Refection on Integrating Landscape Performance in 2nd Year BLA Studio – Design Process

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Background

The course of Landscape Architecture Design Process, a 2nd year BLA design studio (4 credits), was offered in Spring 2015 at Texas Tech University. In addition to walking students through the typical landscape design process (programming, site inventory & analysis, conceptual design, design development, construction documentation, and implementation), this course integrated landscape performance measurement into the design process with the purpose of making it an essential step in design process. Introduced to landscape performance at the early stage of their landscape study, students are expected to have a seed planted in their minds. As time goes by, students' knowledge of landscape performance and quantification skills will keep growing and developing through continuous learning and practice in following education and practice. As a result, landscape performance quantification becomes a routine in the field of landscape architecture.

The course met twice a week for 16 weeks. Each class included a 1-hr lecture and a 3-hr studio. Totally, 17 undergraduate students registered for the course and all earned passing grades. According to the pre-test at the beginning of the semester, no student was familiar with landscape performance.

Goals

In addition to helping students develop an ability of implementing design process into design projects, this course also helps students

- understand the concept and demand for landscape performance
- understand the key steps of landscape performance quantification and how they can be integrated into the typical design process
- identify resources for landscape performance (Landscape Performance Series: CSI program, landscape performance case study and Benefits Toolkit)
- develop an ability of applying different tools and methods to estimate landscape performance of their designs

Process

Students were introduced to landscape performance through a mix of lectures and exercises. At the beginning of the semester (2nd week), Arianna Koudounas, the Landscape Architecture Foundation (LAF) program manager, conducted a webinar to present an overview of LAF, Landscape Performance Series (LPS), and the Case Study Investigation (CSI) program. Later on, I delivered a series of lectures covering the following topics:

- Evidence-based design & landscape performance
- Comparison of LEED-ND, SITES AND LPS
- Landscape performance (definition & framework)
- CSI & landscape performance case studies
- The process of landscape performance quantification, and
- The existing resources of the LAF website

To strengthen and test knowledge that students learned from the lectures, three exercises were assigned to them during the semester. The first assignment was "Landscape Performance Case Study Report". The purpose of this exercise was to familiarize students with the LPS website and help them learn the relationship and differences between sustainable features and performance benefits. The exercise required each student to study a published landscape performance case to identify sustainable features and performance benefits, and link performance benefits with related sustainable features.

The second exercise was "Benefits Toolkit Peer Teaching." The purpose of this exercise was to familiarize students with LAF'S Benefits Toolkit and enable them to use the tools to evaluate their term projects. It required every two students to select a tool from LAF Benefits Toolkit to study and later on, disseminate the knowledge they mastered to other students. Totally, nine tools were studied, including "Sub-surface Drip Irrigation Cost Calculator", "Recycling Landscape Waste Calculator", "National Stormwater Calculator", "Green roof energy", "i-Tree Streets", "The Value of Green Infrastructure", "Decking Cost Calculator", "Vegetable Garden Value Calculator", and "Resource Conserving Landscaping Cost Calculator".

The last exercise required students to use tools learned from the "Benefits Toolkit Peer Teaching" to estimate performance benefits of their term projects. The purpose of this exercise was to thoroughly test students' understanding of landscape performance and their ability of quantify performance benefits.

Results

Exercises & Exam

Students' learning outcomes were assessed by a term exam, the "Landscape Performance Case Study Report" and the term project benefit estimation. The results

showed that at the end of the semester, all students obtained a good comprehension of landscape performance concept and were acquainted with the LPS website and its resources. Most peer-teaching presentations were well organized and informative, while a few did not include examples to show how the tools can be used. In terms of using tools to estimate performance benefits, most students demonstrated an ability of using various tools to quantify performance benefits of their designs. However, about 1/3 of the students used only the "National Tree Benefit Calculator (NTBC)" or NTBC together with the tools they selected to study, indicating limited confidence in other quantification tools.

Student reflection

At the end of the semester, a voluntary anonymous questionnaire about the course was provided to every student. In the questionnaire, three questions were about landscape performance. 15 out of 17 students responded to the questionnaire. The result showed all 15 students agreed or strongly agreed that "landscape performance is important for the major of landscape architecture;" 11 students agreed or strongly agreed that "landscape performance should be included in BLA curriculum," while 4 students felt neutral about it; and 13 students expressed that "they are very likely to use LPS Benefits Toolkit to evaluate their designs in future study and career", while 2 students felt neutral about it.

Lessons Learned and Future Improvement

As mentioned above, in the term project, despite various tools taught in the peer-teaching presentations, 1/3 of the students used only the tools they studied. I believe several reasons might contribute to this result. First, some peer-teaching presentations did not include examples to help audience learn how to use the tools to evaluate design projects. Second, all peer-teaching presentations were before the spring break. Some students forgot how to use the tools at the end of the semester. Third, in the last week, students were very busy with renderings and final presentations. There was not enough time for them to quantify performance benefits.

In the future, I will require peer-teaching presentations to include an example to show how to use the tools to evaluate design projects. Also, I will work with each peer-teaching team to prepare an exercise for the class to practice the tools. Moreover, rescheduling peer-teaching presentations to the second half of the semester and moving up due date of all drawings to a week before the last week might also improve performance benefit quantification.

Another noticeable problem was that many students seemed still confused with SITES and LPS. In my future teaching of this course, I will try to further clarify the two concepts through lectures and exercise.