

Architecture Education: Issues in Assessment

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Abstract

Architectural education has always been a complicated issue. "To prepare students to meet the complex demands of the profession, the degree focus and structure as well as the curriculum must facilitate the relationship between general education and specialized study." In 1996, Thomas Fisher, dean of the University of Minnesota, noted, architects must "assimilate large amounts of disparate information and find ways to order it and apply it to particular settings." Boyer and Mitgang concluded in *Building Community: A New Future for Architecture Education and Practice*, "that architectural education is really about fostering the learning habits needed for the discovery, integration, application, and sharing knowledge over a lifetime."

These are only some of the many challenges facing the academy. Continual assessment of the successes and challenges of any program are essential to its thriving.

The University of Hartford's Architecture Program is based on the blending of academic-based theoretical studies with industry-based problem solving. Our practice oriented architecture program has developed and implemented an innovative assessment plan. The goals and objectives are clearly defined. Learning experiences and assessment measures are both traditional and innovative. These innovative approaches will serve as a model to other disciplines.

Assessment Overview

Educational assessment is generally considered a method of evaluating student performance and attainment. Although this may sound relatively simple in fact it is a complicated challenge for administrators and faculty at universities throughout the United States. Architectural programs are somewhat unique. In addition to the traditional means of assessment (i.e. testing) the subjective nature of the design studio projects provide challenges and opportunities for both students and faculty. Portfolios, always hallmarks of architectural programs, are now being considered as assessment tools in many more traditional liberal arts programs. Accreditation agencies are requiring university, colleges, and departments to provide assessment plans, goals, and measures by which to be assessed.

Assessment at the University of Hartford

The University of Hartford's Architecture Program, a four-year pre-architecture program, is required to comply with a number of accreditation agencies requirements. The New England Association of Schools and Colleges (NEASC) accredits the University of Hartford. Accreditation Board for Engineering and Technology, Inc. (ABET) accredits the current program in Architecture. This pre-professional program will be expanded in the next year or two to include a two-year graduate professional degree program. This new graduate program will require an accreditation from the National Architectural Accrediting Board (NAAB).

Following are some of the requirements of each of these accrediting organizations:

New England Association of Schools and Colleges (NEASC)

NEASC identifies the Assessment Process as follows:

- Articulate outcomes
- Identify where outcomes are addressed
- Identify and collect baseline information
- Determine methods and criteria by which outcomes will be assessed
- Articulate level of expected performance
- Establish a schedule for assessment
- Determine whom you will assess
- Determine who will assess
- Determine how and with whom results will be shared
- Determine how results will inform teaching/learning and decision-making
- Decide how your institution will follow up on implementation

To accommodate the requirements of NEASC the University of Hartford utilizes a variety of assessment mechanisms. These include: Alumni Surveys, Employer Follow-up, Pre & Post Testing, Portfolios, Senior Capstone/Seminar Project, Student Teacher/Field Evaluation, and Standardized Exams.

Accreditation Board for Engineering and Technology, Inc. (ABET)

As defined by ABET an assessment program is a five step program that must be:

1. Multi-faceted – utilizes a variety of measures.
2. Flexible – able to respond to new demands.
3. Credible – provides statistically valid information.
4. Comprehensive – involves all stakeholders.
5. Strategic – follows a plan.

ABET has taken a new approach, a shift in philosophy, moving from a “resource-based” approach to an “outcomes-based” approach to assessment. ABET is quite clear when they make suggestions for “preparing for TC2K Assessment”. In outcomes-based assessment, continuous improvement is a “permanent process” not just preparation for ABET. Their suggestions include:

- Do not depend solely on long time-cycle assessment tools; use both long and short cycle methods.
- Diversity in the use of evaluation and assessment tool; use formal surveys as only one of several.
- Make it apparent how each criteria element is linked to program’s goals, objectives and continuous improvement plan.
- Make faculty part of the process from the start.
- Plan for about a year to develop understanding of concepts.
- Plan for frequent meetings and discussions during preparation.
- Plan for a faculty member to coordinate plans for visit – does not have to be a department head or dean.
- Allow approximately two years to develop and implement assessment model.
- Allow another one to three years to complete the loops.
- Make process inter-departmental for all affected programs and encourage frequent communication.
- Allow time to define outcomes, performance criteria, and metric.

The elements of a “Continuous Improvement Plan” include:

1. Program Goals
2. Strategy of Implementation
3. Evaluation of Criteria
4. Method/Frequency of Assessment
5. Delivery of Feedback
6. Response to Feedback

ABET is looking to institutions to “say what they do”, “do what they do”, “prove it”, and “improve it”.

National Architectural Accrediting Board (NAAB)

The NAAB Student Performance Criteria encompass three level of accomplishment.

- **Awareness:** familiarity with specific information, including facts, definitions, concepts, rules, methods, processes, or settings. Students can correctly recall information without necessarily being able to paraphrase or summarize it.
- **Understanding:** assimilation and comprehension of information. Students can correctly paraphrase or summarize information without necessarily being able to relate it to other material or see its fullest implications.
- **Ability:** skill in relating specific information to the accomplishment of tasks. Students can correctly select the information that is appropriate to a situation and apply it to the solution of specific problems. For the purposes of accreditation, graduating students must demonstrate awareness, understanding, or ability in the thirty-seven areas.

The **Architecture Program Report (APR)** must include the following:

- A description of the program's self-assessment process
- Progress relative to each dimension of the program's mission statement
- Progress relative to each dimension of the program's strategic plan
- Faculty, student, and alumni assessments of the program's overall curriculum and learning context, as outlined in the NAAB Perspectives
- Program strength and future directions
- Additional pertinent information

Assessment in Architecture at the University of Hartford

In 1996 the Architecture Program at the University of Hartford established an "Undergraduate Program Student Assessment" plan. Two full-time faculty members, Professor Daniel Davis, AIA and Professor James E. Fuller, AIA, prepared this plan.

The "General Goals" of the Architectural Engineering Technology Major established that "A successful graduate of the Architectural Engineering Technology Program" is expect to:

1. Demonstrate knowledge of architectural history and criticism.

Objectives:

- 1.1 Students will be able to identify key buildings, structures, and architects throughout history.
- 1.2 Students will develop the ability to critically analyze design options and justify their final solutions.
- 1.3 Students will identify, analyze, and synthesize appropriate historical precedents into their individual design solutions.

2. Describe site, environmental, behavior, and sociological influences in planning.

Objectives:

- 2.1 Students will understand the influences of site-specific attributes on the built environment including topography, existing structures, surface water, sub-surface conditions, utilities, paved, and unpaved access.
- 2.2 Students will develop an awareness of and be able to respond to natural environmental influences on the built environment including potable water supply, waste management, and the natural forces.
- 2.3 Students will understand and develop an awareness of how the built environment affects people.
- 2.4 Students will understand the affects of societal characteristics on the use of the built environment and how the built environment can be more successful by responding to these societal characteristics.

3. Describe natural laws and structural behaviors affecting building systems.

Objectives:

- 3.1 Students will understand the natural forces exerted no the built environment, including vertical gravity loads, horizontal wind loads, and the shearing forces of earthquakes, and be able to resolve these forces to maintain a stable structure.

3.2 Students will understand and design for the resolution of structural loading in building forms including shear, live load, dead load, and movement.

4. Understand and apply codes and regulatory standards.

Objectives:

4.1 Students will understand the necessity of building codes and regulatory standards in the built environment.

4.2 Students will understand the restrictions and opportunities of codes and regulations in the built environment.

4.3 Students will develop an approach to research, comprehension, interpretation and application of building codes and regulations in the design, documentation, and construction processes.

5. Apply two and three dimensional design issues in creating habitat or structures.

Objectives:

5.1 Students will understand the human body as it relates to scale, proportion, and size.

5.2 Students will understand the basis of spatial theory and how different spatial environments relate and react to each other in the built environment.

6. Demonstrate organizational and communication skill to accommodate needs of designer/architect, client, builder, regulatory bodies, and the general public.

Objectives:

6.1 Students will learn the importance of time management in architecture including the budgeting of hours to produce a project.

6.2 Students will learn the importance of presentation management including the organization of presentation materials, graphic presentation techniques, and oral presentation methods.

6.3 Students will understand how to communicate effectively to individuals and groups both graphically and orally.

7. Demonstrate ability to perform in a competent and professional manner the day-to-day requirements of the profession.

Objectives:

7.1 Students will develop skills to understand the myriad of roles architects must balance on a daily basis including listener, facilitator, decision maker, and intermedator.

7.2 Students will understand ethical issues related to the profession of architecture including the limitations of their competence.

7.3 Students will understand the necessity of continuing education as a life-long process to maintain professional standing and improve the services offered.

7.4 Students will begin their comprehension of professional conduct as expected or required by the public, regulatory agencies, governmental bodies, related professionals, and peers.

7.5 Students will be introduced to the importance of community involvement as a means of contributing their professional skills to helping society at large.

7.6 Students will be introduced to the importance of involvement in professional societies to improve the profession and gain knowledge from peers.

Assessment Measures for the Architecture Program include: tests, papers, sketchbooks, presentation and analysis, projects and presentations, exams, notebooks, exercises, drawings & presentations, diagrams & presentations, written documentation, and a “capstone” senior design thesis or independent study.

In addition to overall program considerations, and perhaps more relevant, the architecture program implements important assessment tools within the six required design studios. The faculty or studio critic, professional visitors or guest critics, peers, and the students themselves assess individual projects. Typically, a “jury evaluation form” is utilized and evaluates a variety of issues. Concept, Development, Graphic Presentation, and Oral Presentation are key criteria for some projects. For upper level students the criteria expands to include Design and the following criteria:

- Concept is evident in design work
- Designer clearly understands building type
- Design related to historic references
- Design allows for future flexibility
- Site developed appropriately
- Design is worthy of further development

In all cases there is an opportunity for the “juror” to provide comments and use a numerical system for assessment. This feedback is invaluable to the faculty and student. Adjustments can be made almost immediately. In addition to providing immediate assessment the jury system and “jury evaluation form” provide the stimulus for further discussion between the faculty and student designer.

Issues in Assessment

In, *Building Community: A New Future for Architecture Education and Practice*, Boyer and Mitgang proposed “new language and categories for architecture accreditation standards, language driven by the conviction that the standards used to evaluate student work and program performance should be organized not so much around blocks of knowledge as around *modes of thinking*: the discovery, application, integration, and the sharing of knowledge.” “These new categories are more in harmony with the principles of scholarship for faculty work” as presented in *Building Community*. This would result in “accreditation standards that were less prescriptive, more flexible, and more supportive of the rich diversity among programs.”

Boyer notes, that the fifty-three “performance criteria” of the National Architectural Accreditation Board (NABB) “are, beyond question, the closest thing in existence to ‘national standards’ in architecture education.” They prescribe “what all graduating students should be able to demonstrate, while leaving it up to each school to accomplish that goal as they see fit. What the accrediting board’s criteria seek to do is not to prescribe a core curriculum, but to identify a core body of knowledge.”

The fifty-three standards are grouped under four broad headings:

- Fundamental Knowledge
- Design
- Communication
- Practice

Concerns over “lack of integration of technical and practical knowledge into design work is probable the single most widespread area of program weakness.”

The undergraduate and graduate curriculum **is developed to foster the integration of technical and practical knowledge into design work.** Design is introduced early in the program and integrated throughout the curriculum in order to expose students to practice through industry-in-the classroom activities. Among the activities that join design, industry practice, and communication are presentation of students’ designs to juries comprised of active area architects.

We consider the curriculum in general to be well planned with a good sequence of topics and courses. Through constant review, existing course are improved and new course developed in response to the needs of the profession. The curriculum review provides a means for our students to meet the needs of graduate programs so they can continue their educations seamlessly.

The basis of a practitioner-based curriculum is that design issues, historic impact and context, technology, and professional practice all influence and impact student’s work. Course work covers the range of issues critical to the understanding of the profession including design, construction materials, technology, and professional practice.

Closure

As we embark on developing a graduate professional degree program, at the University of Hartford, we look forward to building on the successes of our existing undergraduate program. Accreditation organizations can help provide a framework for our assessment however, it is the responsibility of the institution, the administration and faculty to develop, implement, assess, and improve our programs. The question of “how is success measured?” will be an integral part of the continued development of our programs. We are committed to making the necessary assessments and modifications to develop academically challenging programs for both our undergraduate and graduate students.

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www.abet.org

www.naab.org

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Biographical Information:

Elizabeth Petry, AIA has almost twenty years in the profession. Her work has focused primarily on education, healthcare, and housing. She is Director of Education for the Architectural Resource Center (ARC) of Connecticut and Assessment Coordinator for Ward College of Technology at the University of Hartford. Elizabeth holds a BS in Architectural Studies and M.Arch from the University of Illinois, Urbana-Champaign.