THE DOUBLE-HELIX
Building the DNA for a Great College Experience
The Double Helix: Building the DNA for a Great College Experience

By Elizabeth Vardaman

Every now and again an article on higher education—and the accompanying images—offer compelling reading and hit a mark that resonates for a long time. One such piece published in Liberal Education, the journal of the Association of American Colleges and Universities, has had a three-year shelf-life for me so far. I am hopeful that aspects of that essay and its double-helix image will also be meaningful to you, as a University 1000 leader, and possibly to your University 1000 students as well.

The article and the double-helix illustration advocate a total learning experience during a university education that will intentionally and purposefully weave the formal classroom experience into life’s larger laboratory. Students, their professors, advisers, student life leaders, and others may collaborate to design an intertwining of academic courses with a wide variety of service learning and other activities—just as the image in the article suggests (see attached essay and graphics). Such collaborations could result in a progression or interaction that is both thoughtful and exciting. Students invest themselves in introductory-level courses and opportunities in their first term of their first year here, then commit to increasingly complex and interesting extracurricular activities incrementally as they move into more advanced intellectual work as sophomores, juniors, and seniors.

Both strands are very important—the major and the co-major. And the double-helix profiles that students create are unique to themselves alone as they weave their classroom experiences into campus, community, state, federal and international connections in infinite varieties of ways—all to good effect for them and for society.

For example, one International Studies student built her own double-helix, noting that she became so interested in the International Justice Mission during her freshman year at

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Baylor that, working with Student Life, she and a small band of friends initiated founding a university chapter of IJM here. That program provided her exciting opportunities to learn leadership skills and to enhance her communication skills, as she became president of the campus IJM chapter and as she volunteered to be a speaker at many IJM’s campus events. She applied for internships in the State Dept. and also applied for the Truman Scholarship. Each swirling of her “co-major” activities with her academic major deepened her certainty that International Studies was the right place for her, and the natural trajectory of her double-helix experience made it easy for her to see that one of her next steps would be to prepare to take the LSAT while also taking advanced courses in her field. She was accepted to a top law school that has trained her to become a voice at home or abroad for those who have no one advocating for them.

Another student, majoring in Biology and History, minoring in Chemistry, became involved with Hospice as a volunteer during her first year here. Throughout her undergraduate program she sat with patients, made gifts, delivered flowers, baked cookies or did anything that was needed. She also became a writing tutor on campus, enhancing her own skills while she helped others. Her study abroad experience in Europe helped her realize that healthcare in Scandinavia might offer great insights into advances that she could make someday as a physician serving senior citizens. She was also active in AMSA (premedical student service organization). When she decided to apply for a Fulbright to study gerontology in Finland before going to medical school, she had a strong profile that showed the creative interaction between her coursework and her extracurricular values.

Perhaps a junior or senior you know to be maximizing these principles could come to your University 1000 class to discuss his or her own “double-helix” story. Or the students could create an imaginary timeline for themselves, brainstorming with one another what kinds of activities might be ideal complements to their classroom interests. (The Baylor variation on the double-helix is provided for that purpose.)

Students have been doing this sort of creative planning since long before Haefner and Ford applied Crick and Watson’s DNA image to the college experience. I will never forget—nor will our community—one of our sophomores who decided he wanted to make a contribution to the conversation between Waco and Baylor, as he moved forward to fulfill a Political Science major. In 2002 he and a small band of friends designed and created One
Book, One Waco, a program that has become institutionalized in our community over the past decade. In the process of doing that, he learned teamwork, leadership, communication and critical thinking skills—both inside and beyond the classroom. That student learned how to think outside the box, commit himself to citizenship and service, and turn big dreams into dynamic realities here. So perhaps we should not be surprised that he then took a law degree at Harvard and is now an attorney in the US Dept. of Justice.

Many students figure out who they are and answer the question “what is worth wanting” while they are here. Such accomplishments begin in the first-year experiences that weave the worlds of mind and heart together. Conversations about “double-helix” strategies invite students to take another look at their own calling, their own opportunities to build an undergraduate DNA that is the foundation of much that they will then become as they move on into the world of work, graduate programs, service, missions, and citizenship.

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The disciplinary major has long served as the backbone of higher education. Every student has at least one major, and each major prescribes a program of study that is supported by a series of courses both within the field and from the general education curriculum. Yet relying solely on the formal academic curriculum to achieve the outcomes of a liberal education shortchanges the total academic experience available to students. A truly transformational liberal education considers the totality of students’ lives as the broad palette on which the learning experience is fully realized. The academic major plays a central role, but the learning that takes place outside the classroom is, and should be, a critical player in this experience as well. In Learning Reconsidered: A Campus-Wide Focus on the Student Experience, the landmark joint publication of the National Association of Student Personnel Administrators and the American College Personnel Association, the authors note that “a transformative education repeatedly exposes students to multiple opportunities for intentional learning through the formal academic curriculum, student life, collaborative cocurricular programming, community-based, and global experiences” (Keeling 2004, 3). Transformational learning centers on the notion that, with increasing emphasis on learner-centric pedagogies, the complete learning environment includes not just the academic core but all learning experiences, especially those that happen outside the classroom. In essence, the entire campus is a learning environment that should be intentionally tapped for the total learning experience.

A robust partnership between academic affairs and student affairs is essential to fostering transformational learning. Faculty members and student affairs personnel should “work together to complete conceptual mapping of the student learning, collaboratively identifying activities inside and outside the classroom that focus upon and contribute to specifically defined learning objectives” (Keeling 2004, 24). Our premise in this article is that, in order to strengthen this partnership and serve students in a twenty-first-century environment, the best approach would be to provide each student with a compass, a map, and a route through the vast array of available out-of-the-classroom learning experiences. The final destination would be marked by the student’s achievement of the essential learning outcomes of a liberal education.

The co-major
The compass, map, and route would comprise an individualized student pathway, or “co-major.” It would be the task of student affairs to provide a structure by which each student is mentored through the co-major and assessed for the desired learning outcomes. The totality of this effort would essentially be a compact between student affairs and each student, formalized as the co-major. While each co-major would be uniquely designed around the individual student’s learning style and desired outcomes, student affairs personnel would

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identify certain themes—or regions within the student learning map—to aggregate the co-majors. For example, student affairs might identify the themes of leadership, civic and social responsibility, global awareness, ethics, and sustainability as co-majors. Each student would then pick at least one theme and devise a co-major to achieve the desired learning outcomes through programs offered by student affairs.

Imagine, for example, that a student chooses the theme of leadership for his or her co-major. Working with this student, student affairs personnel would devise a plan (the route) that would guide him or her through specific student affairs programs to achieve the desired outcomes within the specific context of leadership. The student might start by getting involved in residence halls and student clubs during the freshman year. These experiences would expose him or her to the preliminary aspects of leadership. In the sophomore year, the student might add an intramural sport to the learning experience and be guided by the coach and the team in exploring the important role leadership plays in sports. The student might, in the junior year, become a student government representative and come to realize the nuances of leadership within this program. Finally, he or she might run for student body president, a consummate leadership experience. Throughout this co-major, student affairs personnel would interact, coach, mentor, and assess the student’s progress.

The double helix

The metaphor of the double helix enables us to visualize the proposed relationship between the major and the co-major; on one side of the helix is the traditional academic major, while the other strand represents the co-major (see fig. 1). Each student’s helix would be unique to his or her own transformational learning experience. In a sense, one can think of the double helix as a ladder that the student ascends while progressing toward the desired learning outcomes. The “rungs” of the double helix ladder represent the programs shared by both the major and the co-major, and each rung is connected to the major and the co-major strands. An ascending spiral, the double helix also represents the expansion of experiences and an increasing level of cognitive complexity. At each turn of the spiral, students engage subjects in multiple ways (Leskes and Miller 2006).

While the spiraling strands representing the academic major and the student co-major form the backbone to the transformational student learning totality, the rungs of the double helix critically represent the collaborative partnerships between academic affairs and student affairs. In essence, the rungs represent programs that both divisions support and utilize. Moreover, the rungs represent activities in which one division might take the lead in order to distribute the workload more efficiently. For example, one rung might represent internships as a learning opportunity for the student; academic affairs might be the locus of the internship program, with student affairs playing a supporting role. Other examples of these shared programs include freshman orientation, career placement, mentoring and
advising, student clubs, undergraduate research, and service learning.

To further demonstrate the potential for collaboration, we'll use the example of service learning. This program may serve as a key component of the academic major in, say, political science, and it may also be a key component in a co-major thematically focused on civic responsibility. Both academic affairs and student affairs would support this program of service learning. The political science department would identify the academic learning outcomes associated with the service-learning project and deploy appropriate assessment methods. Likewise, student affairs personnel would identify outcomes relevant to the co-major and conduct appropriate assessment activities. Academic affairs might provide a faculty mentor, while the student affairs personnel might work with the student to identify an appropriate service opportunity. Both the faculty mentor and student affairs personnel would work with the sponsor to provide a rich learning experience for the student.

By increasing cooperation between student affairs and academic affairs, the identification of such programmatic “rungs” could also lead to increased efficiency. The assessment of a program for which the use of student portfolios is appropriate, for example, could more efficiently be implemented by either academic affairs or student affairs, rather than by both divisions separately.

Assessment and student learning outcomes

The entire double helix and co-major structure should be designed around assessment and student learning outcomes. The desired outcomes should determine the plan for the co-major, which, in turn, should determine the assessment methods used. Moreover, the student and his or her mentor should, together, develop and use a rubric to ensure intentionality in learning as well as to assess progress in achieving the desired learning outcomes.

Effective assessment tools for the co-major include student portfolios, capstone projects, project reviews conducted by other students, case-study exercises, and national tests. Portfolios can provide longitudinal evidence of student learning and development, for example, and capstone projects can be effective in assessing how well a student integrates learning, concepts, and skills into a project. Faculty and student affairs mentors could play a central role in assessment by observing student behavior in various settings throughout the major and co-major. Students themselves could be engaged in assessment by reviewing and critiquing peer projects and providing feedback.

Many student learning outcome models could be used to support the development of co-majors. In Learning Reconsidered, for example, the primary student learning outcomes identified are cognitive complexity; knowledge acquisition, integration, and application; humanitarianism; civic engagement; interpersonal and intrapersonal competence; practical competence; and persistence and academic achievement (Keeling 2004). College Learning for the New Global Century identified five essential learning outcomes: knowledge of human cultures and the physical and natural world through study in the sciences and mathematics, social sciences, humanities, histories, languages, and the arts; intellectual and practical skills, including inquiry and analysis, critical and creative thinking, written and oral communication, quantitative literacy, information literacy, teamwork, and problem solving; personal and social responsibility; and integrative learning (AAC&U 2007). A model developed as part of the Wabash National Study of Liberal Arts Education identifies seven student learning outcomes: integration of learning,
### Figure 2. Sample civic responsibility program plan

<table>
<thead>
<tr>
<th>Activities and experiences:</th>
<th>Student Learning Outcomes:</th>
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<tbody>
<tr>
<td></td>
<td>Knowledge/Content</td>
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#### First Year

- **Participate in a youth group**
  - Assessment: Journal
  - Focus: How is civic responsibility interwoven with the youth group!
  - Focus: Reflect on how this activity can serve to improve communication skills.
  - Focus: What connections did you observe between these lectures, civic responsibility, and cultures other than your own?

- **Attend campus lectures about a nonprofit group**
  - Assessment: Journal
  - Focus: What connections did you observe between these lectures, civic responsibility, and cultures other than your own?

#### Sophomore

- **Service learning project;**
  - Assessment: Supervisor observations; journal
  - Focus: How is your service learning project connected to civic responsibility and to your academic major?
  - Focus: How did the student use his or her communication skills in this project? Were they intentional learners about these communication skills?
  - Focus: What were the key project management strengths and weaknesses of the student in this project? Are any of these unique to service learning or to civic responsibility?
  - Focus: Did this project cross various cultures? If so, were there things you’ve learned at the university that could be applied in this setting? If not, why not?

- **Attend lectures with civic theme**
  - Assessment: Journal
  - Focus: What connections did you observe between these lectures, civic responsibility, and cultures other than your own?

#### Junior

- **Connect academic major to civic responsibility through project with faculty member**
  - Assessment: Paper graded by faculty member
  - Focus: Identify the connections between the content of the major and this project. How did you apply what you learned as content to this real-life setting?
  - Focus: The writing of the paper is directly associated with the communication outcome.
  - Focus: Describe how project management skills are used in paper writing.
  - Focus: Where did course content connect to the class project?
  - Focus: What skills did you learn from the class project that pertain to civic responsibility?
  - Focus: Were there multicultural aspects of this project?

#### Senior

- **Enroll in leadership course**
  - Assessment: Course grade
  - Focus: Where did course content connect to the class project?
  - Focus: Explain how communication was a central theme of the course and the project you worked on.
  - Focus: What skills did you learn from the class project that pertain to civic responsibility?
  - Focus: Were there multicultural aspects of this project?
inclination to inquire and lifelong learning, effective reasoning and problem solving, moral character, intercultural effectiveness, leadership, and well-being (King et al. 2007).

A co-major designed around the theme of civic responsibility, for example, would allow a student to achieve the campus and student affairs learning outcomes through a program plan focused on civic responsibility. Several academic majors are particularly compatible with this co-major, including criminal justice, political science, religious studies, and visual and performing arts—to name but a few. The student's mentor might be a student affairs staff member, a faculty member, or a community member (e.g., from a nonprofit organization such as Habitat for Humanity). The mentor and the student would work together to devise a civic responsibility program plan, which would consist of out-of-the-classroom experiences, as well as an alignment matrix. The experiences could draw from a variety of programs and sources on and off campus. For example, the student may already be involved with a nonprofit organization, and his or her experience could count toward the achievement of the learning outcomes. The alignment matrix would explicitly connect the experience with the student learning outcomes and assessed with regard to what the student has actually learned. An electronic portfolio should house the plan, the student-assessed work, and the documented interactions between the student and his or her mentor. The portfolio could also serve as a cocurricular “transcript,” providing strong evidence to potential employers that the student has accomplished intentional learning far beyond the traditional major.

Conclusion
Retention issues, a focus on learning outcomes, accountability, and other factors have created an acute need for new models for establishing closer partnerships between academic affairs and student affairs. Institutions that strive to build such partnerships will be well positioned to provide a twenty-first-century liberal education. We believe that the co-major proposed here—when connected intentionally to the traditional academic major—provides the second strand of a double helix that represents a purposeful pathway for achieving the essential learning outcomes of a liberal education.

To respond to this article, e-mail liberaled@aacu.org, with the authors’ names on the subject line.

REFERENCES