

## Flipping Time and Space: Three methods of contextualizing architecture history in the classroom

**Author** Sarah Michele Young  
*University of Louisiana at Lafayette*

Architecture education must impart to our students a foundation of architectural knowledge, but to develop in them “the metacognition associated with deep learning,” (Brame, 2013) establishing a foundation for continuous learning throughout their lives. To foster the kinds of exchanges which promote critical thinking, the core of architectural education is the design studio.

The design studio provides an excellent example of an active and dynamic classroom model which promotes deep learning. The bulk of class time is spent analyzing, evaluating and creating through a practice of iterative making and critique. The design studio requires a synthesis of information which greatly surpasses the rote knowledge common in traditional lecture classes, and yet, traditional lecture classes remain common in design schools today.

In a traditional lecture classes, most of a student’s class time is spent passively hearing lectures, with only a small portion of contact hours engaged in interactive activities which require students to synthesize the material. While higher-order thinking skills may be required for the completion of course assignments (i.e. term papers, group projects, etc.), “lecture-based courses are often associated with a teacher-centered method that inhibits the possibility to apply such skills.” (Elrayies, 2017) In traditional lecture classes, work on course assignments is often carried out in isolation and without regular feedback from the instructor, engagement from peers, or opportunities for iterative development. How can we provide these deep learning experiences, so common in the design studio, in traditionally lecture-based classes?

This paper explores an attempt to provide more deep learning experiences by making three fundamental shifts in a lecture-based modern architecture history course. The history of modern architecture, like all of history, is complex. For the beginner, it is easy become lost in the plethora of dates and images to memorize and miss important connections between individual architects, buildings, movements, technological advances, and changes in the social, cultural, and political context in which they existed. For architecture students to develop an understanding of architectural history beyond the surface-level, it is important to connect to context, to see the big picture as well as the details.

To help students contextualize architecture history, this course uses three different methods: the first is to flip time and space though the use of a flipped classroom, the second is to stretch time and space through a multi-phase writing and research project, and the third is to embed time in space though a large-scale physical timeline displayed in the classroom. Each of these methods attempts to leverage unique aspects of physical and digital classrooms as well as different modes of learning and thinking. This paper will provide a brief description of these methods and related course assignments, discuss outcomes and student responses, and consider how they might be strengthened and adjusted in subsequent versions of the course.

### Flipping Time and Space

The first method for contextualizing architecture history in the new course was a flipped classroom model. The timing of the activities and the space in which they occur flips with the effect of creating more opportunities for active-learning during class time. Flipped classrooms ‘flip’ activities to where those traditionally done in class are done at home, and those traditionally done at home are done in class. Lectures are watched online for homework,

discussion and projects are done in class with the added benefit of instructor and peer feedback. The class blends online and face-to-face learning, attempting to maximize the benefits of each mode of delivery.

The course was organized as follows: At home each week, students read assigned readings, watched pre-recorded lectures, took quizzes, and prepared discussion questions to bring to our weekly class meeting. In class, students spent most of their time discussing the new information in small groups using their pre-prepared questions and those posed by the instructor. Students were asked to use specific quotes and examples to support their discussion points.

Flipped classrooms allow teachers to easily leverage the wide range of online resources available today. Using outside resources like readings, documentaries, YouTube videos, online texts and articles has the benefit of lessening the role of the lecturer as the sole purveyor of knowledge, opening students up to the idea that even the professor is doing research and collecting information that is available for anyone to find. It also asks them to begin considering issues related to sources, like context and audience. While these resources were used in the course, pre-recorded lectures allowed all these resources from varied sources to be put in context.

The flipped classroom also allows the more passive learning of hearing information for the first time to be done individually. Students can pause, rewind portions that they might not understand at first, and re-watch whenever they need a refresher on the subject. Additionally, by meeting once a week and having students engage online on their own time, students can engage with material at their own pace and work around their own schedule.

The most compelling benefit of flipping the class is that it allows students the time and space to engage in an ongoing conversation about architectural history. Learning history becomes less about simply memorizing facts and more about discussing their significance, how they changed the world, and how they affect us today. Sipress and Volker describe their use of flipped classrooms to have students engage the course material as a historian would by “enter[ing] into an evidence-based argumentative discourse about the human past.” (2009) The teacher’s role in this scenario shifts from lecturer to guide, entering into the conversation with them and modelling the process of thinking through an issue and using evidence to support assertions. This is a mode of teaching and discussing is familiar to architecture education as, according to Schon, design instructors are facilitators who provide information and resources to students for professional growth. (1983)

### ***Flipped Classroom Outcomes and Future Plans***

Several studies show that most students report satisfaction with flipped classrooms (Missildine, et al., 2013) (Gilboy, et al., 2015) (Jensen, et al., 2015), and though there was one student that made clear their dislike for the format, the 18 other students reacted positively to it in their survey responses. Students liked having the freedom to choose the time that worked best for them to watch lectures and complete readings. Students also appreciated the predictability of assignments and deadlines that were displayed and updated on the course Moodle page, saying this contributed to effective time management in this class as well as others. Students also liked having the ability to re-visit the pre-recorded lectures if they found something confusing or wanted to refresh their memory on the lecture’s subject.

In any flipped classroom, care must be taken to design engaging and enriching classroom activities, and these activities develop over several runs of the class. There are several adjustments that could make for a more effective flipped classroom, and the concerns of students who disliked the format should be addressed to make the next iteration of the course better. The student who expressed dissatisfaction in their survey response with the flipped classroom felt that there was not enough content coming directly from the instructor. They also disliked spending so much class time discussing the course material with their peers. In the author’s view, this points to an issue with the structure and effectiveness of the discussions themselves.

In the future, more will be done to increase the effectiveness of the discussions. Rather than having students generate their own discussion questions, they should respond to instructor-generated questions to ensure that discussions are consistently focused on the critical issues. Bean suggests that when students prepare by completing written responses ahead of the discussion, their engagement in the discussion increases. (2011) Posing the questions ahead of time on a discussion forum would give students a chance to reflect on the material, thoughtfully compose their responses, and come prepared to share and debate their positions. Furthermore, it has been widely argued in the literature that asynchronous class participation through online forums “supports flexibility, reflection, interpersonal and teamwork skill development, motivation, and collaborative learning environments—resulting in deep and meaningful understandings and communities of inquiry.” (Garrison & Kanuka, 2004) Furthermore, spending some portion of class time on more varied activities, like translating the discussed ideas into diagrams, and engaging in more timeline-related activities can break the monotony of doing the same activity at each class and create a tangible product directly from the discussions.

Another future adjustment will be to the discussion structure. The discussion occurred in small groups because this arrangement increased participation in discussions overall; students were less afraid to speak up in a group of five than they were in a group of twenty. However, this meant the instructor had to divide her time between groups, which also lead to some groups losing focus on the important topics. Switching to whole group discussions and having students create something tangible out of them at the end of class could hold students more accountable for how class time is spent.

## **Stretching Time and Space**

Modern architectural history covers several different regions, movements, narratives, and relationships which may be difficult to contextualize for students new to the information. To create a conceptual framework within which students could apply their new knowledge, a multi-phase, semester-long project was introduced in which each student examined the same course content from a different angle. The stretched timeline for the project allowed it to be broken into several phases of development, and the examination of material from different perspectives stretched the content of the class to include outside research.

Each student picked a theme (i.e. Tradition and Innovation in Architecture, Architecture and Ethics, Architecture and Truth, The Role of the Architect, Architecture as Language, Architecture and the Public, etc.) and kept track of this theme in architectural history for the duration of the course by recording weekly “Theme Research Entries.” Though this exercise, students were required to be reflective and analytical about the course material by identifying information that was relevant to their theme. As the semester progressed, they began using this research to create an outline, and several drafts of a research paper. They presented these varied perspectives to each other throughout the semester in their own prepared discussion questions, online peer-review workshops, and final presentations. By seeing architectural history through different thematic perspectives, students can come to understand the multifarious nature of architecture. At the end of the semester, each student’s research was submitted in the form of a literature review. They were then published in a collection which could serve as a reference in future studios and research classes, stretching the usefulness of the final product beyond the class.

Peer review workshops and presentations helped student research transition from being isolated to being more social and connected. Through the online peer-review workshops, students can learn how to be better researchers and writers by evaluating what is successful about their peers’ work.

Architecture students are often not the strongest writers, yet writing is a critical skill for their future careers. (Yanik & Hewett, 2000) (Lappin, et al., 2015) The project’s seven phases allowed a large and potentially daunting writing assignment to be broken down into manageable pieces. In contrast to the typical term paper (usually hastily thrown together the night before the deadline) the multi-phase project frames writing as a process, just like designing and modelling; a process which takes iterative refinement. By writing a little each week and reflecting on

previous writing, some students reported that their attitude shifted from seeing writing simply as a mode of communication to a writing as mode of thinking. In this way, writing can be taught as another powerful tool in the designer's toolbox.

### *Multi-phase Project Outcomes and Future Plans*

The peer review portion of the assignment was very successful, with students generally scoring each other very closely to how I would have scored them and making helpful comments. They paid more attention to the assignment criteria through doing the peer-review exercise. The rubric remained consistent through the last 4 project phases, which allowed students to continuously improve based on feedback related to specific rubric criteria.

A few changes could improve the design of the project for next semester. A short project or activity at the beginning of the semester could help students understand how many of these themes show up in one specific building and/or movement to help to orient them before they begin the larger project. Also, a couple of the project phases included diagramming of ideas alongside the writing, but in many cases, the diagrams suffered because of the lack of class time spent discussing them. Future versions of the course will include a more instruction about diagramming through a series of diagram-centered workshops.

## **Embedding Time in Space**

While resources for learning about modern architecture history online are ubiquitous, learning in a hypertext environment through a series of browser windows is not always conducive to developing a panoramic view of history. In previous versions of the class, it was at times difficult for students to see how movements and events happened concurrently or in response to one another, or how you could connect the dots to see themes and relationships over time, especially at the turn of the 20<sup>th</sup> century when several regional movements were emerging concurrently. For this reason, the third method for contextualizing architectural history in the classroom is a large, wall-mounted, historical timeline.

At the close of each class meeting, students identified key information from the online lectures, videos and readings, and write it on the timeline, giving facts the space to commingle. This method leverages the physical space of the classroom; the timeline is embedded into the space as a living document of the collective knowledge of the class, a point of reference for in-class discussions, and a gathering place for informal talk about architecture and history. Furthermore, by permanently displaying the timeline in a classroom used by all year levels, there was the added benefit of embedding the timeline into the consciousness of our younger students.

The inspiration for the timeline came from the Evolutionary Trees created by Charles Jencks, but the idea of charting the history of modernism is almost as old as modernism itself. From these timelines, relationships can become clearer. In his book about the history of timelines, Stephen Boyd Davis explains that they “enable[e] users to spot patterns, trends, clusters, gaps, and outliers—in short, to make sense of data.” Furthermore, “visualizations are not only for the benefit of other people; authors themselves might also benefit. These representations serve as the social reproduction of knowledge and they constitute tools for thinking.” (2012) The timeline allowed a more global rather than sequential grasp of architectural history by bringing facts in proximity with other events and trends in history. While lectures bring up dates, these dates remain abstract for many students until they are physically mapped in a way that makes time more concrete.



Figure 1: Students adding relevant information to timeline. October 12, 2018

### Timeline Outcomes and Future Plans

While the timeline exercise this past semester was very simple and un-designed, there is significant potential for this to become a much more active component of the in-class activities. The way the timeline exercise is currently set up, as a kind of mind-dump after discussions, does not lend itself to becoming carefully arranged and designed like Jencks’ evolutionary trees. Instead, the timeline might become more like a crime board, integrating diagrams created by the students and linking items with pins and string.

In doing this, students can move beyond simply putting facts on a timeline to visually depicting their relationships, influences, and connections. This could also potentially serve in identifying projects, people, and events with true significance in history – the more relationships, influences and themes a project is connected to, the more visual significance it would have on the timeline. This can show the difference between buildings that are ‘cool’ and buildings that shaped history. It can also show the complexity of architectural history and history in general. The timeline could truly flip the space of the classroom from neutral and static to engaging and dynamic.

### Conclusions

While there are countless ways of integrating online learning tools and strategies in the classroom, doing so can be very time intensive. Blended learning has enormous versatility and potential but “creates daunting challenges on the front end of the design process.” (Garrison & Kanuka, 2004) Whether you are moving a class online or simply incorporating some online elements to a face-to-face class, making these changes takes careful redesign; redesign which will continue through iterations each time the class is taught. Though redesigning a class can be challenging, these tools and environments offer some very exciting opportunities for the creation of meaningful deep learning

experiences. In this recently redesigned class, these learning experiences aided in driving home the who, what, and when, but more importantly, the contextual how and why of architecture. By flipping time and space, stretching time and space, and embedding time in space, students gained a deeper understanding of the multifarious nature of architecture.

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