A STUDY OF COURSE CHANGE:

ARCH 1130 BUILDING TECHNOLOGY I

NEW STRATEGIES IN EMPHASIS AND PEDAGOGICAL APPROACH

STUDENT PRESENTING CHAPTER ON STRUCTURE TO HER CLASSMATES

F I N A L C O U R S E R E P O R T

Prepared by:

Jason Montgomery, NCARB LEED AP
Assistant Professor

S e c t i o n 1 I n i t i a l C o u r s e D a t a

Course Information:

Department of Architectural Technology

ARCH 1130 Building Technology I

5-6 Sections / Semester

20-24 Students / Section

ARCH 1230 Building Technology II

4-5 Sections / Semester

18-22 Students / Section

Stakeholder Information:

Chair: Shelley Smith
Associate Professor

Course Coordinator: Jason Montgomery
Assistant Professor

Course Faculty Spring 2015:

ARCH 1130

Robert Zagaroli
Associate Professor

Lynn Gernert
Adjunct Assistant Professor

Quoc Grace
Adjunct Lecturer

Stuart Peaslee
Adjunct Lecturer?

Anthony Romeo
Adjunct Lecturer

ARCH 1230

Timothy Sudweeks
Adjunct Assistant Professor

Sandeep Sikka
Adjunct Lecturer

Michael Loo
Adjunct Lecturer

Michael Mitchell
Adjunct Lecturer?

Other Regular Faculty:

Michelle Todd
Adjunct Assistant Professor

Barbara Mishara
Assistant Professor

Likely Course Faculty Fall 2015:

ARCH 1130

Robert Zagaroli
Associate Professor

Lynn Gernert
Adjunct Assistant Professor

Quoc Grace
Adjunct Lecturer

Stuart Peaslee
Adjunct Lecturer?

Anthony Romeo
Adjunct Lecturer

Jason Montgomery
Assistant Professor

ARCH 1230

Timothy Sudweeks
Adjunct Assistant Professor

Sandeep Sikka
Adjunct Lecturer

Michael Loo
Adjunct Lecturer

Barbara Mishara
Assistant Professor

Jason Montgomery
Assistant Professor

Other Stakeholders:

BUILDING TECHNOLOGY COMMITTEE

Paul King
Associate Professor

Alexander Aptekar
Assistant Professor

Barbara Mishara
Assistant Professor

Jason Montgomery
Assistant Professor

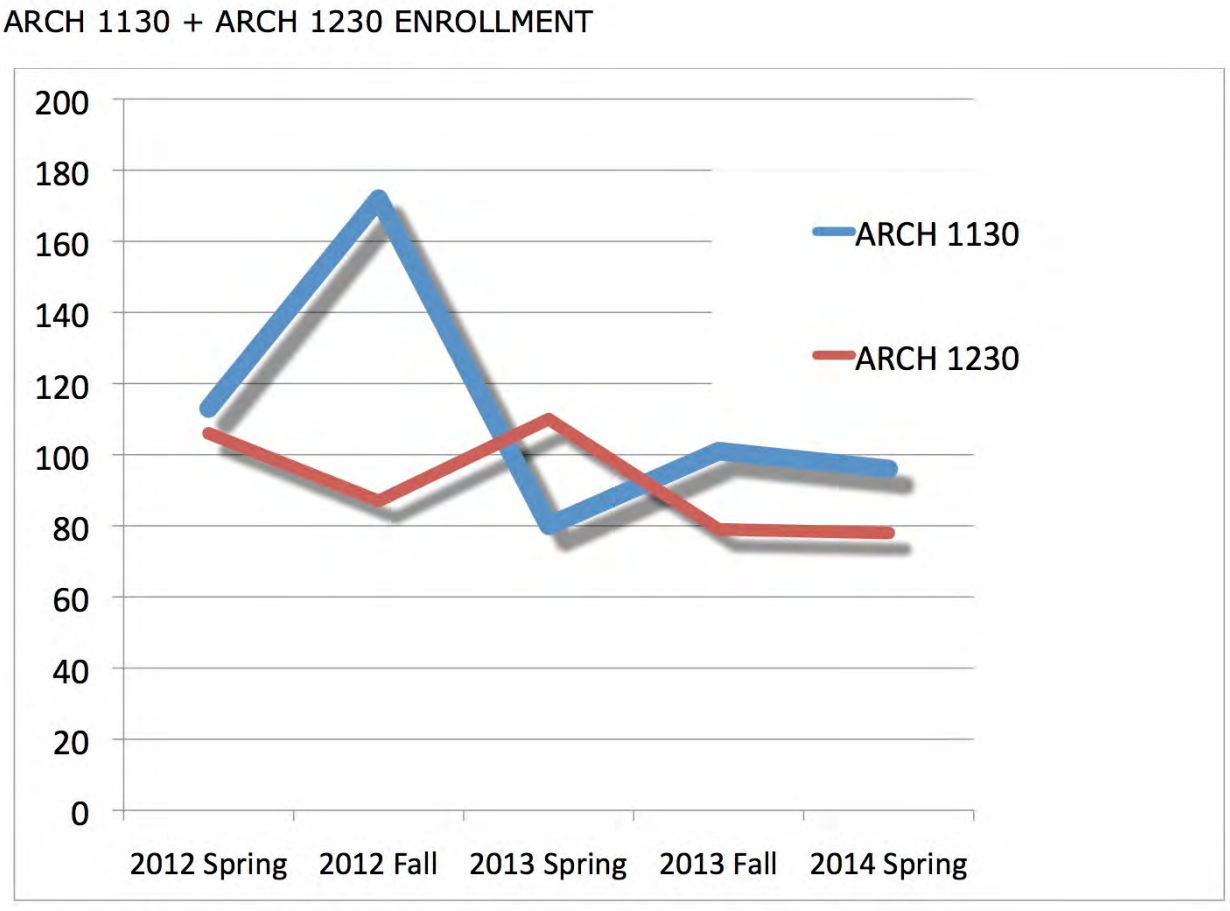
Course “Before” Redesign

Old Course Syllabus

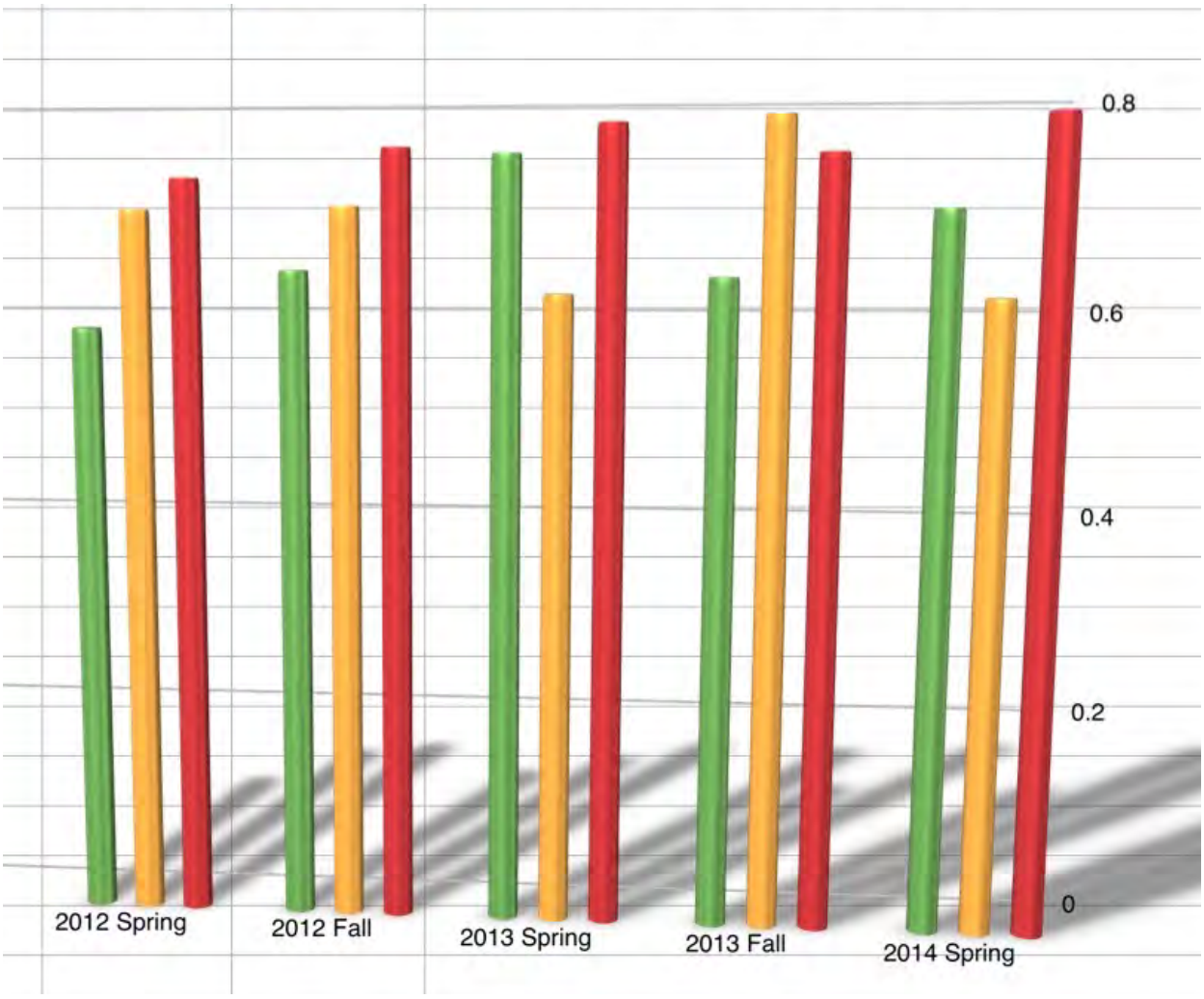
ARCH 1130:
https://openlab.citytech.cuny.edu/arch1130/files/2011/06/Arch-1130-Building-Tech-I-fall-2014.pdf

Course Data

Course data from both ARCH 1130 and ARCH 1230 was collected in order to study issues that were relevant to both courses and could help guide the redesign of ARCH 1130 first as part of a broader revision of the Building Technology courses. These first two courses of the Building Technology sequence were developed together, so although this report documents the redesign of ARCH 1130, future changes to ARCH 1230 will build on successful adjustments to ARCH 1130. The student survey data from ARCH 1230 was examined to reflect on student views of effective course content and teaching methods (i.e. place based case study teaching) that are similar in the two courses.



STUDENT PERFORMANCE ANALYSIS (from AIR database)



Percentage of Students passing with the required grade of C or higher in

ARCH 1130

ARCH 1230

Average of remaining Dept. first year courses

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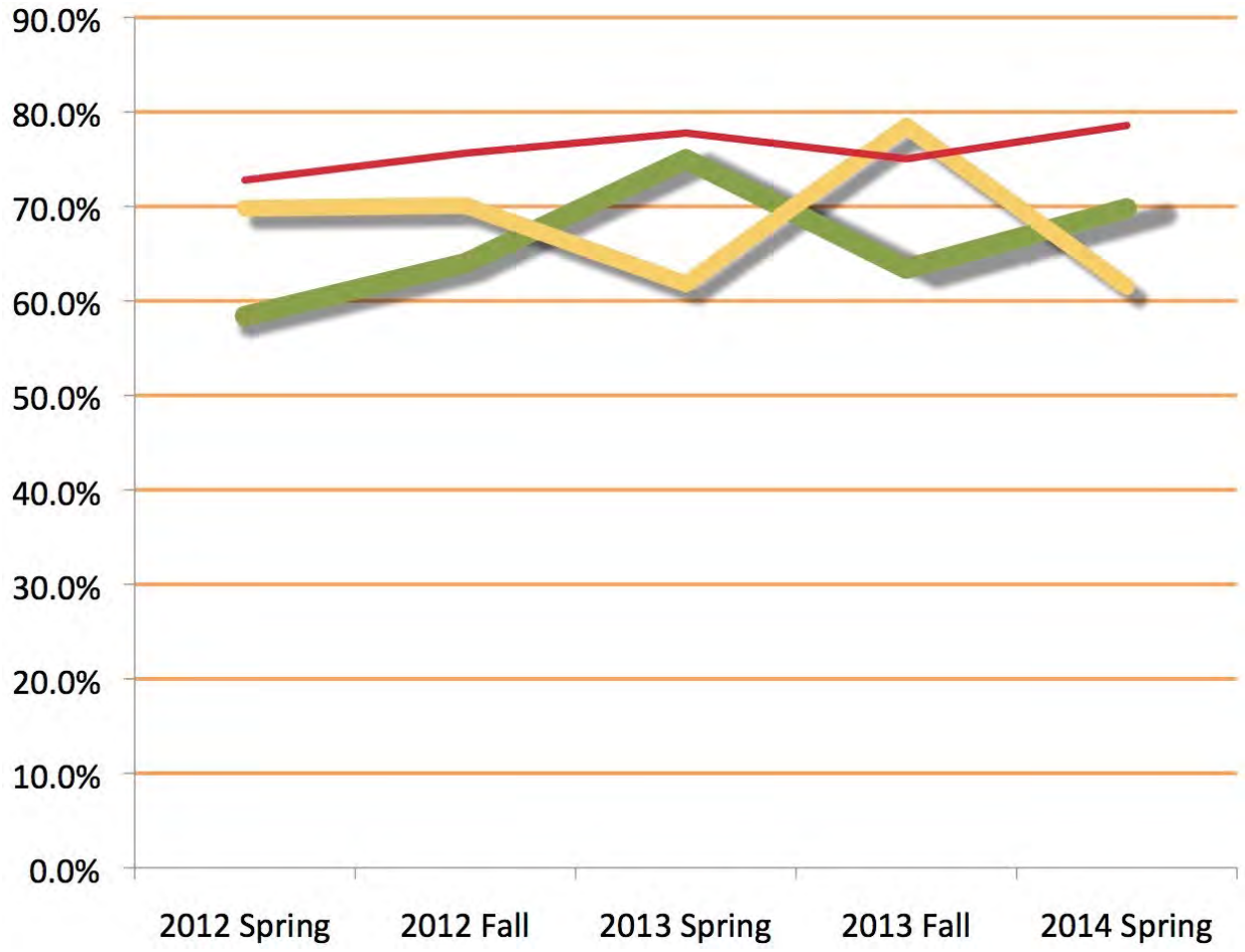


Percentage of Students passing with the required grade of C or higher in

ARCH 1130

ARCH 1230

Average of remaining Dept. first year courses

STUDENT SURVEY on Course Content + Pedagogy ARCH 1230 (compiled over 2 semesters, 52 respondents)

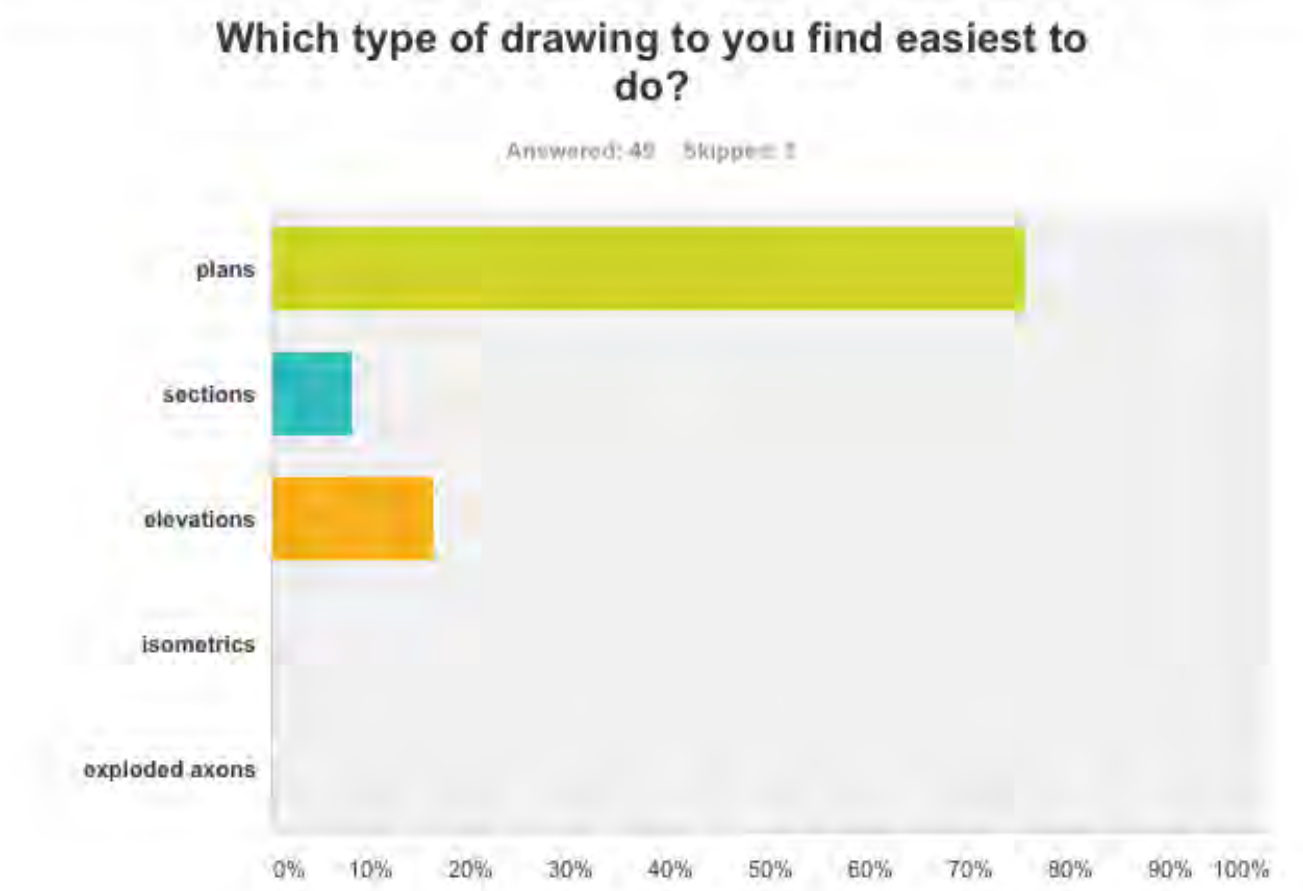
EXAMINING PEDAGOGY ON 2-D AND 3-D DRAWING

	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree	Total	Weighted Average
2-d dimensional drawings are more clear and understandable than 3-d drawings.	3.92% 2	23.53% 12	37.25% 19	29.41% 15	5.88% 3	51	3.10
3-d dimensional drawings are more clear and understandable than 2-d drawings.	6.00% 3	6.00% 3	26.00% 13	42.00% 21	20.00% 10	50	3.64
The 3-d drawings helped me understand the 2-d drawings.	6.12% 3	0.00% 0	14.29% 7	53.06% 26	26.53% 13	49	3.94
The 2-d drawings helped me understand the 3-d drawings.	0.00% 0	4.08% 2	20.41% 10	61.22% 30	14.29% 7	49	3.86
3-d drawings show my understanding of how the building is put together.	4.26% 2	0.00% 0	8.51% 4	42.55% 20	44.68% 21	47	4.23
2-d drawings show my understanding of how the building is put tgoether.	2.00% 1	8.00% 4	14.00% 7	58.00% 29	18.00% 9	50	3.82
2-d drawing allowed me to investigate the details of the building.	4.08% 2	6.12% 3	8.16% 4	48.98% 24	32.65% 16	49	4.00
3-d drawing allowed me to investigage the details of the building.	6.12% 3	2.04% 1	10.20% 5	55.10% 27	26.53% 13	49	3.94

EXAMINING IMPACT OF PLACE-BASE LEARNING / CASE STUDY

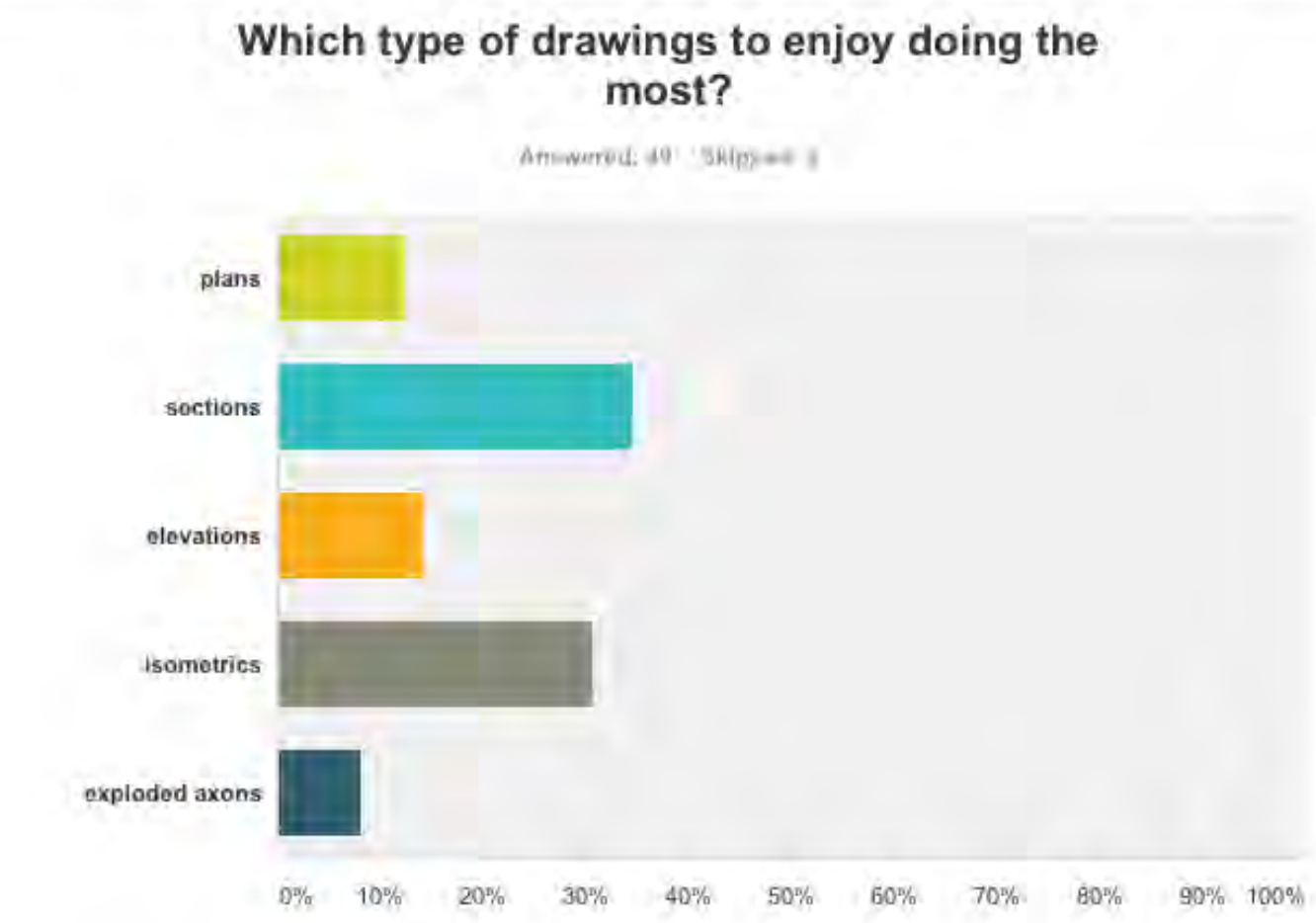
	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree	N/A	Total	Weighted Average
Using an actual building for the case study enhances my learning.	7.84% 4	0.00% 0	3.92% 2	43.14% 22	43.14% 22	1.96% 1	51	4.16
The Yale Center for British Art is a useful case study.	7.84% 4	3.92% 2	5.88% 3	27.45% 14	52.94% 27	1.96% 1	51	4.16
I was inspired to study the Yale Center for British Art.	5.88% 3	5.88% 3	15.69% 8	45.10% 23	25.49% 13	1.96% 1	51	3.80
The Yale Center for British Art is a great building.	7.84% 4	1.96% 1	21.57% 11	33.33% 17	33.33% 17	1.96% 1	51	3.84
I valued the fieldtrip to New Haven.	3.92% 2	0.00% 0	5.88% 3	27.45% 14	54.90% 28	7.84% 4	51	4.40
I would recommend next semesters students to go on the fieldtrip to New Haven.	5.88% 3	0.00% 0	5.88% 3	25.49% 13	56.86% 29	5.88% 3	51	4.35
The fieldtrip to New Haven changed me and my view of architecture in a postivie way.	4.00% 2	2.00% 1	10.00% 5	32.00% 16	40.00% 20	12.00% 6	50	4.16

EXAMINING DRAWING PREFERENCES



Answer Choices	Responses	
plans	75.51%	37
sections	8.16%	4
elevations	16.33%	8
isometrics	0.00%	0
exploded axons	0.00%	0
Total		49

EXAMINING DRAWING PREFERENCES



Answer Choices	Responses	
plans	12.24%	6
sections	34.69%	17
elevations	14.29%	7
isometrics	30.61%	15
exploded axons	8.16%	4
Total		49

EXAMINING RESPONSE TO TEAM ASSIGNMENTS

	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree	Total	Weighted Average
Working on a team enhanced my learning in this class.	6.82% 3	11.36% 5	27.27% 12	34.09% 15	20.45% 9	44	3.50
My team was well organized.	2.38% 1	16.67% 7	35.71% 15	26.19% 11	19.05% 8	42	3.43
My team communicated well.	0.00% 0	12.20% 5	34.15% 14	26.83% 11	26.83% 11	41	3.68
My team used AutoCAD efficiently to share work and avoid duplication of tasks.	4.65% 2	11.63% 5	37.21% 16	30.23% 13	16.28% 7	43	3.42
I was happy the way we formed the teams at the beginning of the semester.	0.00% 0	7.14% 3	42.86% 18	33.33% 14	16.67% 7	42	3.60
I hope to work on teams again in future classes.	4.55% 2	9.09% 4	34.09% 15	34.09% 15	18.18% 8	44	3.52

	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree	Total	Weighted Average
The Allen and Iano Fundamentals of Building Construction is a useful textbook for this course.	2.00% 1	4.00% 2	16.00% 8	54.00% 27	24.00% 12	50	3.94
The Ching Building Construction Illustrasted is a useful textbook for this course.	3.92% 2	0.00% 0	3.92% 2	37.25% 19	54.90% 28	51	4.39
The readings are too demanding.	1.96% 1	33.33% 17	31.37% 16	25.49% 13	7.84% 4	51	3.04
The readings are appropriate and meaningful to my education.	1.96% 1	0.00% 0	13.73% 7	50.98% 26	33.33% 17	51	4.14
The reading strategies discussion and worksheets made had a positive impact on how I study.	6.00% 3	4.00% 2	22.00% 11	40.00% 20	28.00% 14	50	3.80
I wish we had a different text book for this course.	17.65% 9	33.33% 17	41.18% 21	3.92% 2	3.92% 2	51	2.43
The Edward Ford Five Houses Ten Details reading is too confusing.	4.17% 2	10.42% 5	68.75% 33	4.17% 2	12.50% 6	48	3.10
The Five Houses Ten Details reading is a good exposure to architectural theory.	4.08% 2	0.00% 0	53.06% 26	32.65% 16	10.20% 5	49	3.45
Architectural theory is important to study to be a successful architect.	0.00% 0	0.00% 0	22.00% 11	32.00% 16	46.00% 23	50	4.24
I valued the seminar discussion on architectural theory.	6.00% 3	0.00% 0	34.00% 17	24.00% 12	36.00% 18	50	3.84
How buildings are detailed is an expression of architectural theory.	4.00% 2	0.00% 0	26.00% 13	36.00% 18	34.00% 17	50	3.96

Course

A

EXAMINING RESPONSE TO TEXTBOOK AND THEORETICAL SEMINAR/MODULE AS PART OF CLASS

Optional Question: What would you change about this course?

Answered: 23 Skipped: 29

Responses (23) Text Analysis My Categories

PRO FEATURE
Use text analysis to search and categorize responses; see frequently-used words and phrases. To use Text Analysis, upgrade to a GOLD or PLATINUM plan.

Upgrade Learn more »

Categorize as... Filter by Category

Showing 23 responses

No Sketch up drawings. The Auto cad is too much already. Sketch up 3-d drawings should be extra credit, and floor plans shouldn't.
12/19/2014 6:06 PM View respondent's answers

Nothing at all. I learner a lot this semester, compared to the last one.
12/19/2014 6:01 PM View respondent's answers

Prof. Montgomery is a great great professor! we learned alot and fun at the same time! i loved the way he teach!!!!
12/19/2014 6:00 PM View respondent's answers

Have teams come together and work on the drawings
12/19/2014 5:51 PM View respondent's answers

Nothing much, is very easy to understand but the pace is pretty fast and if you miss out you fall behind a lot. So maybe the pace for every lecture.
12/19/2014 5:46 PM View respondent's answers

no questions.
12/19/2014 5:30 PM View respondent's answers

I would like we had field trips to a construction site and watch the process of building a project step by step.

i wish we had more than 2 classes a week!!!! Prof. Montgomery is the best!!!!
12/19/2014 3:07 PM View respondent's answers

some of the student need more assistance in autocad then others so an extra person helping in class would be nice. but the mechanics are an excelent way to go. with an exception of time limit to do quizes.
12/19/2014 2:56 PM View respondent's answers

i would demand students to submit the drawings week by week basis or something like that so at the end we are not overwhelmed by all the class and projects. like i m now :D
12/19/2014 2:47 PM View respondent's answers

The use of SketchUp is great, but not have it as a mandatory part of the class.
12/19/2014 2:45 PM View respondent's answers

More references for work, such as examples.
12/19/2014 1:43 PM View respondent's answers

I would concentrate on more drawings of different buildings rather than quiz.
12/19/2014 1:18 PM View respondent's answers

One thing I would change about the course is the amount of sketch-up assignment given. Due to the time that we spend on the AutoCAD drawings there is not enough time to compleat all of the sketch up drawings for the end of the semester.
12/19/2014 11:02 AM View respondent's answers

I would change the way we learn autocad we should have learn more on autocad
7/2/2014 4:45 PM View respondent's answers

Exclude team work, more help with the computer programs
6/30/2014 10:21 PM View respondent's answers

There are too many assignments.
5/21/2014 6:08 PM View respondent's answers

Having teams to work with at the beginning of learning the software AutoCAD created a serious problem at the beginning to mid semester. Drawing were being changed constantly due to other members' different work styles and opinions.
5/21/2014 5:48 PM View respondent's answers

have in class work sessions work as a class to get drawings done
5/21/2014 5:15 PM View respondent's answers

I would like to change the amount of reading assignments, and the amount of minutes given to take a a quiz.
5/21/2014 5:09 PM View respondent's answers

I think the course is fine the way it is run, however I prefer to do the assignments individually rather than in groups.
5/21/2014 4:58 PM View respondent's answers

Ok, first of the most important thing is that when we went to the building we didnt have much time to do what we wanted to do. Also we went from drawing straight to auto cad, a little autocad tutoring from our own professor wouldnt hurt. Also try and have like a preset of what the whole files should look like instead of telling the students hey this is what you have to do its due at the end thats it. Overall grade was B-
5/21/2014 4:58 PM View respondent's answers

the course in general was very informative and intense, I truly enjoyed it, even though it was not easy. Please give up the team work, it's impossible to make irresponsible people to produce the drawings, and I don't feel like my grade should depend on group performance at this point.
5/21/2014 4:56 PM View respondent's answers

Analysis

Analysis:

My goals for the redesign of this course include:

1. Rebalance the general education and the discipline specific goals of the courses with greater emphasis on general education.
2. Develop greater emphasis on active learning strategies and High Impact Educational Learning Practices.
3. Reconsider tools for learning, including hand drawing versus digital drawing tools.
4. Explore alternative readings/textbook for introduction of technical course content.

The Departments' goals for the redesign of this course include:

1. Improve connections between these courses and the other first year courses.
2. Develop a skills map to clarify the introduction, reinforcement, and mastery of course content.
3. Improve digital skills development.

Things to Consider

The Building Technology Committee will need to review revisions after they are clearly developed. The department Curriculum Committee will also need to review the changes.

The initial changes of both courses will ideally be short of requiring a major curriculum proposal to allow speedy implementation to test their viability. The first focus of change will be delivery methods and pedagogy that are well within the bounds of the existing course outline. These will be leveraged as far as possible to seek the listed course improvements.

After implementation, assessment and curriculum committee review will be required to determine if more significant changes are required. If we determine more significant changes are required, a major curriculum proposal will likely be necessary. I am familiar with the course proposal process and will guide changes through as needed. The timeline for submission would likely be Winter 2016 with College Council approval in Spring 2016 and full implementation in Spring 2017. I will work with the Building Technology Committee to develop any required supporting research and materials for the course proposal.

I will meet with my colleagues teaching Building Technology I later this spring to present the developing changes to them to seek their feedback and comments. We will then meet just before the Fall 2015 semester to coordinate the implementation of the changes. I will also concurrently be meeting with the Building Technology Committee to build support for the

changes. The OpenLab coordination site already established will be updated to provide teaching materials to all sections from a central location.

Building Technology II's changes will follow a similar course, but may or may not be implemented immediately. It will likely make sense to introduce these changes in the Spring 2016 after the experience of the Building Technology I changes in the Fall of 2015.

I will work with my colleagues teaching these courses to compile student work, student surveys and reflections, and a rubric to measure the improvement of student learning and the achievement of the learning objectives. We will study these together as a group and then present them to the Building Tech and Curriculum committees.

Section 2 Proposed Course Redesign

Course Information:

Department of Architectural Technology

ARCH 1130 Building Technology I 5-6 Sections / Semester
20-24 Students / Section

GENERAL EDUCATION SLO:

Aquire tools for lifelong learning- how to learn, how they learn, knowledge of resources.

This SLO will be incorporated through emphasis on knowledge organization, which will be presented in the syllabus and used repeatedly as a point of reference for the course content throughout the semester.

HIEPs:

Undergraduate Research will be the HIEP utilized as a tool to help the students develop their skills for lifelong learning.

Case study projects of national stature will be researched, documented, and analyzed to add to the scholarship on the subject building.

Open Digital Pedagogy on the OpenLab:

All course materials will be housed on the OpenLab for easy access and reference by both faculty and the students.

A project site will be established on the OpenLab for each case study building with student work uploaded along with reflections and discussions to document the process. The project site will

have links to other key historical structures to contextualize the case study building. It will also include an annotated bibliography.

In addition, the students will set up an e-portfolio. This site will be used to document their work throughout the semester, including their reading notes, sketch assignments, and technical drawing assignments. This will give the students some basic experience with Wordpress. It will also serve as a learning log that they can refer to as they advance to the next level of building technology courses.

Place-Based Learning:

Typically two structures will be used as case study subjects that the students will visit, measure, and document in photographs and sketches.

Assessment:

A prior-knowledge assessment (low-stakes) will be used to assess the students starting point with knowledge and knowledge organization in the discipline. The same assessment will be administered 3/4 through the semester to measure progress in knowledge and knowledge organization.

Visual classification and sorting exercises will similarly be used to assess both knowledge and knowledge organization.

The students will also be assessed during discussions for participation and accurate recall as well as critical thinking on the discussion topics.

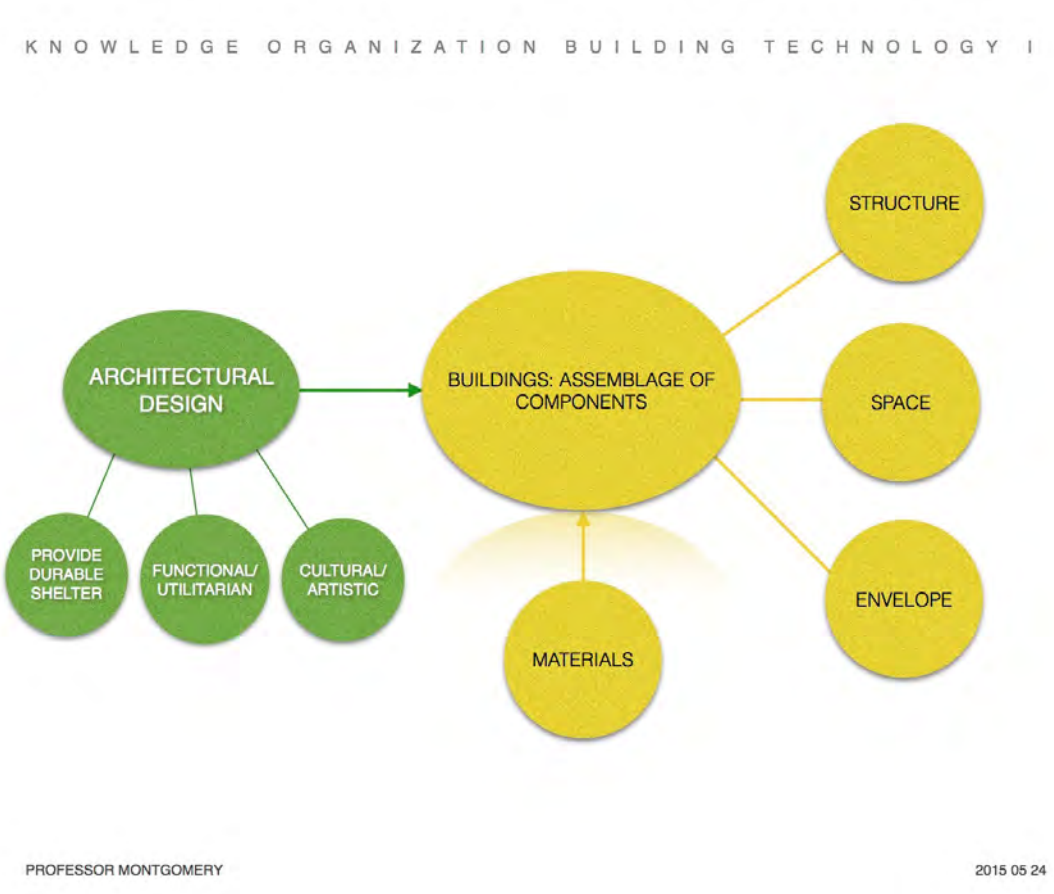
The READ Program was also implemented in the course, with a pre and post assessment collecting data on the development of the students' reading skills.

Section 3 Implementation Plan for ARCH 1130

IMPLEMENTATION PLAN

Proposed Approach

1. Finalize Proposed Course Outline
2. Develop Assessment Instruments for the Course
3. Meet with Part-time Faculty for Input and Feedback
4. Meet with Building Technology Sub-Committee for Review/Feedback



5. Coordinate with Part-time Faculty Prior to Fall Semester 2015

Needs

Most Critical: Stakeholder Buy-In

Tasks	Due Date	Status	Time Allocation
S P R I N G 2 0 1 5			
Complete Course Outline	May 20	100%	
Prepare Presentation for Feedback	May 26	100%	
Meet with Part-time Faculty	May 28	100%	
Meet with Building Technology Sub-Committee	May 30	-	

S U M M E R 2 0 1 5

(Pay Periods: June 16-30 and August 1-15)

Revise Course Outline	June 16-20	100% 8 hours
Complete Assessment Instruments	June 20-29	100% 18 hours
Schedule August Coordination Meeting	June 30	100% 1 hour
August Coordination Meeting w/ Faculty	Week of August 9	100% 4 hours
Implementation	August 28	in progress

Deliverables	Due Date	Status
Complete Course Outline	June 20	100% -
Assessment Instruments	June 30	100% -
Teaching Support Materials + OpenLab site	August 1-8	100% 16 hours
Living Lab Place-based Learning Template	August 1-8	100% 8 hours

Section 4 Redesigned Course

Successes and Challenges:

Other faculty concurred with change of emphasis for course, independently recognizing the need for building a learning foundation for the students rather than “pummeling” them with technical content that they have not context or prior knowledge to process.

Looking ahead:

The efficacy of some of the strategies being explored as part of the course change remain to be tested. This applies most importantly to the replacement of lectures with student presentations.

Section 5 Post-Implementation Analysis

Assessment Analysis: READ Program

Students completed a short reading and short answer quiz out of the new textbook:

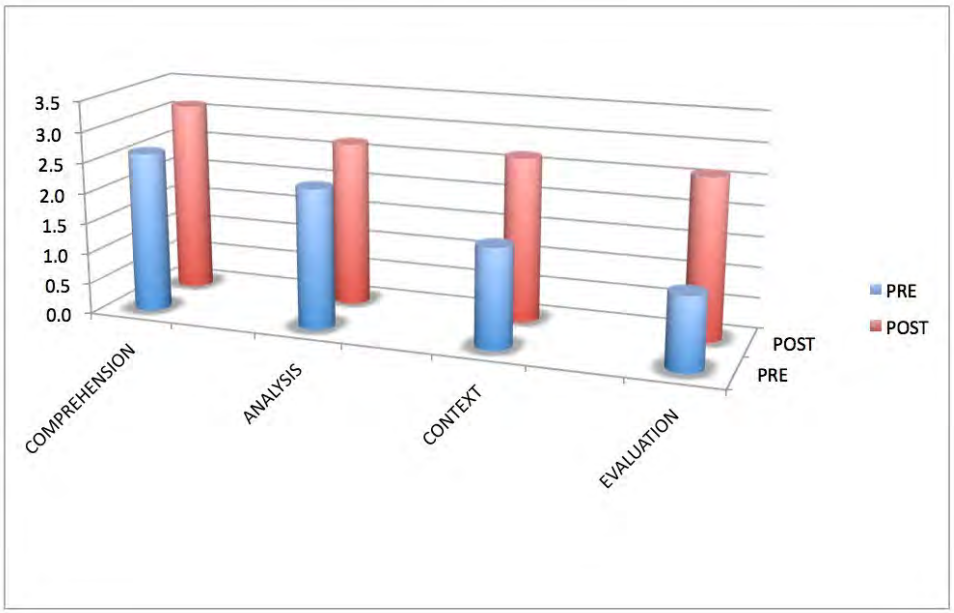
Roth, Leland M. *Understanding Architecture: Its Elements, History, and Meaning.* New York, NY: Icon Editions, 1993. Print.

This assessment was administered at the beginning of the semester as a Pre-Assessment of their reading skills. A similar article and quiz was assigned at the end of the semester to measure progress in their skills. The charts below document the data from these assessments.

Assessment Conclusions: Students showed progress in all four categories, likely due to class discussions, student presentations, note taking workshop, knowledge diagram workshop, and class site visits that helped build vocabulary and contextual knowledge of field of study. This provided evidence that the program has an impact and should be implemented across all sections.

Final Results Analysis

	PRE	POST	CHANGE
COMPREHENSION	2.6	3.1	120%
ANALYSIS	2.3	2.7	118%
CONTEXT	1.6	2.7	166%
EVALUATION	1.2	2.6	221%



Prof. Jason Montgomery
Dept. of Arch Tech

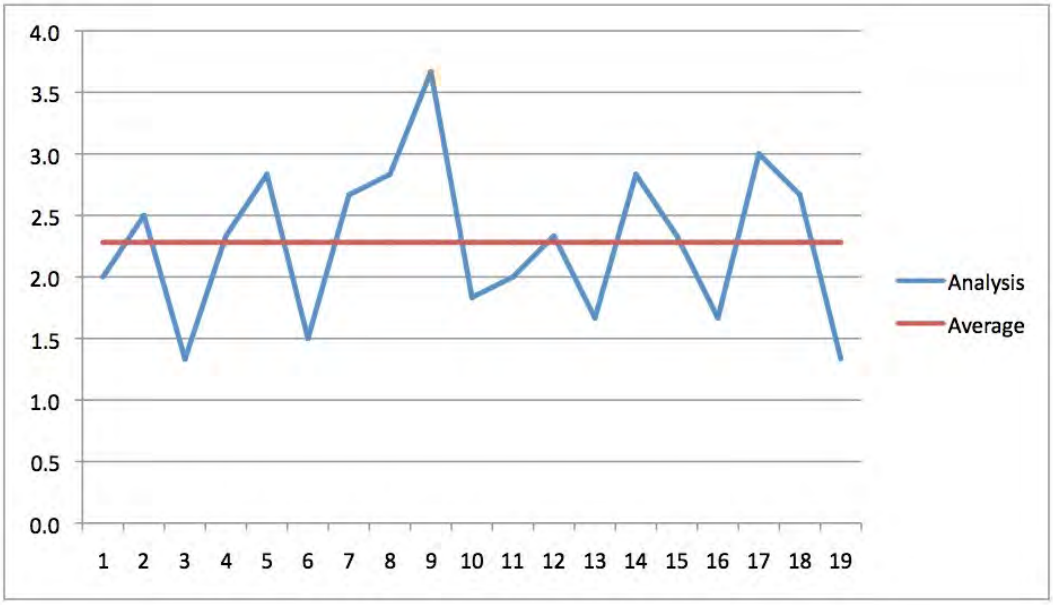
ARCH 1130 D540

2015 Fall

READ-ARCH Pre-Assessment

COMPREHENSION

ANALYSIS



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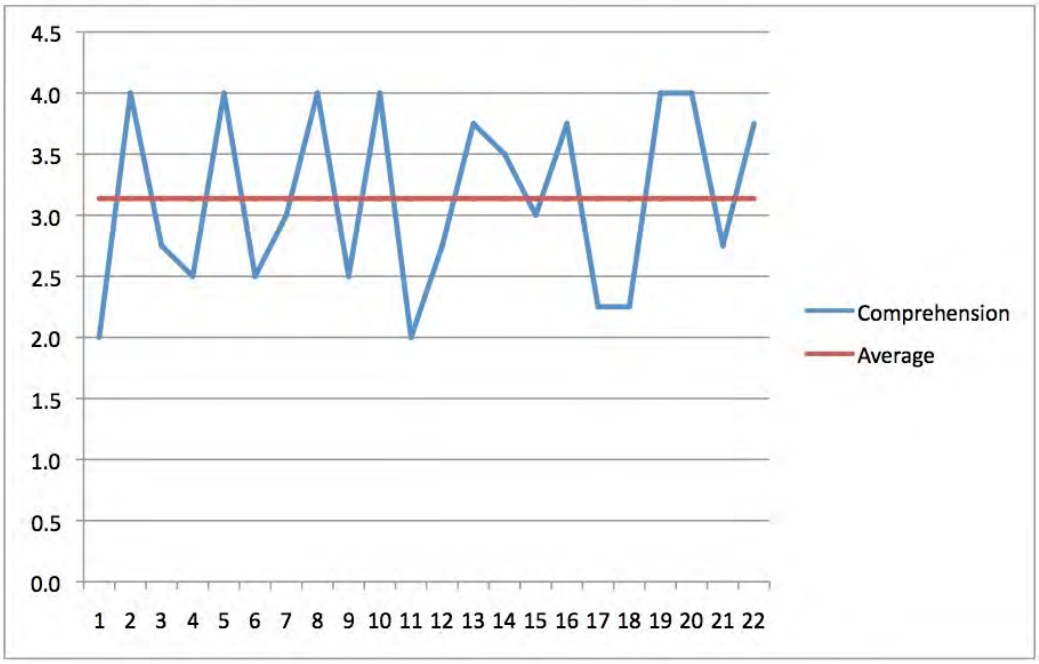
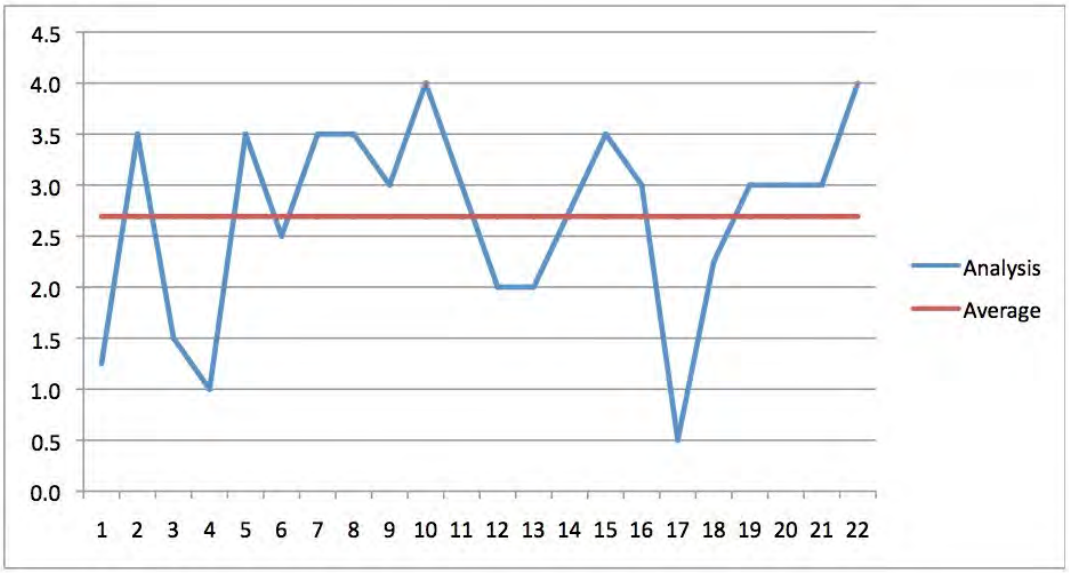
2015 Fall

READ-ARCH Post-Assessment

COMPREHENSION



ANALYSIS



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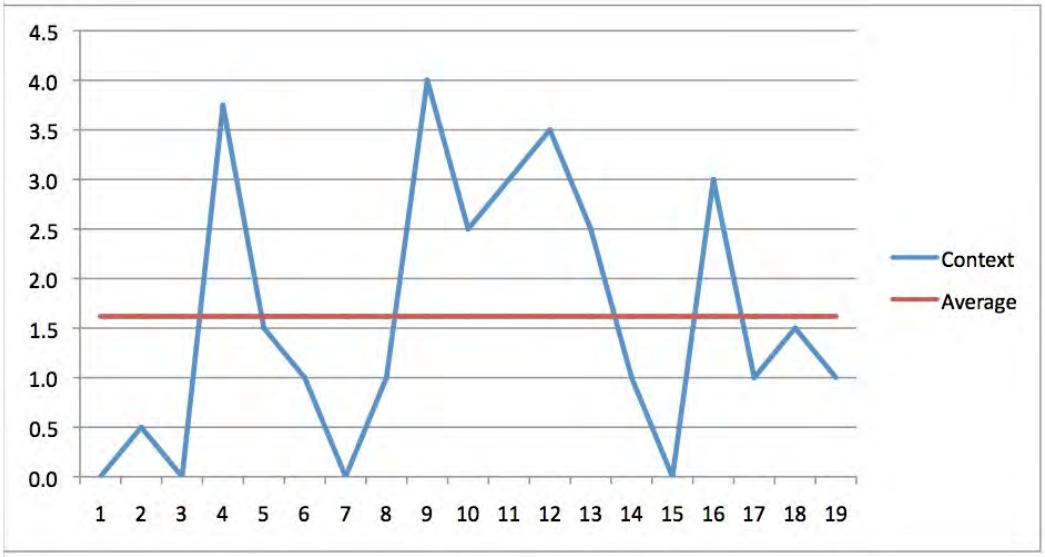
ARCH 1130 D540

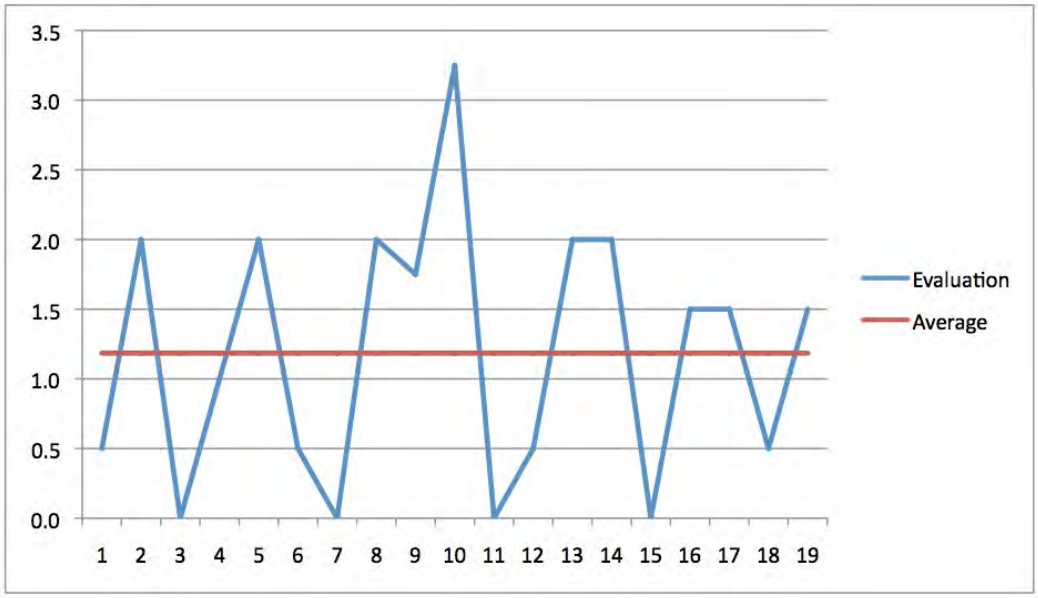
2015 Fall

READ-ARCH Pre-Assessment

CONTEXT



EVALUATION



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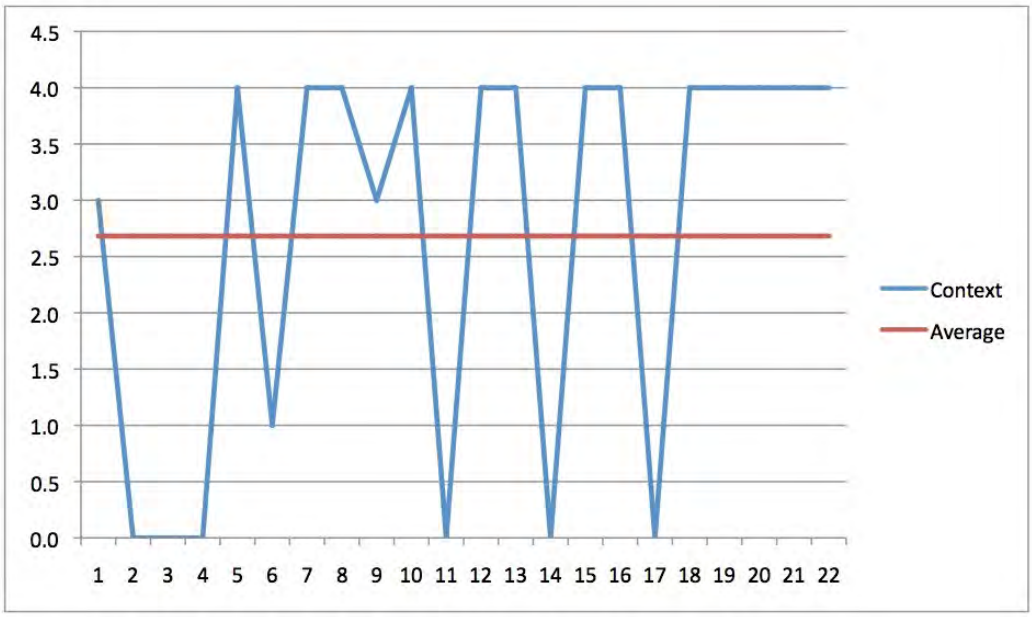
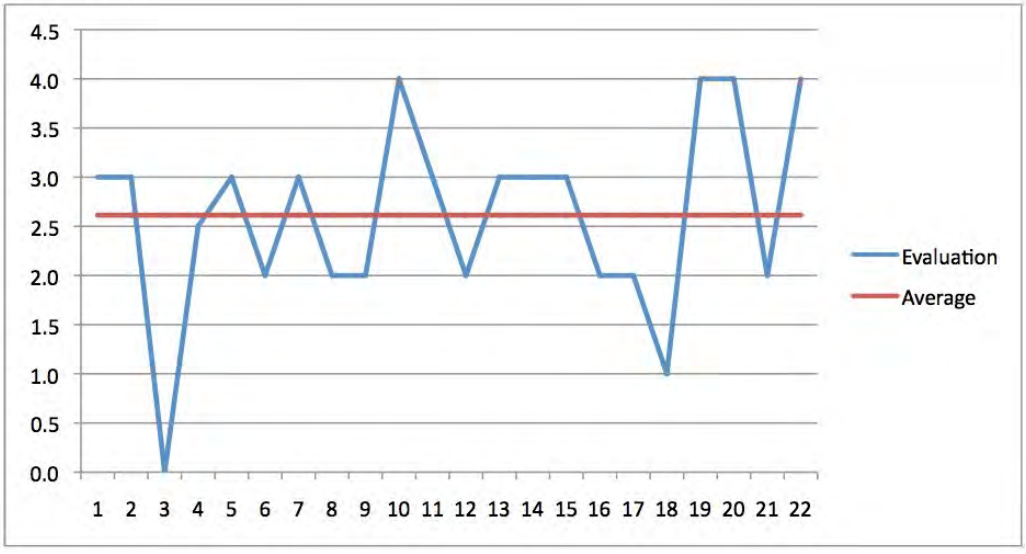
2015 Fall

READ-ARCH Post-Assessment

CONTEXT



EVALUATION



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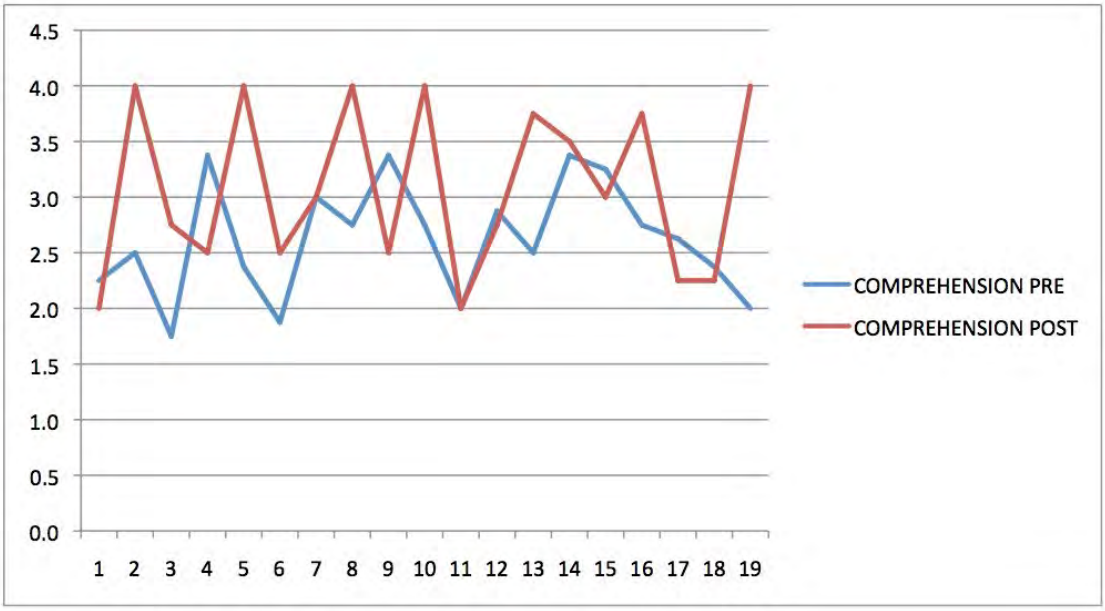
ARCH 1130 D540

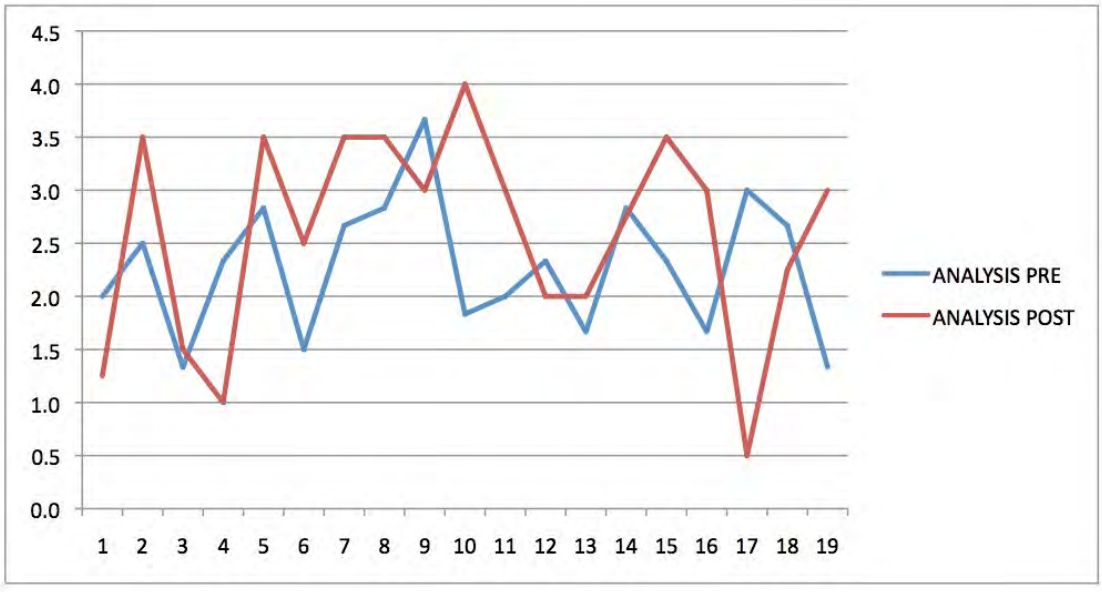
2015 Fall

STUDENT PROGRESS PRE TO POST

COMPREHENSION



ANALYSIS



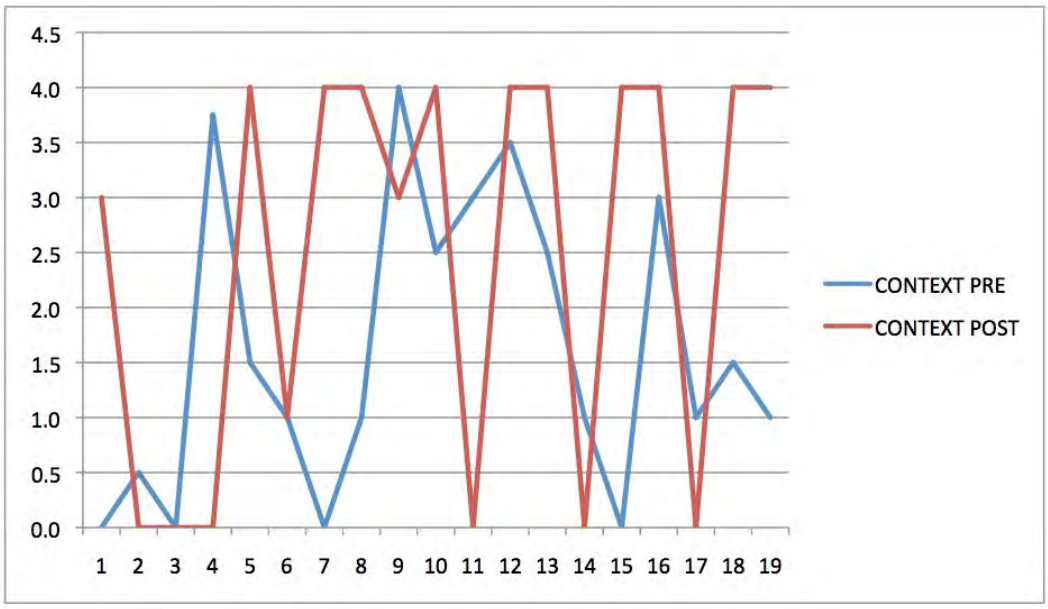
Prof. Jason Montgomery
Dept. of Arch Tech

ARCH 1130 D540

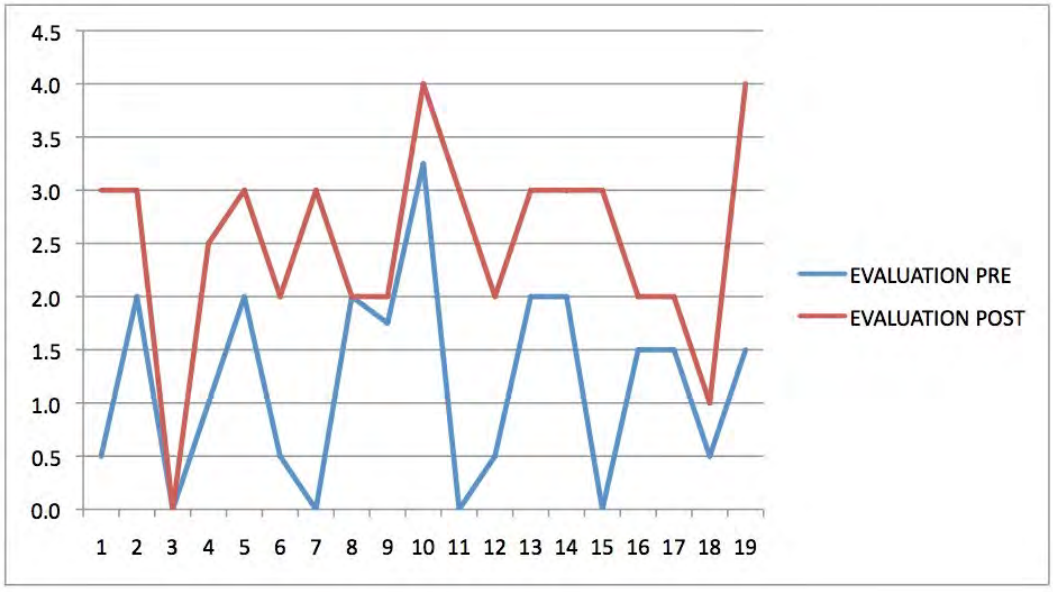
2015 Fall

STUDENT PROGRESS PRE TO POST

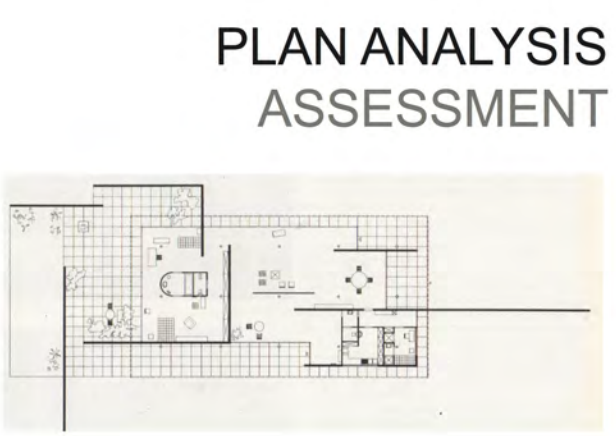
CONTEXT



EVALUATION



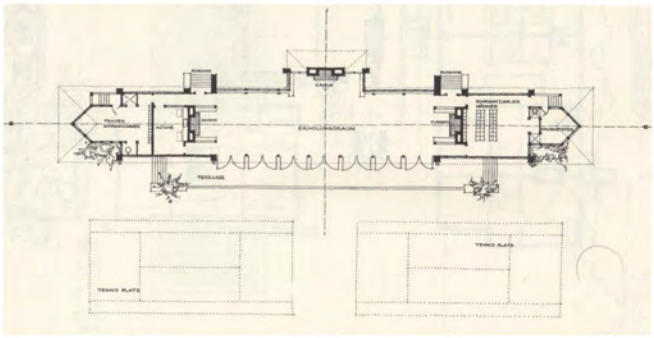
Plan Analysis Assessment



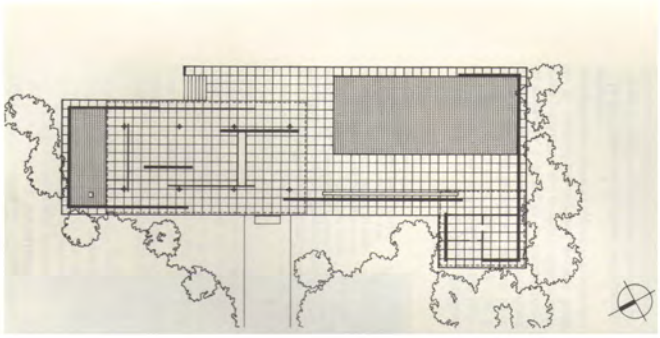
Students are asked to annotate 5 pairs of floor plans and to compare and contrast them. The initial pre-assessment was executed individually. The end of the semester assessment was executed in pairs.

Assessment Conclusions:

This pre and post comparison is not apples to apples, as the pre-assessment was executed individually and the post as pairs (due to unplanned technical challenges). In the future, it may be done in pairs pre and post and there was a positive learning outcome in the students doing this exercise in pairs. As it stands, the data does indicate a great breadth of vocabulary/terms applied to the analysis and there is a slight improvement of the average depth of analysis. It is clear, though, that analysis is still a challenge for these first year students, and therefore the department should consider placing greater emphasis on this skill due to its central role in critical thinking in the discipline.

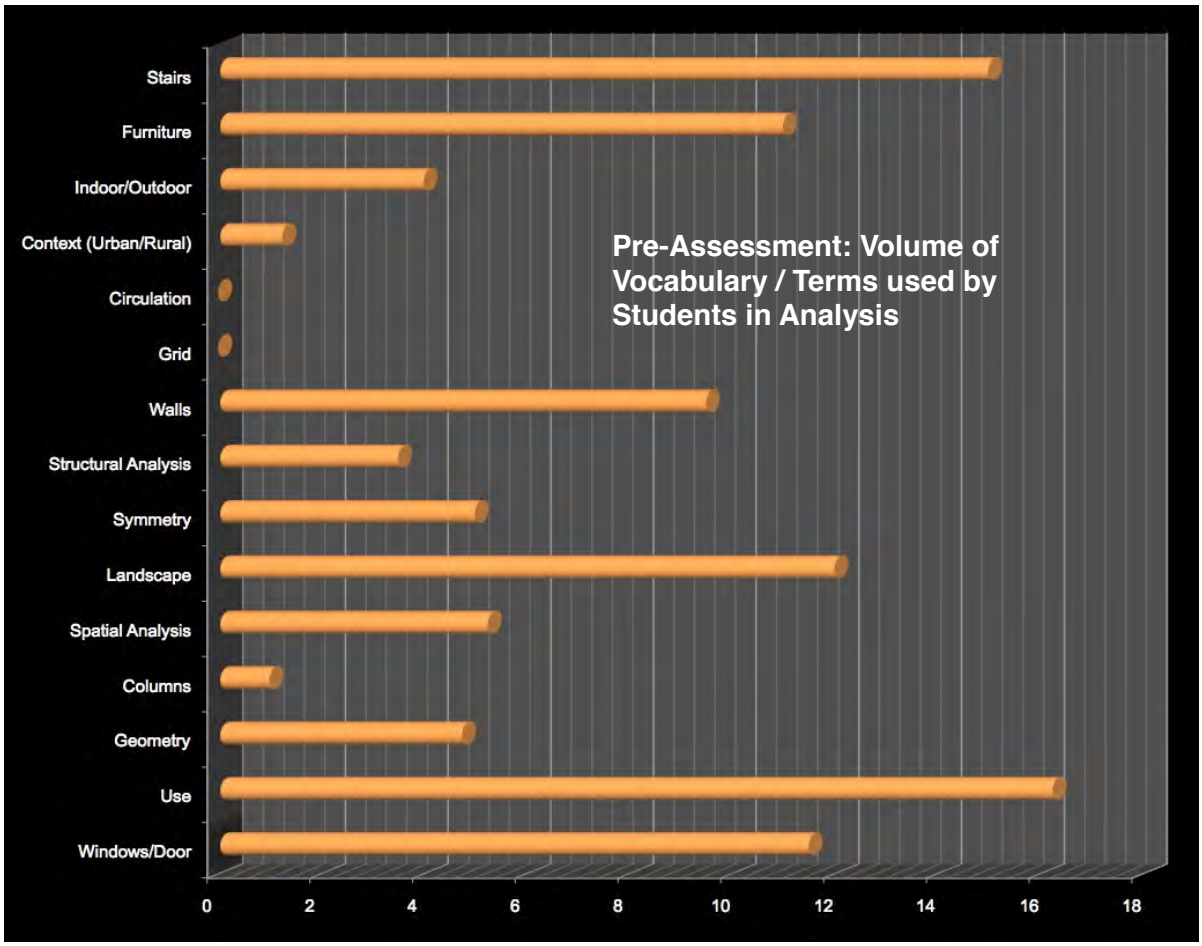


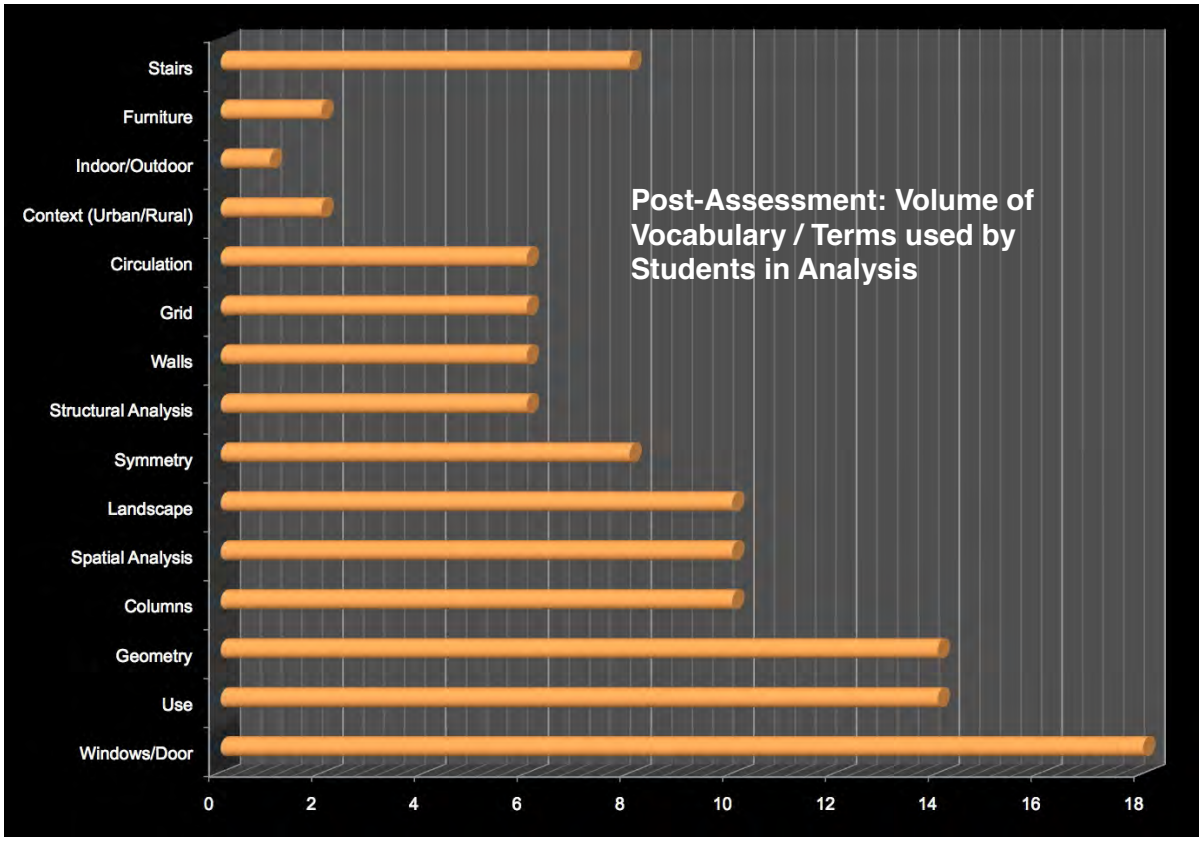
1



1

Sample pair of plans


Pre-Assessment: Volume of Vocabulary / Terms used by Students in Analysis
Stairs
Furniture
Indoor/Outdoor
Context (Urban/Rural)
Circulation
Grid
Walls
Structural Analysis
Symmetry
Landscape
Spatial Analysis
Columns
Geometry
Use
Windows/Door
0
2
4
6
8
10
12
14
16
18


Post-Assessment: Volume of Vocabulary / Terms used by Students in Analysis
Stairs
Furniture
Indoor/Outdoor
Context (Urban/Rural)
Circulation
Grid
Walls
Structural Analysis
Symmetry
Landscape
Spatial Analysis
Columns
Geometry
Use
Windows/Door
0
2
4
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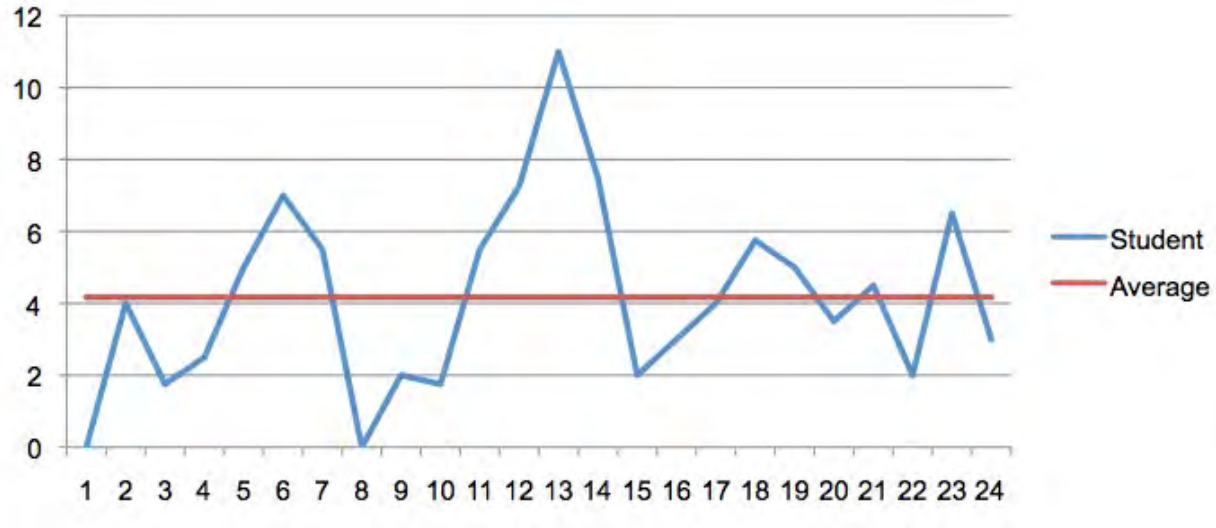
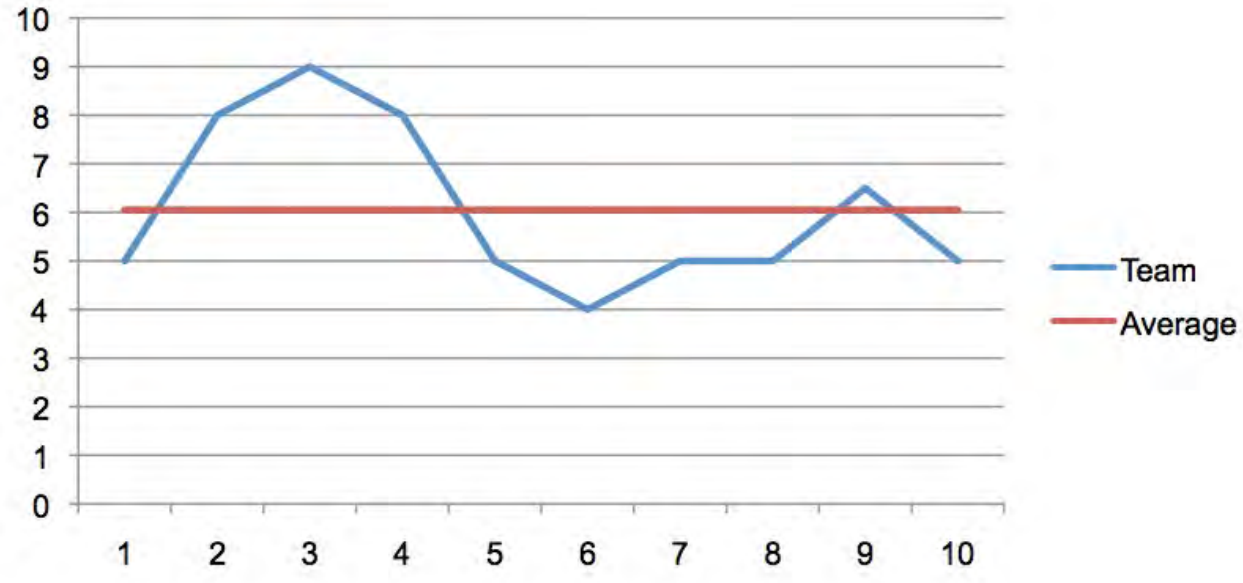
8
10
12
14
16
18

Pre-Assessment Measure of Number of Vocabulary / Terms by Individual Students in the Plan Analysis



Post-Assessment Measure of Number of Vocabulary / Terms by Team (2 Students per Team) in the Plan Analysis



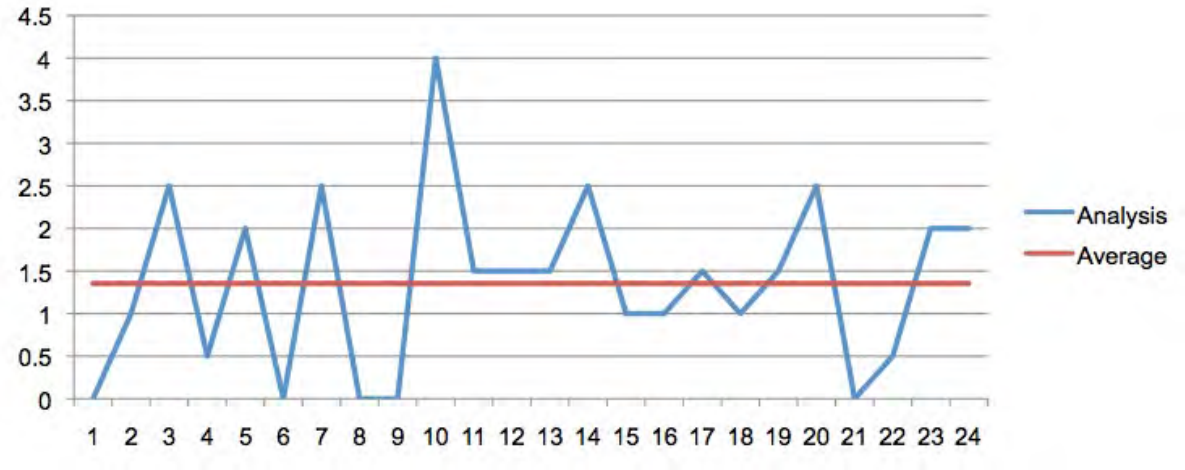
Depth of Analysis

Scoring:
1 = 1 basic feature used
2 = 2 basic features used
4 = 3 or more basic features used
6 = 3 or more nuanced features used

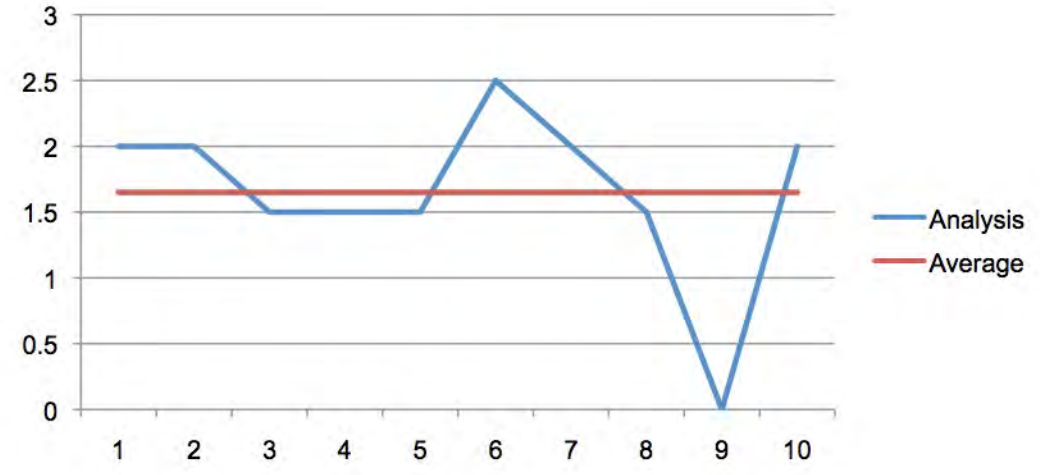
basic = mere listing of superficial features like use, content of drawing (i.e. furniture present or not, landscape present or not…)

nuanced = true comparison and contrast of more complex features such as structural system, spatial definition, geometric arrangement, flow of indoor/outdoor space, sense of context

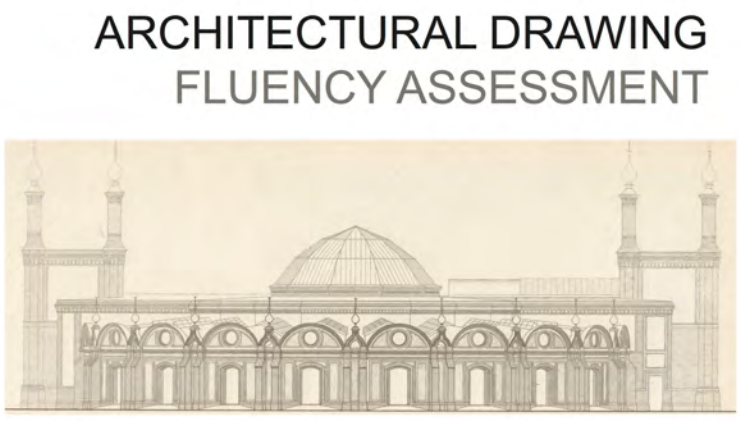
Pre-Assessment Measure of Depth of Analysis by Individual Students (Comparison/ Contrast)



Post-Assessment Measure of Depth of Analysis by Team (2 Students per Team (Comparison/Contrast)

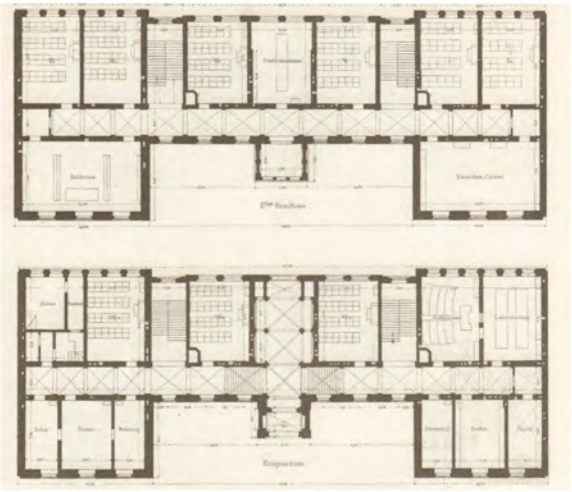


Drawing Fluency Assessment



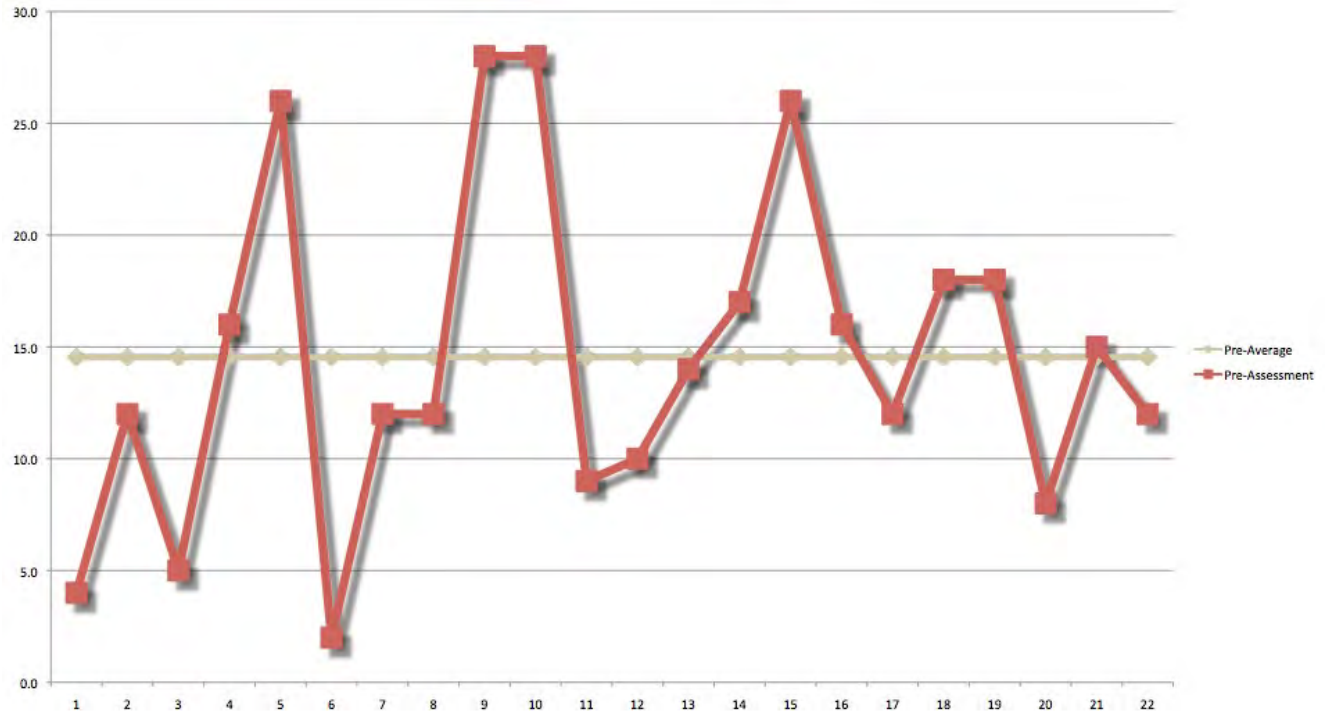
This assessment challenged the students to demonstrate their ability to “read” drawings. Each student was given a packet of scrambled drawings of 4 different buildings. The drawings consisted of plans, sections, elevations, and perspectives. The students’ were tasked to identify which drawings described the same building, then to compile each building’s drawings into an organized group. Further, the students were asked to cross reference the drawings with drawing tags to show how each drawing related to the others.

This assessment was conducted at the beginning of the semester as well as at the end of the semester. Each student had the same packet both times, so they could review how they grouped the drawings at the beginning of the semester and revised their grouping and cross referencing. This task challenged the students to dig into each drawing and use elements, patterns, geometry, symmetry, proportion to relate plan views to elevations and sections.

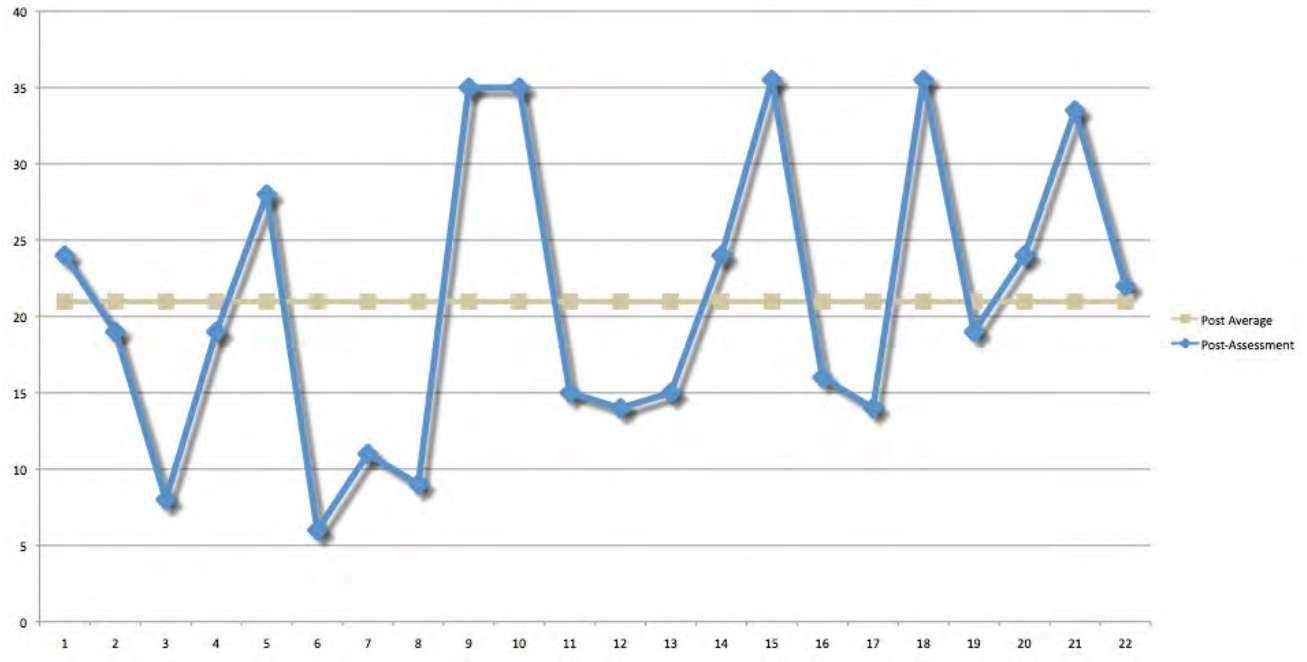


Sample pair of drawings

Pre-Assessment Combined Scores for Accurate Grouping of Drawings and Cross Reference Tags.



Post-Assessment Combined Scores for Accurate Grouping of Drawings and Cross Reference Tags.

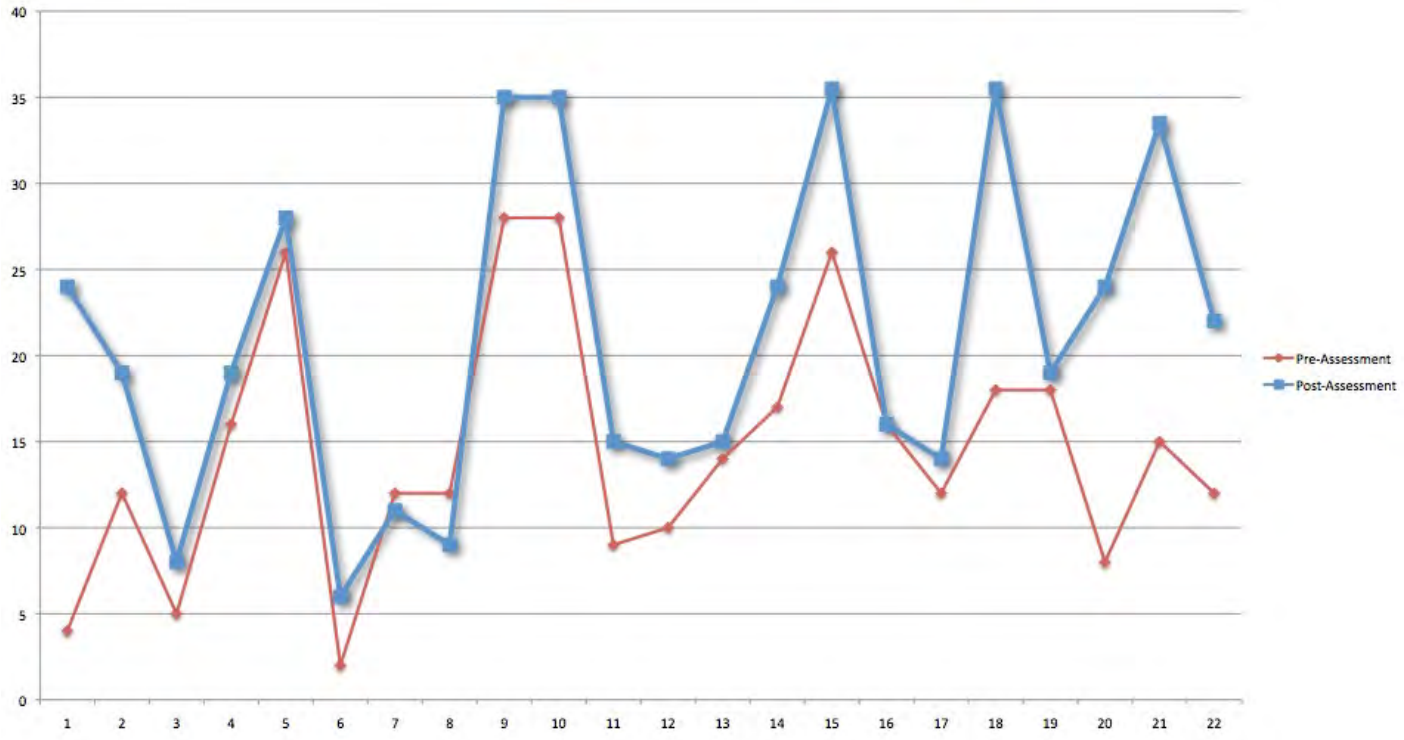


Assessment Conclusions:

This assessment measures a critical skill for all students in the department: reading architectural drawings and understanding how architectural drawings relate to each other. This assessment was developed with the intuitive assessment that students were not developing these skills adequately, causing a drag on their achievement in subsequent building technology courses. The assessment also offers an opportunity to measure the incoming cohorts prior knowledge in basic discipline specific skills.

The data shows that many students come into the department lacking these foundational skills. In additional, the overall improvement in these skills was often not significant during the semester. This suggests continued adjustment of assignments and pedagogy to address this skill deficit so that students are better prepared for the subsequent courses of the program.

Comparison of Pre and Post-Assessment Combined Scores for Accurate Grouping of



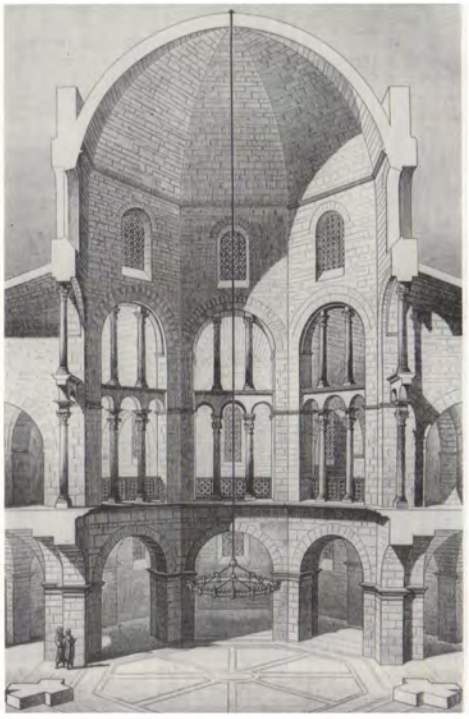
Drawings and Cross Reference Tags.

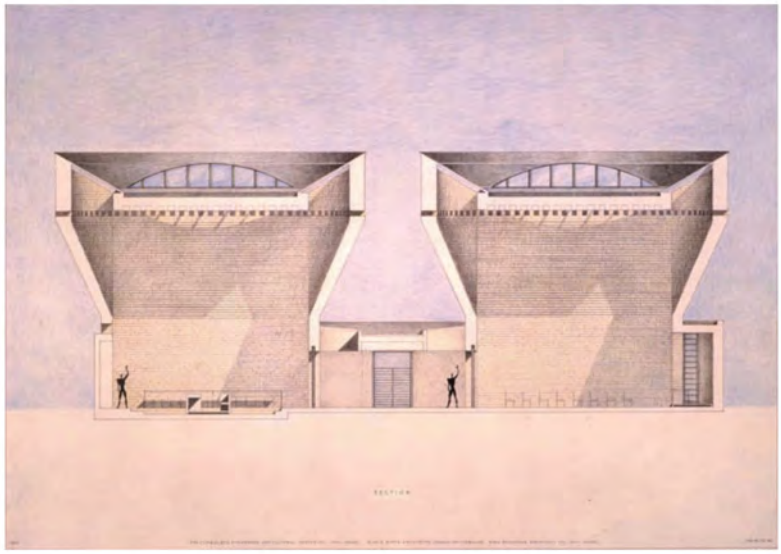
SECTIONS + STRUCTURE ASSESSMENT

Section Fluency Assessment

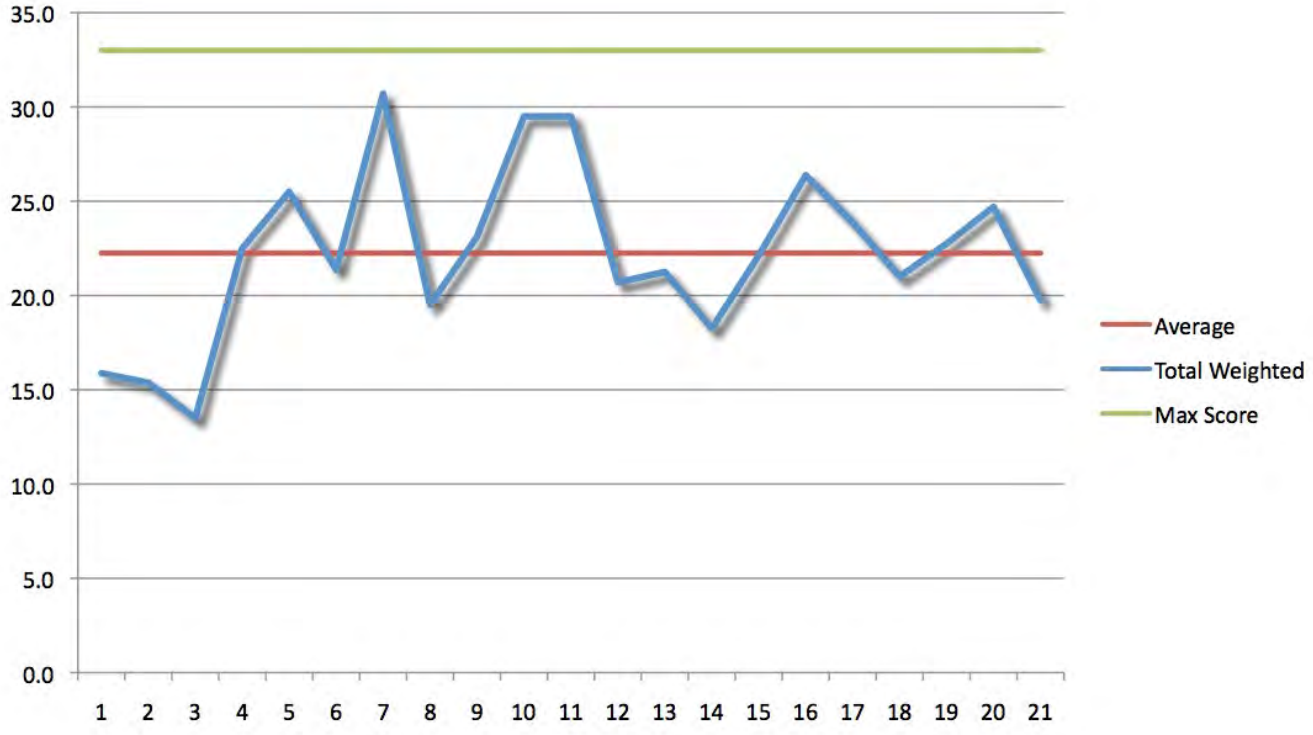
This assessment measures the students' familiarity with this type of orthogonal (and sometimes perspectival) drawing.

The students are asked to add color to the "poche" of the drawing, annotate the structural elements visible in the drawing, and to diagram how sunlight can penetrate into the interior space. Each task is scored separately, then combined with greatest weight given to the poche task, then lesser weight applied to the structural element task, with no weight to the light analysis.





Compiled Scores for Each Student

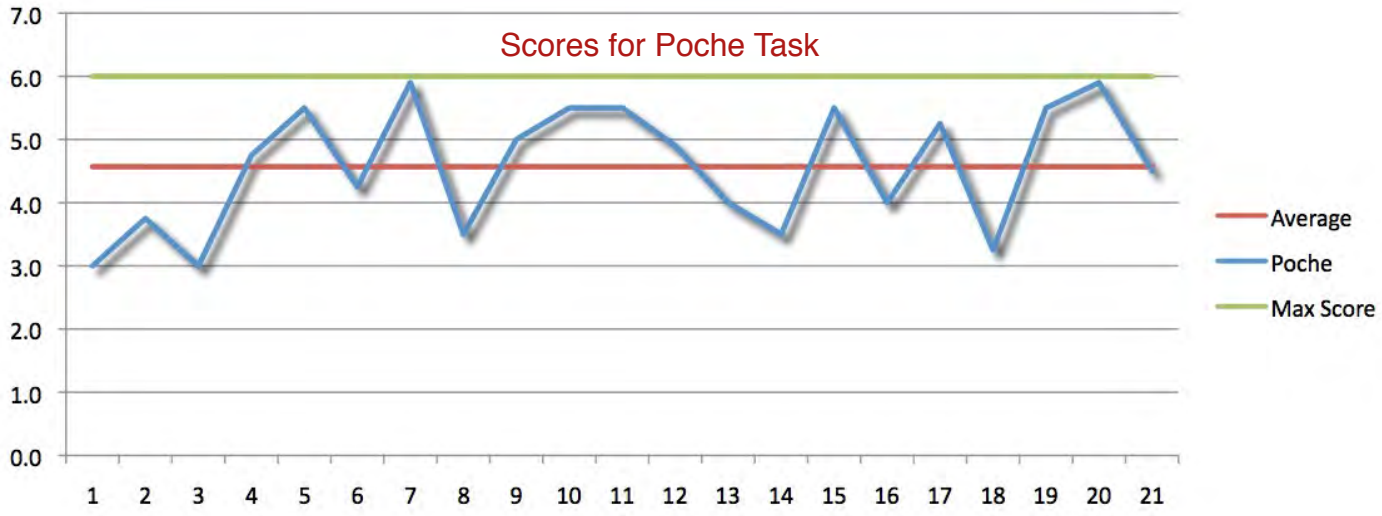


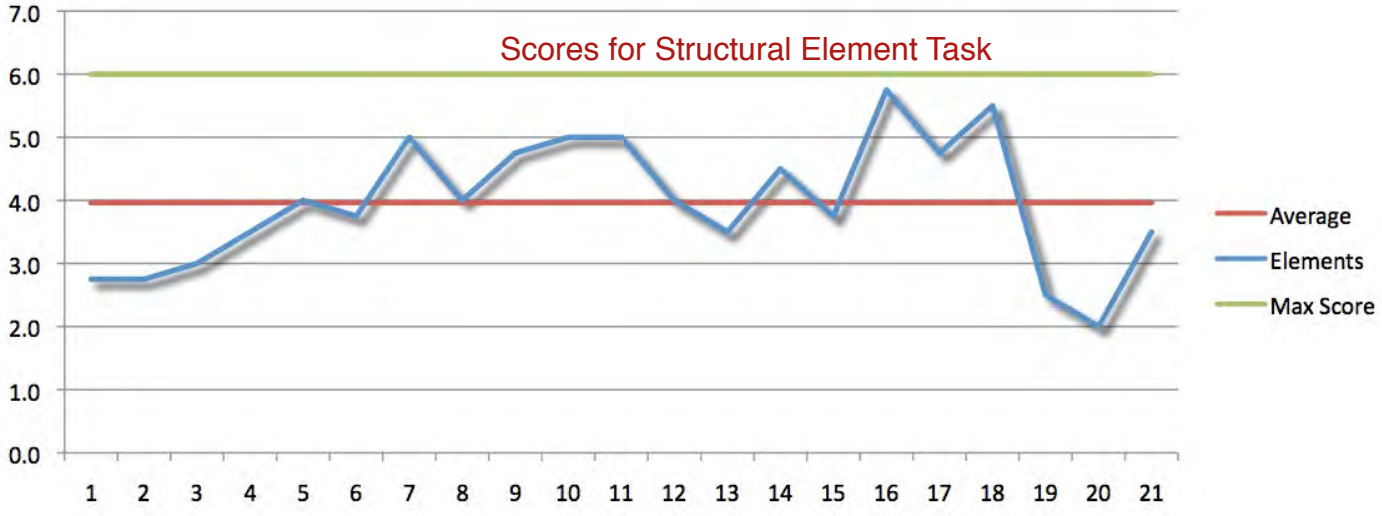
Assessment Conclusions:

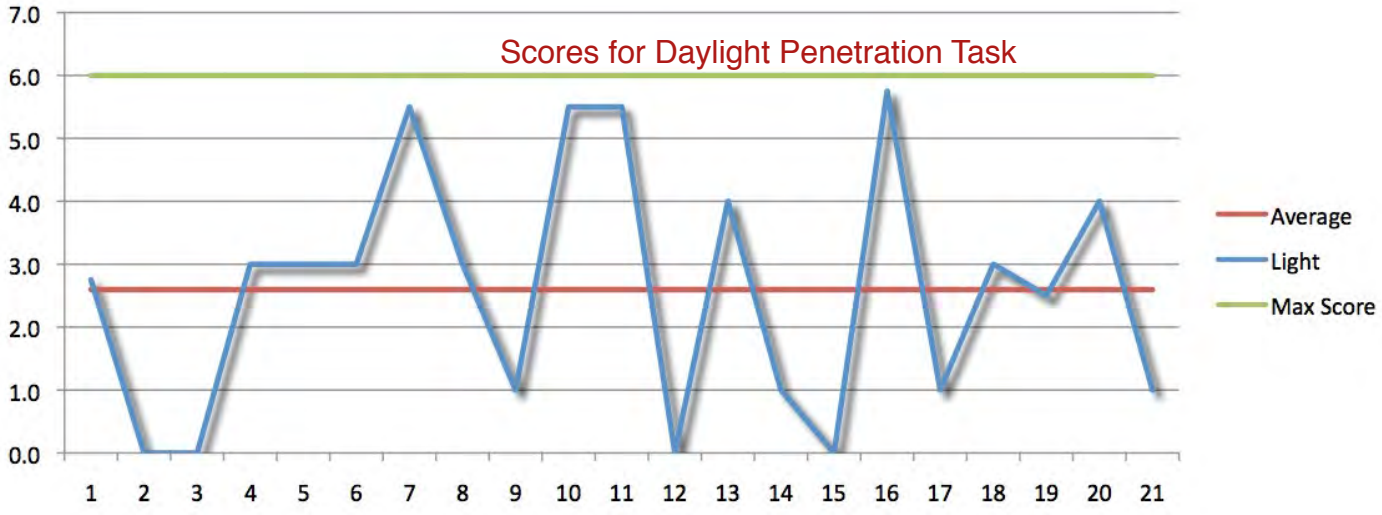
The students on average showed a baseline familiarity with reading sections, but rarely exhibited a fully accurate understanding of sections. In the Technical drawing Assignments, students struggled most on the section drawing assignments.

The highest achievement in the assessment was the poche task, distinguishing where the building is “cut” from the elements of the building beyond in elevation. The structural elements were often only partially identified. The recognition of transparency in the section, where light can penetrate into the interior, was the weakest aspect of the assessment.

These results reinforce the commonly understood challenge sections offer to our students and the need to spend more time in and out of class building the students’ familiarity and mastery of drawing sections.


Scores for Poche Task
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
Average
Poche
Max Score


Scores for Structural Element Task
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
Average
Elements
Max Score


Scores for Daylight Penetration Task
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
Average
Light
Max Score

Reflection on the Implementation Process:

New Syllabus: https://openlab.citytech.cuny.edu/arch1130/syllabus/

The implementation of changes to any course can be difficult, but the part time and full time faculty who teach this course were excellent partners and contributed significantly to the process. There was clear consensus amongst this group that the goals for the course changes were the right ones.

The larger departmental coordination of the changes ran into a stumbling block: DURA. The other faculty most invested in the Building Technology Sequence were intensely focused on the Solar Decathlon Competition and were not available for in-depth consultation for this project. As we move forward the coordination with this key group of stakeholders can now happen, but the context is changing as the department moves towards its application for NAAB Accreditation and the introduction of a new 5 Year BARCH program. This new program will again require adjustment to our curriculum, possibly impacting this course.

The support from the Living LAB Team was excellent and the template for developing the Course Redesign and Implementation Planning were very helpful.

Analyzing Results:

The assessment analysis above provides a strong case in support of the goals of the redesign: foundational General Education skills development alongside foundational Discipline skills and knowledge. They suggest continued re-consideration of the assignments and flow of the course content in order to improve the building of critical discipline skills in the context of the students' becoming life-long learners. More reflection needs to be built into the assessment strategy to measure more directly the students' voices and concerns in their learning development.

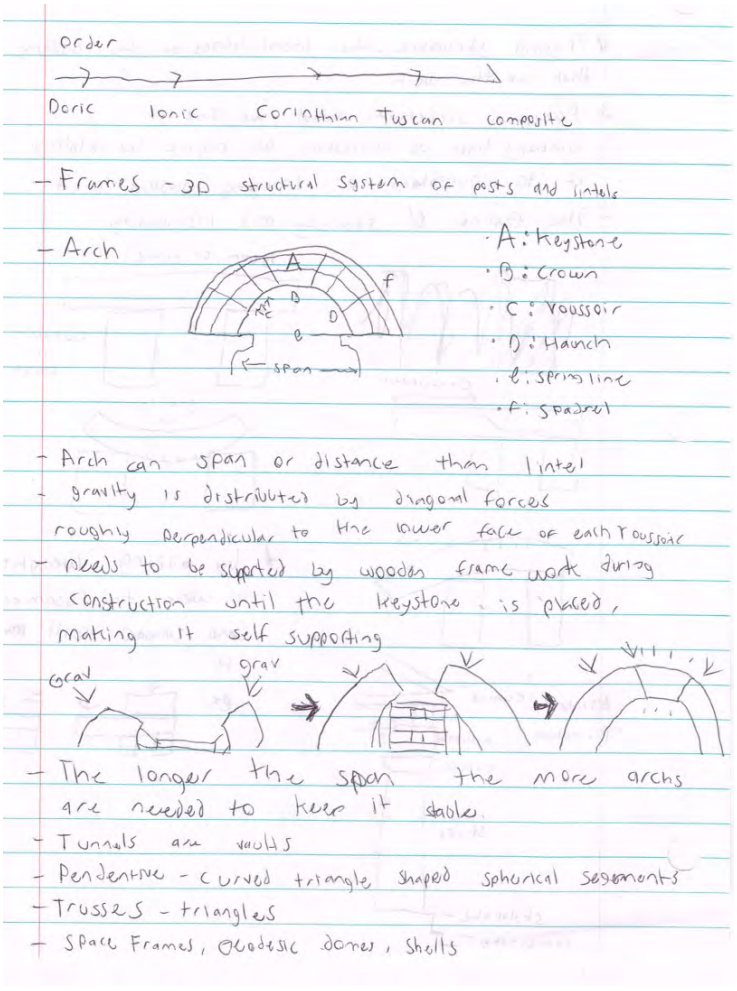
Student Led Class Discussions:

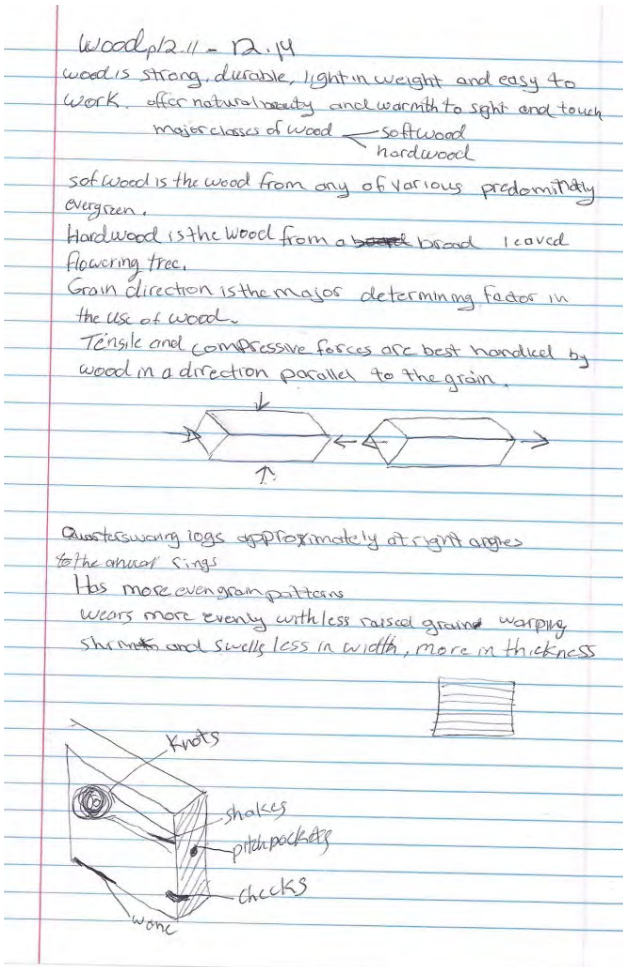
The students endorsed the approach to the readings and technical content of the course, where lectures are replaced by student led discussions. This process led

to the observation of higher level of engagement by the students in addition to their responsibility to absorb, understand, and prepare notes for their presentations and lead role in the class discussions.

Reading Notes on the E-portfolio:

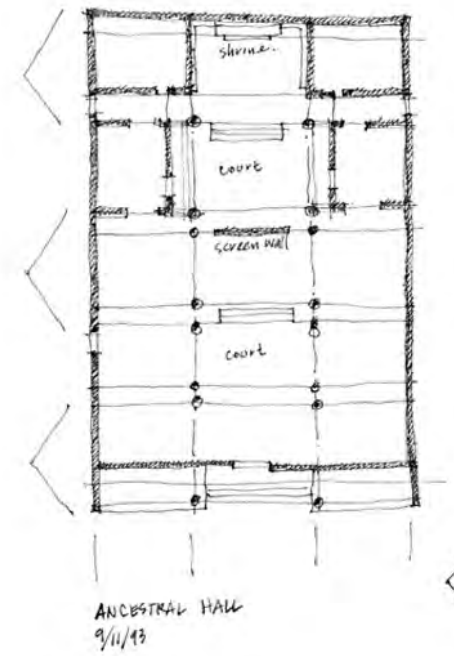
The requirement for student note submissions for each reading assignment reinforced the reading assignments, likely achieving a higher level of reading activity compared to the previous iteration of the course. The notes themselves became a discussion point and a motivation for a workshop on study and note-taking techniques as well as knowledge organization mapping strategies.

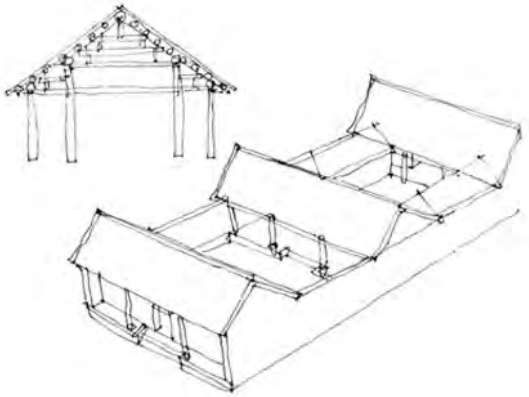


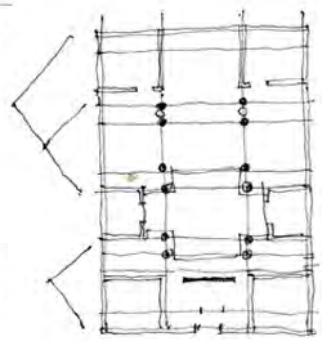


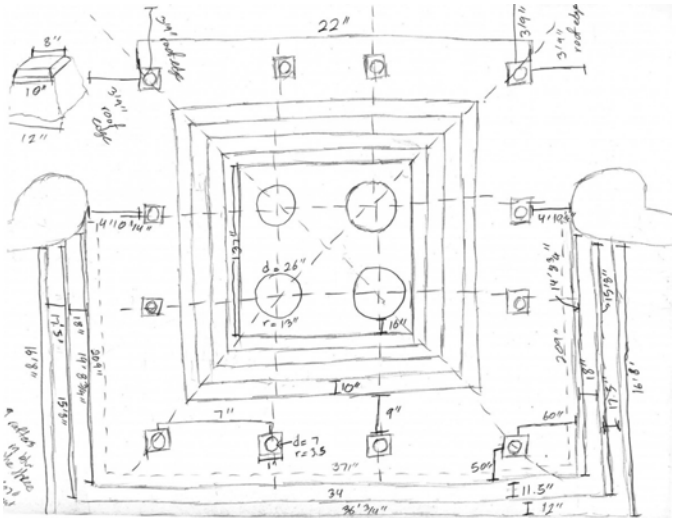
Sketch Assignments on the E-Portfolio:

Student thinking, observational and analysis skills are made evident through sketching and annotations of their sketches. This assignment proved to be an important enhancement of this course and should be developed more intensively.









E-Portfolio Development:

The requirement to document all assignments throughout the semester on each student's e-portfolio has multiple goals:

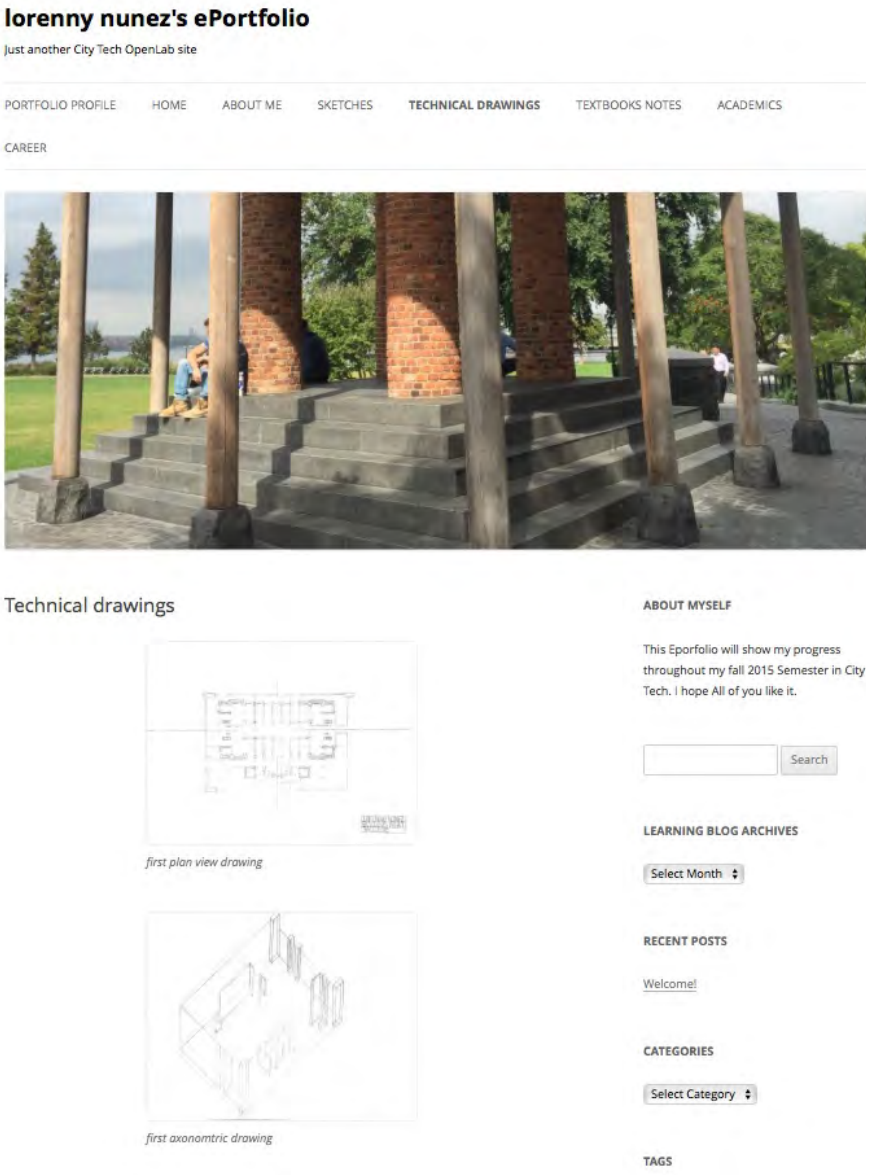
1.Development of Wordpress skills.

2.Presentation Skills

3.Learning Log Record of Notes, Sketches, And Technical Drawing Assignments

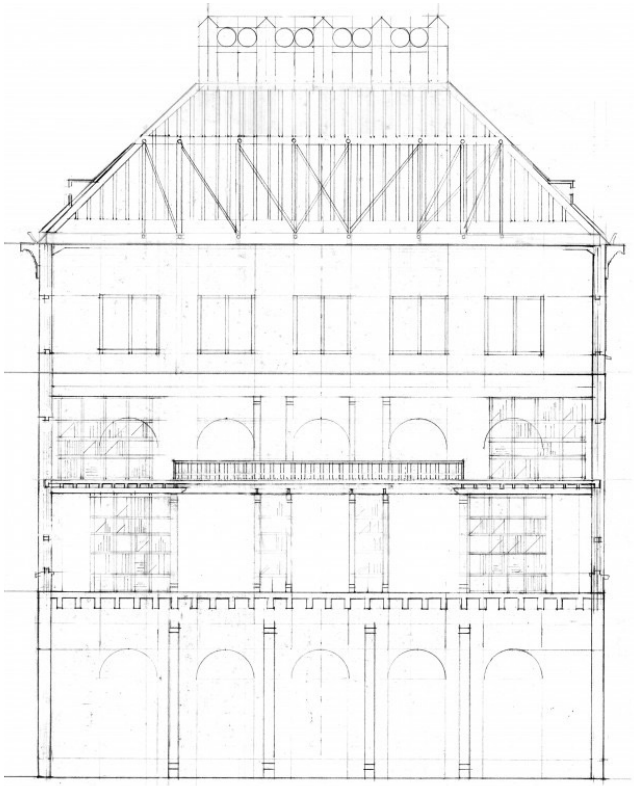
4.Provide the Department with a means of reviewing student progress through the curriculum.

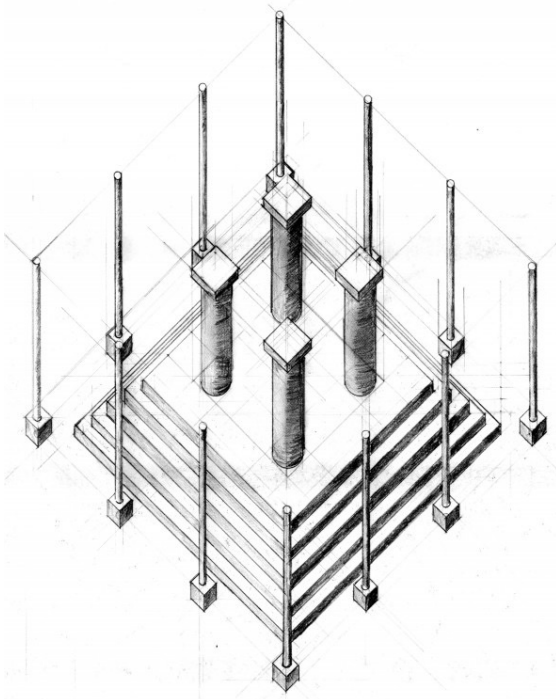
While not all students developed their sites significantly, all students were able to upload their assignment work to their portfolio site, opening the door to future use of the site.

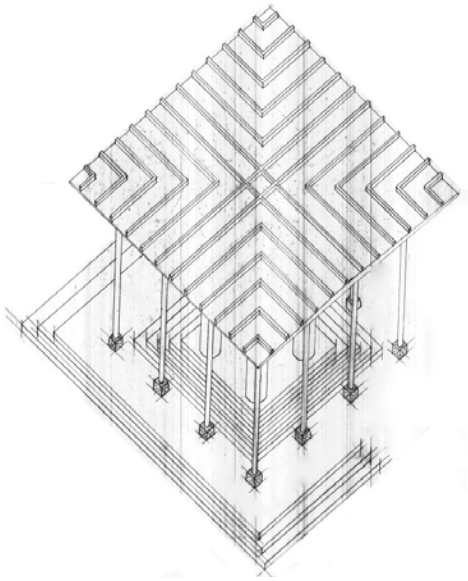


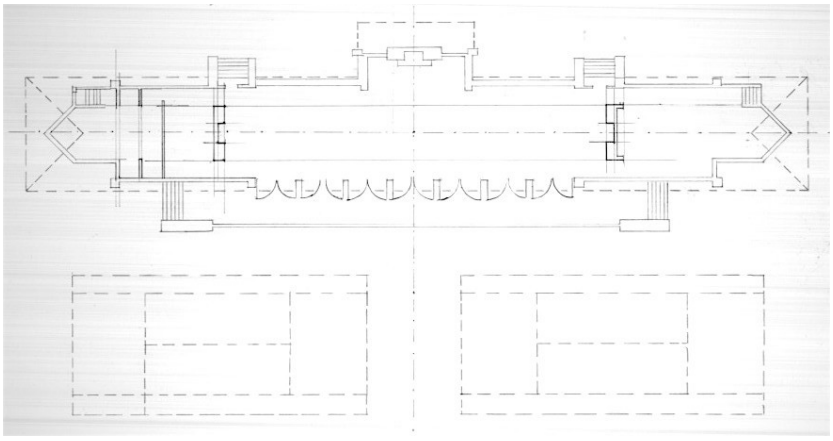
Technical Drawing Assignments:

The drawing assignments worked well, following the success of the use of case studies as in previous semesters. Access to case study sites can be challenging, so flexibility is important in selecting sites. The pavilion worked well as an outdoor, publicly accessible structure. The BHS has varying degrees of accessibility. Additional case study buildings should be identified to provide variety and ease of access for all sections.









Lessons Learned and Recommendations:

This effort to adjust an existing course to place greater emphasis on General Education learning objectives, integrate HIEPs, and exploit the potential of the OpenLab was positive and fruitful. Curriculum development should be a regular, ongoing process of research, experimentation, assessment, and adjustment. Educational theory and pedagogical strategy are evolving bodies of knowledge and exploration. The requirements for success in the 21st century are still emerging. Our courses must respond to this context.

This course is a critical entry level course into our department, with great potential to lay a solid foundation for each student's engagement and growth in the field, but also in general as growing intellectuals and learners. This project has opened my eyes to this potential and the need to reconsider long standing assumptions about course delivery and content. For me, this is the most important lesson learned.

Additional lessons learned:

1. Be creative in the development of assessment tools.

2. Place significant emphasis on knowledge organization to help students see the links and flow of knowledge in the discipline.

3. Challenge the efficacy of the lecture for 21st century learners.

4. Reflection is critical for the students' growth and at the same time is critical as an assessment tool providing insight and feedback to support the continuous adjustment and improvement of the curriculum.

I recommend the development of this type of program within the departments, with each course moving through a regular cycle of research and assessment-based adjustment. This program should be structured around a summary program map that documents the links and flow of the most essential skills and knowledge, including both Gen Ed and discipline specific objectives, with each course cross referenced into this map to show its vital role working towards one or more of these objectives.

New Course Syllabus: https://openlab.citytech.cuny.edu/arch1130/syllabus/

Reflecting on Initial Goals:

1. Rebalance the general education and the discipline specific goals of the courses with greater emphasis on general education. This goal was achieved.

2. Develop greater emphasis on active learning strategies and High Impact Educational Learning Practices. Significant progress was made towards this goal.

3. Reconsider tools for learning, including hand drawing versus digital drawing tools. This goal is still a work in progress.

4. Explore alternative readings/textbook for introduction of technical course content. This goal was achieved with the switch of textbooks to a more general textbook replacing a highly technical textbook.

The Departments' goals for the redesign of this course include:

1. Improve connections between these courses and the other first year courses. This goal was partially achieved with a common textbook between the history course and this course.

2. Develop a skills map to clarify the introduction, reinforcement, and mastery of course content. This was achieved for this course, but is in progress for the overall program.

3. Improve digital skills development. This goal was made partial progress through the integration of the e-portfolio but could be extended with the provision of a digital classroom infrastructure and resources.

Students pinning up Section Analysis Assessment for Group Discussion