

## E-SOURCE 6.3

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## Retention of STEM Majors: Creative Scientific Inquiry Experience (CSIE)

Retention of students in the sciences at Eastern Michigan University reached a critical point in 2004. Our situation is not unique. Seymour and Hewitt (1997) conducted a three-year study to determine why undergraduate science, technology, engineering, and mathematics (STEM) majors switch to non-STEM majors. They found the primary reasons students gave for switching majors were lack or loss of interest in science, poor teaching by STEM faculty, and feeling overwhelmed by the pace and load of the curriculum. Other studies (Project Kaleidoscope, 2001) offer compelling evidence that effective teaching in science and mathematics education enables students to (a) construct their own understanding of concepts, (b) internalize relationships between concepts and processes that develop critical thinking skills, (c) integrate learned concepts with everyday experiences, and (d) appreciate the study of science and mathematics as a valuable endeavor.

Programs that attract and sustain student interest feature learning that is experiential, investigative, hands-on, personally significant to both students and faculty, connected to other inquiries, and suggestive of practical application to students' lives. Further, Tobias (1992) argues that to retain students in science programs, institutions should offer cross-college course integration during the first two college years, provide service-learning opportunities, and establish a tracking

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system to identify causes of retention problems.

In response to this body of research and a careful review of our own STEM student demographics, Eastern Michigan University, with support from the National Science Foundation, developed the Creative Scientific Inquiry Experience (CSIE) model. This model is an innovative approach to improve the retention of students who have expressed interest in and are academically prepared for STEM majors. As Figure 1 shows, the CSIE model illustrates the convergence of three key project components reflecting the full range of strategies needed to provide for a university-wide support system. The components include

- *Course Development*—The program offers 18 theme-linked courses connected in content and community service projects (e.g., two STEM courses integrated with a CSIE seminar, which includes a community

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service project. See sidebar for course examples). STEM students have the option of choosing a CSIE or non-CSIE track.

- *Faculty Development*—Faculty are provided one semester of course release time and a Spring–Summer Institute to develop CSIE themes and strategies for integrating content to apply the pedagogy of academic service-learning and experiential and collaborative methods, and share techniques to support persistence in STEM fields. Focus-group feedback indicates the Spring–Summer Institutes are an essential element in the CSIE model for professional development.
- *Student Support Development*—The model promotes small classes, fosters academic service-learning through community-based research, explores career opportunities, and coordinates supplemental academic enrichment support.

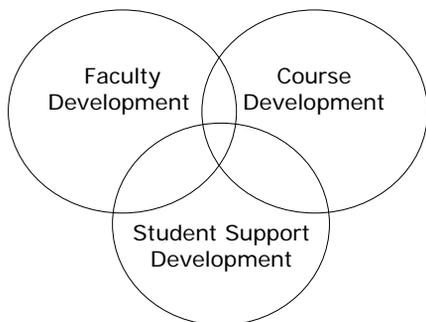


Figure 1. CSIE Model.

## CSIE COURSE EXAMPLES

### STEM Classes: COSC 111-Introduction to Programming and MATH 105-College Algebra

#### CSIE Seminar: CSIE 177: Routing and Cost Analysis for Meals on Wheels

Students ground their understanding in STEM course work using algebraic methods, graphical analysis, and computer programming. Computer science and pre-calculus students will provide problem-solving strategies as they support Ypsilanti Meals on Wheels by producing efficient routing systems, spreadsheets to determine cost per hot–cold meal, and technology to generate an annual report.

### STEM Classes: BIOL 110 and CHEM 122

#### CSIE Seminar: CSIE: 277 Cyanobacteria in Ford Lake and Huron Rover Watershed

The focus of the course is an academic service-learning project to characterize the genotype and conditions for growth of potentially harmful cyanobacteria in Southeast Michigan waterways. Students develop original research projects and hypotheses, discuss methodology with biology and chemistry faculty, analyze samples in the biology and chemistry laboratories, interpret data, and prepare oral and written reports of their data and conclusions within the context of public health issues.

## Evaluation and Results

We collected and compared both quantitative data (i.e., student academic outcomes and implementation variables) and qualitative data (i.e., student, faculty, and administrator perspectives on successful and problem areas in the CSIE program development. In the fall of 2008, all STEM students, approximately 1,260 (7%) of the 18,000 undergraduate student population, were issued pre- and post-semester surveys. Responses were also collected from 36 CSIE instructors and a total of 256 students (i.e., 39 CSIE students and 217 non-CSIE students). Instructor surveys provided data on course descriptions, disciplinary and civic course content, learning objectives, instructional methods, assessment and perceived outcomes, and identified course obstacles and aids. Student surveys addressed demographic information such as gender, ethnicity, content background, GPA, and STEM-

related experiences. In addition, focus groups were held with students and faculty to enhance our understanding of the program's impact on student success, faculty expectations, and curriculum development.

Institutional data demonstrate that CSIE students were retained in STEM programs from the first year to the second year at a significantly higher rate than non-CSIE students (i.e., 75-76% retention,  $\alpha = .05$ ). Survey results indicate CSIE students also have a higher level of confidence in persisting in and completing a STEM degree compared to non-CSIE students. Further, the differences reported did not significantly differ by student gender. Students and faculty cited smaller class size, greater faculty-student interaction, and integrated class content as significant reasons for high student retention. Faculty approachability had the highest relative strength for predicting

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# The Big Picture

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## Got Faculty? Promoting Faculty Involvement in FYE Programs & Initiatives, Part II

Faculty involvement in FYE initiatives may be promoted by means of (1) intrinsic motivators, such as appeals to logic, altruism, and the creation of opportunities for faculty input or sense of ownership, and (2) extrinsic motivators, such as public recognition, monetary compensation, or release time. The previous issue of this column focused on intrinsic motivational strategies for stimulating faculty involvement in FYE programming by appeals to empirical evidence and faculty altruism. This issue turns to extrinsic motivational strategies that target faculty self-interest and professional advancement. The importance of extrinsic motivators is underscored by research indicating that one key to negotiating effective change is addressing the question, "What's in it for me?" (Engelkemeyer & Landry, 2001, p. 10).

Traditional faculty recognition-and-reward practices serve as disincentives for faculty involvement in FYE programs; they reinforce research-oriented activities, usually

involving upper-class and graduate students, which support their own professional advancement. Milem, Berger, and Day (cited in Braxton, 2000) found that faculty in virtually all types of baccalaureate-granting institutions are spending less time interacting with students outside the classroom. These findings reinforce those of Kuh, Schuh, Whitt, and Associates (1991), who report that faculty are spending more of their non-teaching time pursuing research and publication, leaving out-of-class contact with undergraduates to student affairs staff. In fact, at many postsecondary institutions, faculty who decide to become involved in FYE programs do so at the risk of retarding or sabotaging their prospects for professional advancement. FYE professionals may need to initiate dialogue with academic administrators and encourage them to restructure faculty reward systems in a fashion that supports and validates faculty involvement with student-success initiatives.

## Strategies for Encouraging Administrative Support

*Inform administrators of the research that points to the critical role that faculty play in promoting student persistence and success.* Most academic administrators do not make decisions that are fully informed by research, simply because they do not have time to retrieve and review the relevant literature (Eckel, Kezar, & Lieberman, 1999). FYE professionals may be able to assist by supplying academic leaders with reader-friendly research summaries that demonstrate the power of faculty involvement with students.

*Encourage high-level administrators to demonstrate visible support for faculty involvement with FYE programming.* There are two ways in which administrators can do this without investing large amounts of time or money: (a) by calling attention to FYE events in their formal addresses and written messages to the college community (e.g., kickoff events that inaugurate a new academic year, state-of-the-college reports, position statements, and strategic plans) and (b) by their presence at FYE events (e.g., providing welcoming or closing messages). Research on first-year student advocates reveals that the factor they most often cite for their ability to successfully promote change is support from the president or other chief administrator (Anttonen & Chaskes, 2002).

*Lobby for the establishment of a standing college committee whose explicit charge is to oversee and promote faculty involvement with students.* Ideally, this committee should be

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built into the college's operational structure or organizational chart, thereby ensuring that attention to this issue becomes institutionalized and enduring (rather than episodic).

**Encourage administrators to create incentives and provide rewards for faculty involvement with students outside the classroom.** Faculty incentives, recognition, and reward structures that FYE professionals may suggest to administrators include the following:

- Student-service awards or certificates of recognition to outstanding faculty, which publicly recognize their out-of-class contributions to students at well-attended college functions (e.g., graduation or convocation)
- Letters of commendation for inclusion in faculty's personnel file or professional portfolio
- Faculty release time or workload reduction for their involvement in student activities (e.g., club sponsorship)
- Travel funds targeted for faculty participation in conferences that focus on student development and student success
- Stipends for faculty contact with students outside the classroom (e.g., funds for taking students to lunch or dinner or cultural-athletic events)
- Incentive grants for faculty to involve undergraduates as partners in teaching, research, or professional service
- Merit pay or meritorious performance awards for exemplary forms of faculty involvement

with students outside the classroom

- Serious consideration of faculty involvement with students in decisions about faculty rank, promotion, and tenure

**Lobby for restructuring or redefining faculty roles and responsibilities to make "service" to students a normal or regular faculty responsibility, which is routinely expected and rewarded.** For example, lobby to broaden the definition of "service to the college" so that faculty may fulfill this professional responsibility not only through academic committee work, but also through faculty involvement with students outside the classroom.

**Seek support from middle managers (e.g., college deans and department chairs).** At many colleges and universities, power is decentralized and resides heavily in autonomous departments that operate by their own rules and reward systems. The higher educational reform movement has "lacked any plan for transforming middle-level university structures, most notably the academic department. Yet the department is arguably the definitive locus of faculty culture" (Edwards, 1999, p. 18). Thus, in addition to seeking support from high-level administrators to promote faculty involvement, support should also be sought from mid-level administrators because they may exert significant influence on faculty attitudes and behavior. Listed below are recommended strategies for enlisting the support of middle-level leadership.

- Ask deans and department chairs to encourage their faculty members' involvement with

students and publicly recognize their involvement, or reward it in faculty promotion-and-tenure decisions.

- Request that deans and department chairs consider faculty candidates' history of involvement with students as one criterion in new-faculty recruitment and hiring decisions. More specifically, encourage faculty search committees to adopt some or all of the following practices:
  - Review candidates' application materials for evidence of involvement with students outside the classroom (e.g., experiences listed on the applicant's vita; references to student-centered experiences mentioned in the applicant's cover letter, statement of educational philosophy, or letters of recommendation).
  - Incorporate questions in the interview process that call for information about faculty candidates' attitudes toward student development and retention (e.g., their attitudes about teaching academically underprepared students, co-curricular programming, and advising or mentoring students outside the classroom).
  - Include students and student affairs professionals in the faculty-selection process; for example, ask them to meet faculty candidates who are brought to campus and allow them the opportunity for input into new-faculty hiring decisions.

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student retention. As one faculty member stated in a focus group, "It seems, whether it is intentional or unintentional, that we are starting to build a learning community." The evaluation outcomes demonstrate that the CSIE model profoundly affected both STEM faculty and students, and initial CSIE students are continuing to enroll in other CSIE courses.

Because of these results, the focus has been to make the university community aware of the CSIE program. We are collaborating with academic advising and admissions, academic departments, local community colleges, campus faculty, and science clubs, to inform our students and to recruit them into the program. The CSIE Program Office is working on integrating activities for research opportunities through academic service-learning and coordinating with existing university academic support services to prepare supplemental instruction leaders, tutors, and peer mentors for our student-scholars. The office is also partnering with university information systems to develop effective processes for collecting and processing benchmark data.

All of the program's components and efforts in faculty development, interdisciplinary course development, academic service-learning projects, and the CSIE seminar aim toward improving the major goal: improvement of STEM retention rates.

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## References

- Seymour, E., & Hewitt, N. M. (1997). *Talking about leaving: Why undergraduates leave the sciences*. Boulder, Co: Westview Press.
- Project Kaleidoscope. (1991). *What works: Building natural science communities* (Vol. 1). Washington, DC: Project Kaleidoscope.
- Tobias, S. (1992). *Revitalizing undergraduate science: Why some things work and most don't*. Tucson, AZ: Research Corporation.

## Related Articles in E-Source

- Davis, E. J. & Strand, D. (2007). Increasing retention in science, technology, engineering, and mathematics. *4(6)*,1.

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## Conclusion

Intentional reform of faculty-reward and faculty-recruitment practices lies at the heart of any systemic, permanent solution to the long-standing problem of faculty indifference and resistance to student-success initiatives. Efforts made by FYE professionals to get faculty involved in student-centered programming do not take place in a vacuum, but as part of an intricate system that typically includes countervailing forces, which pull faculty away from student-centered activities. Organizational research indicates that promoting successful change requires the use of "systems thinking" (Schroeder, 2005; Senge, 1990). Individual efforts on the part of well-intended FYE advocates to enlist faculty involvement will never be fully realized until such micro-level efforts are augmented by macro-level support from high-level and mid-level campus leaders. This will require bold and visionary leadership to reform faculty reward practices so as to ensure that faculty who invest time and effort in the retention and advancement of first-year students do not do so at the risk of jeopardizing their own professional retention and advancement. Until the issue of faculty rewards is honestly acknowledged and vigorously addressed by high- and mid-level administrators, laments about lack of faculty involvement in the FYE will continue unabated, as will the perennial question: "Got faculty?"

## References

- Anttonen, R., & Chaskes, J. (2002). Advocating for first-year students: A study of the

micropolitics of leadership and organizational change. *Journal of The First-Year Experience and Students in Transition*, *14(1)*, 81-96.

- Braxton, J. M. (Ed.). (2000). *Reworking the student departure puzzle*. Nashville: Vanderbilt University Press.
- Eckel, P., Kezar, A., & Lieberman, D. (1999). Learning for organizing: Institutional reading groups as a strategy for change. *AAHE Bulletin*, *52(3)*, 6-8.
- Edwards, R. (1999, September/October). The academic department: How does it fit into the university reform agenda? *Change*, 17-22.
- Engelkemeyer, S. W., & Landry, E. (2001). Negotiating change on campus. *AAHE Bulletin*, *53(6)*, 7-10.
- Kuh, G. D., Schuh, J. H., Whitt, W. J. & Associates (1991). *Involving colleges: Successful approaches to fostering student learning and development outside the classroom*. San Francisco: Jossey-Bass.
- Schroeder, C. C. (2005). Collaborative partnerships between academic and student affairs. In M. L. Upcraft, J. N. Gardner, B. O. Barefoot, & Associates, *Challenging and supporting the first-year student: A handbook for improving the first year of college* (pp. 204-220). San Francisco: Jossey-Bass.
- Senge, P. (1990). *The fifth dimension*. New York: Currency/Doubleday.

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## Reaching Undecided Students Through an FYE Learning Community Program

Learning to adjust to college life can be challenging for students, but undeclared students feel the additional pressure of finding a major and choosing a career path. Such undecidedness about a career path can lead to feelings of anxiety (Fuqua, Newman, & Seaworth, 1988), emotional instability (Loundsbury, Hutchens, & Loveland, 2005), or depression (Saunders, Peterson, Sampson, & Reardon, 2000). In addition, undeclared students are also at risk for higher rates of dropout (Foote, 1980). The University of Northern Colorado (UNC) has incorporated individualized programming into its FYE Learning Community initiative to specifically address the undeclared student population.

UNC's FYE Learning Community initiative was established in 1989, and since its inception, the program has been popular with students, particularly because it guarantees enrollment in required classes for their major, in addition to helping students transition to the University. Over half of UNC's entering class of approximately 2,200 students enroll in the FYE 108 course designed to help them adjust to their first semester at UNC, and nearly 20% of those are undeclared students.

The FYE program involves linking students with a common set of courses along with participating in a first-year seminar. First-year students who enter college with an interest in a specific major can enroll in a set of linked courses required for their

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major. Undeclared students take a variety of courses to satisfy liberal arts core requirements. With diversity in format and delivery for undeclared and declared students, the FYE program differs in effectiveness for the two groups.

An example of a declared link in prenursing includes a nursing-focused FYE 108 course linked to English Composition, Fundamentals of Biochemistry, and Biological Perspectives, which fulfills course requirements for prenursing majors. The activities and assignments of the first-year seminar are designed to connect students with their major. For instance, one class session for prenursing majors includes bringing in a panel of nurses from the community to discuss the day-to-day work and life of a nurse. Students respond positively to the panel, frequently reporting that hearing from practicing nurses helped confirm their decision to pursue a nursing career or led them to reconsider their career choice. When the FYE 108 course covers the topic of effective reading skills, nursing students are asked to bring their Biology 101 text to class, providing a learning experience that relates

directly to the courses required of them in their major. Finally, academic advisors from the School of Nursing are brought in to discuss the process for applying to and progressing through the nursing program.

A typical course grouping for an undeclared student could include a general-education FYE 108 course linked to College Composition, Principles of Sociology, and Multiculturalism in the U.S. The FYE 108 course is designed to help undeclared students choose a major. For the undeclared links, UNC's FYE program focuses on helping undecided students learn more about themselves as well as different majors. Students attend a majors fair, where they can discover all the possibilities open to them. Students are also offered individual career counseling and advising to help them along their path and are provided a four-year planning tool to find out what it takes to achieve their goal of graduating in a field of study that interests them.

The 2007-2008 cohort of incoming first-year FYE 108 students were surveyed as part of a larger study to assess the effectiveness of the FYE program in impacting students' academic and social integration to the University, in addition to their commitment to graduating. These factors were considered important in retaining students and thus, the survey questions were used to predict students' academic success and re-enrollment. To determine how well the FYE program positively influences undeclared students' commitment to a major and to the goal of graduating from college, a selection of items from the larger study were examined for

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students in undeclared and declared links. FYE 108 students answered the following questions with a four-point Likert scale from strongly disagree to strongly agree:

- Being in FYE helped me become committed to a major.
- My experiences in FYE helped me feel more committed to graduating from college.
- Being in FYE helped me become more confident about accomplishing my goals (i.e., academic, personal, career).
- Because of my experience in FYE, I feel that it is important to finish my program of study.

The responses for each item on the above goal commitment scale were averaged, and a 2 by 2 (academic standing by declared status) ANOVA was conducted with goal commitment as the dependent variable. The interaction between academic standing (i.e., good standing vs. academic probation) and declared status approached significance ( $p = .06$ ). Undeclared students who are also on academic probation reported that FYE helped them feel more committed to the goal of graduating and more committed to a major. According to students' self-reports, UNC's FYE program had the greatest impact on undeclared students on academic probation and the second greatest impact on declared students who are in good academic standing. Students who have declared a major, but are on academic probation and students who have not declared a major, but are in good academic standing reported the lowest effect of

FYE on their level of commitment to a major and to graduating.

These results demonstrate an overall positive trend in students' goal commitments as participants in UNC's first-year experience program. UNC's approach of differentiating linked courses and seminars by majors for declared students and specialized approach to undeclared students appears to help both groups of students. However, this approach is more effective for the undeclared students on academic probation than the undeclared students in good standing. Declared students on academic probation are predominantly from the College of Natural and Health Sciences (NHS). Over 45% of this group are composed of students in NHS links, whereas 20% are from humanities and social sciences links, 20% are from education and behavioral sciences links, and 12% are from business links. Tackling a challenging major, such as science, prehealth, or prenursing, may provide added difficulties for college students in their first year. Additional efforts are needed to reach declared students on academic probation, such as specific programming to explore career alternatives. These students may also require additional specialized instruction best suited to address the learning needs of different majors in order to help these students obtain academic success in their chosen major. This group of students poses the next challenge for UNC's FYE program.

The results of this programmatic research may speak to other institutions wishing to impact their declared and undeclared students. Grouping students by declared status and academic standing can identify students

with specialized needs, whether the needs are career exploration for undecided students or exploration of alternative careers for students who are exhibiting academic difficulties in their chosen major.

## References

- Foote, B. (1980). Determined and undetermined-major students: How different are they? *Journal of College Student Personnel*, 21(1), 29-31.
- Fuqua, D. R., Newman, J. L., & Seaworth, T. B. (1988). Relation of state and trait anxiety to different components of career indecision. *Journal of Counseling Psychology*, 35(2), 154-158.
- Loundsbury, J. W., Hutchens, T., & Loveland, J. M. (2005). An investigation of big five personality traits and career decisionness among early and middle adolescents. *Journal of Career Assessment*, 13(1), 25-39.
- Saunders, D. E., Peterson, G. W., Sampson, J. P., & Reardon, R. C. (2000). Relation of depression and dysfunctional career thinking to career indecision. *Journal of Vocational Behavior*, 56, 288-298.

## Related Articles in E-Source

Hartman, K. (2007). Undecided students explore majors by reading newspapers. 4(6), 12.

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## Bridging the Gap From High School to College for At-Risk First-Year Students

**M** meet Antwain, an African American native of the White Haven section of Memphis, Tennessee, who is now a sophomore engineering major at the University of Tennessee, Knoxville (UT). With a 19 ACT score and a high school grade point average (GPA) of 2.32, Antwain would be considered by most academic administrators as academically underprepared for college at selective, four-year campuses like UT. Raised by a single parent and first in his family to attend college, Antwain attended a predominantly Black public high school where few teachers held master's degrees and many served on provisional teaching licenses. Reflecting back on his first-year experience during a one-on-one interview with the author, Antwain recalled a number of challenges he faced on and off campus:

A lot of my fears about college set in before the start of classes. I was worried about meeting new friends and leaving my high school friends behind. I didn't want to leave my little brother in Memphis alone...I mean, I know my mom is there with him but she works all the time...he depends on me to take care of him. And I had no clue what to expect in terms of academics...my high school was terrible, and I didn't think it prepared me enough. It would have been helpful to get some of the help that I received during my first year from the [academic support

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unit named] or student affairs folks earlier...like in the summer before classes started because the first year is critical for real.

Indeed, Antwain's words are supported by empirical research, which suggests that student success is largely determined by experiences during the first year of college (Upcraft, Gardner, Barefoot, & Associates, 2005). Thus, scholars have argued for institutions to develop policies, practices, and campus environments that enhance first-year student success. This is particularly true for academically underprepared students and racially or ethnically diverse learners such as Antwain.

### UT's Summer Bridge Programs

Summer bridge programs have been identified as effective initiatives for helping first-year students make a successful transition to college and prepare for the academic demands of collegiate-level work (Perna, 2002), especially for underprepared students. After examining enrollment and retention data for the most recent cohorts of incoming first-year students, UT academic administrators found low retention rates between the

first and second year but also noted a pronounced gap in overall student attrition rates among racial and ethnic minorities and those who were academically underprepared for college based on their incoming academic profile (e.g., ACT score, high school GPA). In light of these trends, in 2008, the University's retention task force, led by the assistant vice provost, and the vice provost for Academic Operations established the University of Tennessee LEAD Summer Institute (UTLSI) for students who might otherwise be placed at risk for academic failure.

The 55 participants for the five-week UTLSI program were chosen by undergraduate admissions officials, in consultation with the provost's special assistant, based on a myriad of factors including high school GPA, ACT score, first-generation status, and adverse circumstances noted in their personal statements. They lived on campus during the summer and enrolled in English Composition I and a career–personal development course offered through the College of Education. Several factors guided our selection of these courses. First, English Composition I is a general education requirement; thus, UTLSI participants could make immediate progress toward their degree. English faculty were willing to teach extra sections of Composition, thereby allowing UTLSI participants to take classes together. Finally, the career–personal development course was taught by graduate teaching assistants or teachers-in-training through the College of Education, which helped reduce program personnel costs. Additionally, students participated in

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diversity workshops, outdoor athletic events (e.g., whitewater rafting), and seminars on leadership and money management. Extracurricular activities were chosen to facilitate transition to college life, to encourage peer engagement, and to “make big UT smaller” for students who were likely to feel overwhelmed, intimidated, or disconnected from the campus community. All costs were covered by UT, and since most participants hailed from low-income families, where the need to work and earn money may be significant, each participant received a stipend of \$300 per week for a total of \$1,500 for the entire program.

Following advice that “institutions must shape [students’] engagement” (Upcraft, Gardner, & Barefoot, 2005, p. 5), the UTLSI was designed to facilitate adjustment to the campus environment and offered students opportunities to develop friendships with other UTLSI participants, who might become part of their support system once the school year began. By living together on campus and sharing common courses and experiences, students were immersed in a living-learning community, which has been shown to be effective in enhancing student success (Inkelas & Weisman, 2003).

**Bridge Program Effectiveness**

Assessment data were collected via a web-based survey, employing a pre-posttest design. Data were collected from the entire inaugural cohort of UTLSI participants ( $N = 55$ ). Survey links were distributed via e-mail at the beginning (week 1) and again at the end (week 5) of the program.



*Inaugural cohort of the University of Tennessee LEAD Summer Institute (UTLSI), pictured with Eric Stokes (center), Assistant Director of Undergraduate Admissions and Director of UTLSI.  
Photo credit: University of Tennessee, Knoxville, Office of Media Relations*

Instructors reminded students to complete the survey; several offered extra-credit for completing the survey before a stated deadline. Results provide evidence of the program’s success. For instance, participants reported gains in academic self-efficacy at the end of the five-week program in terms of their ability to write a term paper ( $\Delta M = +0.74$ ), talk with professors face-to-face ( $\Delta M = +0.36$ ), and decide on a college major ( $\Delta M = +0.66$ ). Results suggest that the program enhances students’ perceptions of their readiness for college and, thereby, may increase their achievement during the first year. Each of these is an objective of the courses or the extracurricular activities in which students were involved.

Further results provide evidence of students’ perceived gains in skills and abilities. For instance, participants reported higher scores at the end of the program in terms of their comfort with using online tools (e.g., Blackboard [ $\Delta M = +0.66$ ]), reading and interpreting a syllabus ( $\Delta M = +0.47$ ),

and taking tests ( $\Delta M = +0.25$ ). All of these were objectives of the English Composition I and career–personal development courses.

While most data point to the program’s effectiveness, a few areas for improvement have been identified. First, students reported that the English Composition I course was too rigorous and intense for a five-week term. And since UTLSI students earned primarily Bs and Cs in the course, we may consider adopting a different course in the future. However, options are limited in terms of other courses that make similar contributions to the program’s goals. So we also are considering keeping English Composition I but with the added support of summer supplemental instruction. Second, participants, the majority of whom were racial or ethnic minorities, expected to see more diversity among summer instructors and faculty (none were people of color). In the future, the planning team will aggressively

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recruit instructors of color and also devise new strategies for promoting the active involvement of UT faculty of color. Despite this feedback, overall the program was a great success.

While Antwain did not directly reap the benefits of the UT Summer Institute program, his perceptions of his first-year experience helped shape the University's policies on programming designed to enhance the college success and retention of at-risk students. UT's provost intends to continue funding this important recruitment and retention initiative for years to come as it seems to bridge the gap between high school and college for students who are, arguably, most at need.

**References**

- Inkelas, K. K., & Weisman, J. (2003). Different by design: An examination of outcomes associated with three types of living-learning programs. *Journal of College Student Development*, 44, 335-368.
- Perna, L. W. (2002). Pre-college outreach programs: Characteristics of programs serving historically underrepresented groups of students. *Journal of College Student Development*, 43(1), 64-83.
- Upcraft, M. L., Gardner, J. N., Barefoot, B. O., & Associates. (2005). *Challenging and supporting the first-year students: A handbook for improving the first year of college*. San Francisco: Jossey-Bass.
- Upcraft, M. L., Gardner, J. N., & Barefoot, B. O. (2005). Introduction: The first year of college revisited. In M. L. Upcraft, J. N. Gardner & B. O. Barefoot (Eds.), *Challenging and supporting the first year student: A handbook for improving the first year of college* (pp. 1-12). San Francisco: Jossey-Bass.

**Related Articles in E-Source**

- Collins, C. C. (2007). LSU's Summer Scholars program grooms exemplary minority first-year students. 4(3), 3.
- Mouton, M. (2005). Pell report highlights institutions that successfully graduate low-income students. 3(1), 7.

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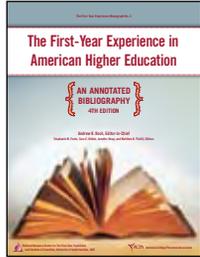
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## What's Happening at the National Resource Center

### Publications



In conjunction with the Association of College and University Housing Officers – International (ACUHO-I), the National

Resource Center is pleased to announce the release of a newly revised and expanded edition of Monograph No. 5, *Residence Life Programs and the New Student Experience*, edited by William J. Zeller. Residence life programs play a key role in recruiting students, helping them make a successful transition to a new institution, and in retaining them—whether students are enrolling for the first time, transferring from another institution, or entering graduate school. The chapters in this volume offer insight into how larger movements in higher education have shaped the current practice of residence life. Chapters address theories of learning and development, new technologies, the educational potential of residence halls, social justice as a framework for community development, leadership development and civic engagement, and faculty involvement, along with more practical considerations such as security, staffing, and assessment. New to this edition is a chapter addressing residential programs for new transfer and graduate students.

To order this and other resources from the National Resource Center, please visit our web site: [www.sc.edu/fye/publications](http://www.sc.edu/fye/publications).

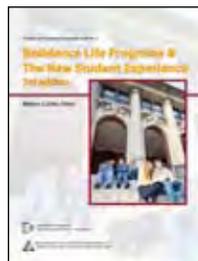
### Awards

#### ASHE Special Merit Award

The National Resource Center for The First-Year Experience and Students in Transition (NRC) at the University of South Carolina received the 2008 Special Merit Award at the 33rd annual Association for the Study of Higher Education (ASHE) conference held Nov. 5-8 in Jacksonville, Florida. ASHE is a scholarly society dedicated to higher education as a field of study.

The ASHE Special Merit Award is traditionally presented to a person, group, or organization in recognition of influential leadership and for offering a valuable perspective for studying and understanding colleges and universities.

#### ACPA Award for Excellence in Publications



Each year the American College Personnel Association (ACPA) recognizes ACPA Commissions that demonstrate distinguished leadership and accomplishments that support the strategic goals of both the Commission and the Association. The National Resource Center would like to congratulate the ACPA Commission for Admissions, Orientation, and the First-Year Experience (AOFYE) for receipt of this year's ACPA Award for Excellence in Publications for their contribution to the monograph *The First-Year Experience*

in American Higher Education: An Annotated Bibliography (4th edition). This monograph was published by the National Resource Center in partnership with ACPA-College Student Educators International, with members of the AOFYE Directorate Board serving as volume editors.

To order this and other resources from the National Resource Center, please visit our web site: [www.sc.edu/fye/publications](http://www.sc.edu/fye/publications)

### Conferences

#### 28th Annual Conference on The First-Year Experience®

February 6 – 10, 2009  
Orlando, Florida

#### 22nd International Conference on The First-Year Experience®

July 20-23, 2009  
Montreal, Quebec, Canada  
Join educators from around the world as we explore approaches for enhancing the first-year experience for students. For more information on the conference or submitting a proposal for presentation, please visit [www.sc.edu/fye](http://www.sc.edu/fye). Proposal deadline is March 15, 2009.

#### Institute for First-Year Seminar Leadership

April 19-21, 2009  
Asheville, North Carolina  
NRC invites first-year seminar directors to this unique event designed to engage participants on issues critical to first-year student success. A team

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## HAPPENING Cont. from p. 12

of experts will examine current trends and practices in a collegial environment that will provide participants with the tools needed to help enhance the success of first-year seminars on their campuses.

For more information on these and other National Resource Center events, please visit our web site [www.sc.edu/fye/events/](http://www.sc.edu/fye/events/).

## Initiatives

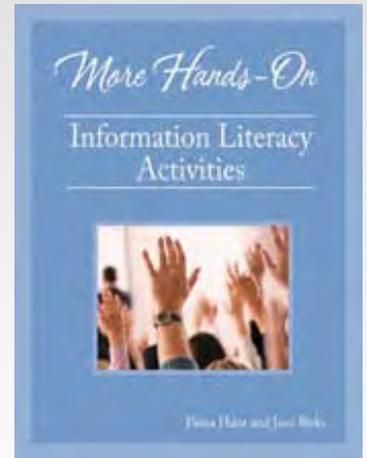
The National Resource Center for the First-Year Experience and Students in Transition is pleased to announce a new initiative toward a renewed focus on graduate student success. After publishing a monograph on graduate student transitions, the Center has created a listserv to provide faculty, staff, and students with an outlet to discuss strategies and design programming that address the challenges that students face as they transition into and through graduate school. For more information on Monograph 50, *Graduate Students in Transition: Assisting Students Through the First Year* or to join this innovative listserv, please visit: [www.sc.edu/fye](http://www.sc.edu/fye).

## Research

The National Resource Center has completed data collection for the 2008 National Survey on Sophomore-Year Initiatives. A summary of the findings will be available on the website in summer 2009.

## RESOURCE SPOTLIGHT: MORE HANDS-ON LITERACY ACTIVITIES

*More Hands-On Information Literacy Activities* provides instructors in first-year courses, librarians, and student and academic affairs personnel with strategies and practical activities to teach students how to be discriminating researchers and consumers of information. Hunt and Birks (2008) note, "being Web savvy does not necessarily equate with being information literate" and designed the book to help educators "tackle the daunting yet critical task of teaching students to first question and then evaluate the academic appropriateness, reliability, and credibility of information resources..."



With the exponential growth of available information, the need for instruction in all aspects of information use—from access to ethics—has also escalated. While the book focuses on accessing and citing information for academic research papers, other facets of information literacy are touched upon including vocabulary development for effective searches, orientation to conventional information resource centers, the impact of time delays of various media publishing cycles on currency of information, and the benefits and challenges of online learning.

Through 20 ready-to-teach active-learning lessons and a companion CD-ROM allowing for lesson plans to easily be printed and customized to fit individual teaching-learning styles or institution profiles, *More Hands-On Information Literacy Activities* provides an engaging and practical approach to teach basic information literacy skills and concepts.

Toni Vakos  
Editor

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University of South Carolina, Columbia, SC

Hunt, F. & Birks, J. (2008). *More Hands-On Information Literacy Activities*. New York: Neal-Schuman. [www.neal-schuman.com](http://www.neal-schuman.com)