
Capstone course unrelated to major	6%

Note: Students often participated in more than one culminating activity. Thus, column percents do not total 100%.

Figure 8: Hours per Week Devoted to the Culminating Senior Experience



Faculty Guidance

Faculty members make important contributions to the quality of the culminating experience when they provide encouragement, feedback, and other assistance:

- Three fifths (61%) of the respondents indicated they frequently met with the faculty member supervising their work; only 8% never met with their faculty sponsor.
- Three quarters (75%) of the students indicated that their supervising faculty member clearly outlined the expectations and requirements of the culminating senior experience at the outset of the project.

Relationships between Culminating Experiences and Gains

Students reported that their culminating experience contributed substantially (quite a bit, very much) to their abilities in a number of areas. The patterns of student attributed gains differed, however, depending on the type of culminating activity (*NSSE Annual Report 2007,* p. 20). After controlling for student, background and institutional characteristics:

- A field placement or experience was more strongly related to substantial self-reported gains in the greatest number of desired outcome areas.
- The comprehensive exam, a final project or thesis, and a presentation were linked to gains such as writing, thinking critically and imaginatively, and synthesizing; however, there was no relationship between these activities and gains in understanding key concepts in the major.
- A required capstone course in the major had less impact on self-reported gains than other types of activities.
- The impact of participating in two or more culminating experiences was not cumulative, in that taking part in several such activities did not necessarily result in a greater number of substantial gains. This suggests the quality of the experience may be more important to gains than dividing time across multiple activities
- Students whose culminating experiences required greater investments of time reported greater gains than students who devoted less time to the activities.
- Students who met more frequently with their supervising faculty member, received clearly explicated expectations for the activity and reported receiving helpful feedback reported greater gains.
- Students who collaborated with other students on their culminating experience reported greater gains in several areas.
- Students who worked by themselves on the culminating experience reported gaining more in their ability to learn effectively on their own.

Clark University

The Importance Faculty Place on High-Impact Experiences

Combining the results of NSSE and the Faculty Survey of Student Engagement (FSSE) points to important relationships between what faculty members value, expect, and practice and student reports of what they experience. In this section we explore the connections between the importance faculty members place on high-impact undergraduate experiences and the proportion of students that participate in those experiences.

During the spring semester of 2007 more than 18,000 faculty members at 144 different institutions completed FSSE, while at the same time 59,000 students on their campuses completed NSSE (*NSSE Annual Report 2007*, pp.21-22). Selected results from these campuses indicate that:

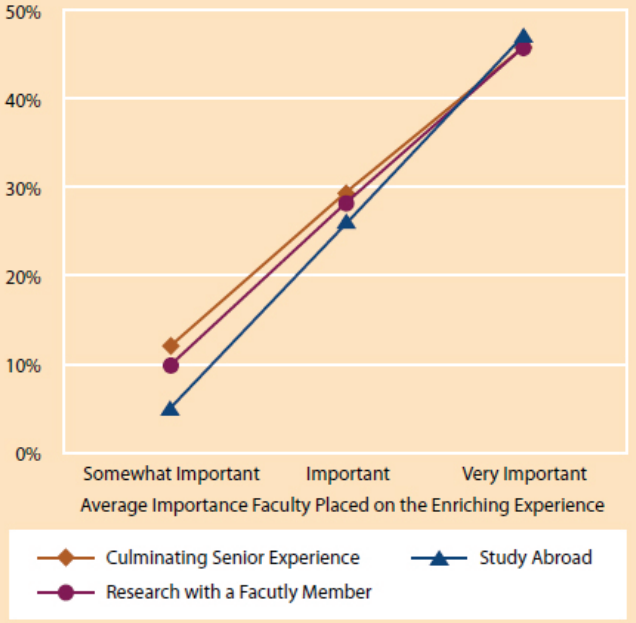
- Nearly half of all faculty respondents (49%) reported it is important or very important for undergraduates to participate in a learning community.
- Over half of the faculty (53%) said working on a research project with a faculty member is an important

experience for undergraduates.

- A little more than two-fifths of faculty members (44%) indicated studying abroad is important.
- Four in five (81%) faculty members reported it is important for undergraduates to have a culminating senior experience.

Also, the more faculty members at a given school value an activity, the more likely it is that students will do it. For example, on a campus where the average faculty member believes participating in a learning community is only somewhat important, only 3% of first-year students become involved in this activity. In contrast, where faculty agree that learning communities are very important, 55% of first-year students participate. This also holds for student participation and the importance faculty place on culminating senior experiences, research with a faculty member, and study abroad (Figure 9). For each activity, an increase of one category in the average importance faculty place on the activity corresponds to about a 20% increase in student participation.

Figure 9: Student Participation in High Impact Experiences by Faculty Importance



Final Thoughts

Making effective educational practices like those detailed in this brief more available throughout the institution supports faculty and staff in creating a culture that fosters academic success and helps address any shortcomings in academic preparation of their students.

High impact practices engage students at high levels, thus institutions must do them well and make them accessible so that all students have a chance to participate.

It is important to explore how engagement in various activities by different populations of students in various settings affects learning and success. A focus on within-group NSSE differences may help identify the elements of programs and practices that are particularly effective with underrepresented populations or between majors. This will allow institutions to increase the numbers of students that engage in meaningful educational activities to acquire the skills and competencies needed to meet the challenges of the 21st century.

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