Organic Cohorts in Architectural Engineering Technology Successes and Opportunities

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Abstract

In *Building Community: A New Future for Architecture Education and Practice*, Boyer and Mitgang (1996) noted that, "Each school of architecture should actively seek to establish a supportive climate for learning—where faculty, administrators, and students understand and share common learning goals in a school environment that is open, just, communicative, and caring" and continued with their concern "that life for many architecture students is socially isolated and exhausting, and leaves little time for any but the most determined students to explore the connections between architecture and other fields of study." These challenges for architecture education continue today.

The University of Hartford's Architectural Engineering Program (AET) or pre-architecture program is based on the blending academic-based theoretical studies with professionally based problem solving. In our first-year design studios and architectural history courses, we find our students naturally and organically form the high impact practices (HIP) of shared "learning communities" or cohorts and "common intellectual experiences." The cohort concept often serves as a support network as students advance through our program.

The associated criteria aligned with HIPs included performance expectations high, significant investment of time, interaction with faculty and peers, and frequent feedback. Although our first-year design studios and architectural history courses are not formally set up as a First Year Interest Group using data from our current practice, we look to developing the possibility of formalizing these relationships. Building on our successes, we hope to identify opportunities to support a more supportive climate for learning.

1. Building Community: A New Future for Architecture Education and Practice

In *Building Community: A New Future for Architecture Education and Practice,* Boyer and Mitgang focused Goal Four on "A Connected Curriculum." Published over twenty years ago, their research regarding architectural education and practice are still relevant today. Boyer and Mitgang argue, "Each school of architecture should actively seek to establish a supportive climate for learning—where faculty, administrators, and students understand and share common learning goals in a school environment that is open, just, communicative, and caring" and continued with their concern "that life for many

architecture students is socially isolated and exhausting, and leaves little time for any but the most determined students to explore the connections between architecture and other fields of study" Goal Five on "A Climate for Learning" notes, "Healthy learning communities chare certain unmistakable characteristics – openness, fair play, clarity of communication, inclusiveness, tolerance, caring, joyfulness, and commonly held purpose. These opportunities and challenges for architecture education continue today.

2. Association of American Colleges and Universities/LEAP

Launched in 2005, Liberal Education and America's Promise (LEAP) is a national public advocacy and campus action initiative of the Association of American Colleges & Universities (AAC&U). LEAP champions the importance of a twenty-first-century liberal education—for individual students and for a nation dependent on economic creativity and democratic vitality. LEAP responds to the changing demands of the twenty-first century—demands for more college-educated workers and more engaged and informed citizens. Today, and in the years to come, college graduates need higher levels of learning and knowledge as well as strong intellectual and practical skills to navigate this more demanding environment successfully and responsibly. Through LEAP, hundreds of campuses are making far-reaching educational changes to help all their students— whatever their chosen field of study—acquire the broad knowledge, higher order capacities, and real-world experience they need to thrive both in the economy and in a globally engaged democracy. http://www.aacu.org/leap/hips.

3. High-Impact Educational Practices: A Brief Overview

According to AAC&U and LEAP, high-impact practices (HIP) have been widely tested and have been shown to be beneficial for college students from many backgrounds. These practices take many different forms, depending on learner characteristics and on institutional priorities and contexts. On many campuses, assessment of student involvement in active-learning practices such as these has made it possible to assess the practices' contribution to students' cumulative learning. However, on almost all campuses, utilization of active-learning practices is unsystematic, to the detriment of student learning. HIPs that educational research suggests increase rates of student retention and student engagement include first year seminars and experiences, common intellectual experiences, learning communities, writing intensive courses, collaborative assignments and projects, undergraduate research, diversity/global learning, service learning, community based learning, internships, and capstone courses and projects.

4. Common Intellectual Experiences

The older idea of a "core" curriculum has evolved into a variety of modern forms, such as a set of required common courses or a vertically organized general education program that includes advanced integrative studies and/or required participation in a learning community. These programs often combine broad themes—e.g., technology and society, global interdependence—with a variety of curricular and co-curricular options for students.

Guidelines for **Common Intellectual Experiences** to Count as HIP

1. The collaborative assignment or project must be embedded in a credit-bearing course.
2. The collaborative assignment or project must count for at least 20% of the final grade in the course.
3. Student teams should be presented with a real-world problem to solve, whether that problem is the interpretation of a string quartet, or a business plan, or the design of a museum exhibit, or an advertising campaign, or a software need, or an engineering design problem.
4. Students on a team must be required to evaluate each other's performance as team members.
5. The project must be presented in some way, either within the course or in some public forum.

5. Learning Communities

The key goals for learning communities are to encourage integration of learning across courses and to involve students with "big questions" that matter beyond the classroom. Students take two or more linked courses as a group and work closely with one another and with their professors. Many learning communities explore a common topic and/ or common readings through the lenses of different disciplines. Some deliberately link "liberal arts" and "professional courses"; others feature service learning.

Guidelines for **Learning Communities** to Count as HIP

1. The learning community must be a curricular learning community, with the same group of students enrolled in two or three courses at the same time.
2. There must be some integration of academic content across the linked courses so that both social and academic integration form part of the experience. Thus, a minimum of 25% of the course content in each course will relate to the content in the companion course(s).
3. In order to ensure the integration of academic content across courses, there should be some collaboration among participating faculty in the design and implementation of the learning community courses.

6. University of Hartford AET Enrollment

Architectural Engineering Technology Student Enrollment and Graduation Statistics

Academic Year	First-Year	Sophomore	Junior	Senior	Total Graduates
18-19	50	33	42	44	31
17-18	43	41	39	27	22
16-17	46	39	20	42	32
15-16	42	28	29	46	35
14-15	34	30	33	54	41

Figure 1. AET student enrollment, graduation statistics

7. First Year Graphics and Design Studio Courses

AET 110 – Introduction to Architectural Graphics

This course focuses on integrating lectures and studio classes to develop students' understanding of the methods, media, and materials used in the communication of design. Students practice graphic and verbal presentation techniques. Construction techniques in relation to construction documents: plans, elevations, sections, details, and specifications are presented.

Figure 2. Fall 2018 students

AET 123 – Architectural Design I

An introductory course with an emphasis on the architectural responses to people's basic needs for shelter. At the fundamental level, these needs, physical, psychological, sensual, intellectual, cultural, and aesthetic are met through physical design. Emphasis is placed on problem solving through studio activity and relating architectural theory and criticism to the studio.

Figure 3. Spring 2019 students

Our first-year studios are often taught (preferred) by full time faculty and meet 8 hours per week. This is one of our strengths in our first-year experience. Additionally, students

are required to take a 4-credit architectural history course each of the semesters of first year.

8. Fall to Spring Enrollments

Table 1. Enrollment data, 2014-2019

	DAVIS						PETRY						DEPT
Academic	Fall/Sem 1	Spring/Sem 2		Fall/Sem 3			Fall/Sem 1	Spring/Sem 2		Fall/Sem 3			Retained
Year	Total	Retained Sem 1>2	Total	Retained Sem 2>3			Total	Retained Sem 1>2	Total	Retained Sem 2>3			Yr 1>2
	AET 110	#	%	AET 123	#	%	AET 110	#	%	AET 123	#	%	AET
2014-15	12	10	83%	14	9	90%	13	9	69%	14	8	89%	
2015-16	12	8	67%	10	8	100%	11	7	64%	16	5	71%	
2016-17	12	9	75%	11	9	100%	12	9	75%	12	9	100%	
2017-18	9	7	78%	10	7	100%	14	8	57%	17	7	88%	
2018-19	14	11	79%	14	10	91%	14	12	86%	17	12	100%	
		45	76%		43	96%		45	70%		41	91%		80%

9. Organic Cohort Development

Our first-year students are a very diverse group of young people, typically made up primarily of traditional college age students and sometimes transfer students and students looking for a minor in architecture. Most come from the northeastern states of the US. The cohorts form independently and are color, race, gender, sexual orientation, religion, and/or physical disability blind. They DO share the curiosity, commitment, and passion for their architecture major. Although not part of this review, we often see upperclassmen still bound by their first year "organic" cohort.

10. Lessons Learned

In our first-year studios evidence suggests that students that organically develop as a cohort are generally more successful with retention. The department average is approximately 80% for this five-year span. It was noted as only 66% for academic year 2018-2019 while the "organic" cohorts were between 88%-100% for the same time frame. As educators, our goal should be to foster relationships that help to bind students with a cohort. We should continue to ask the questions that Boyer asked:

"First, is the school a communicative place?
Second, is the school a just community?
Third, is the school a caring place?
Finally, is the school a celebrative place?"

11. Closure

High impact practices of shared "learning communities" or cohorts and "common intellectual experiences" help to enhance the learning experience of first year students. The cohort concept often serves as a support network as students advance through our

program. Building on our successes we hope to identify opportunities to support a more supportive climate for learning.

References

[1] Ernest L. Boyer and Lee D. Mitgang, *Building Community: A New Future for Architecture Education and Practice*. Princeton, NJ : Carnegie Foundation for the Advancement of Teaching, 1996.

Biographical Information

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