



Ubiquitus (digital) repositories in the design studio

T.Dounas ¹ , A.B.Spaeth ²

1. Xian Jiaotong Liverpool University
2. Cardiff University

1/2 PART OF

XJTLU

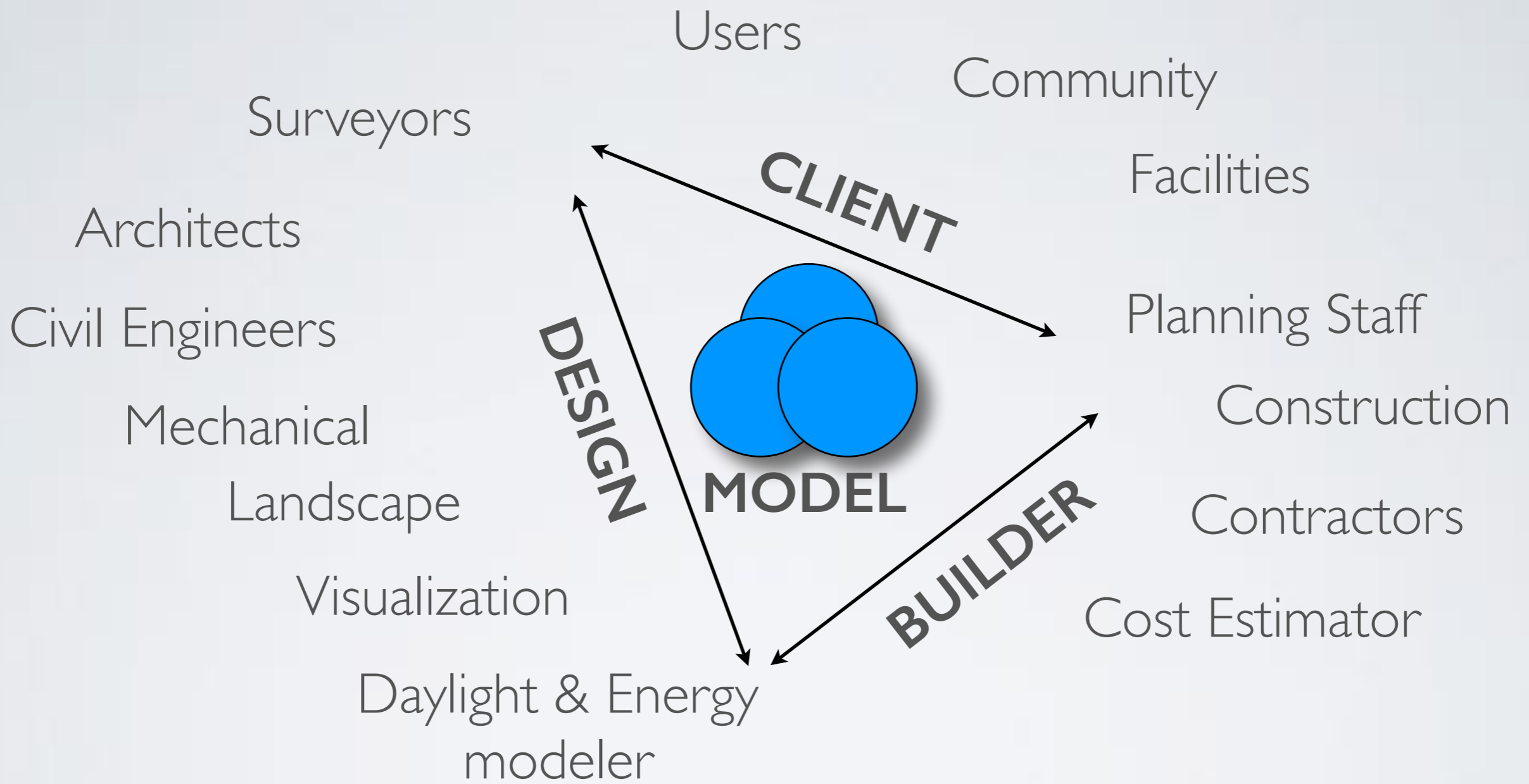
Teaching Development Fund
“Digital Drawing as a Generative System”



Teaching Development Fund
“Digital Drawing as a Generative System”

Aims:

- Ascertain the use of digital notebooks as an organizational feature of studies in structuring students' capacity to think, schedule and produce visual imagery in architecture.
- Document the conceptual architectural development of students at the Final Year project level
- Inform the development of a digital tools curriculum at the department of architecture



HOW AN 'AEC' TEAM WORKS



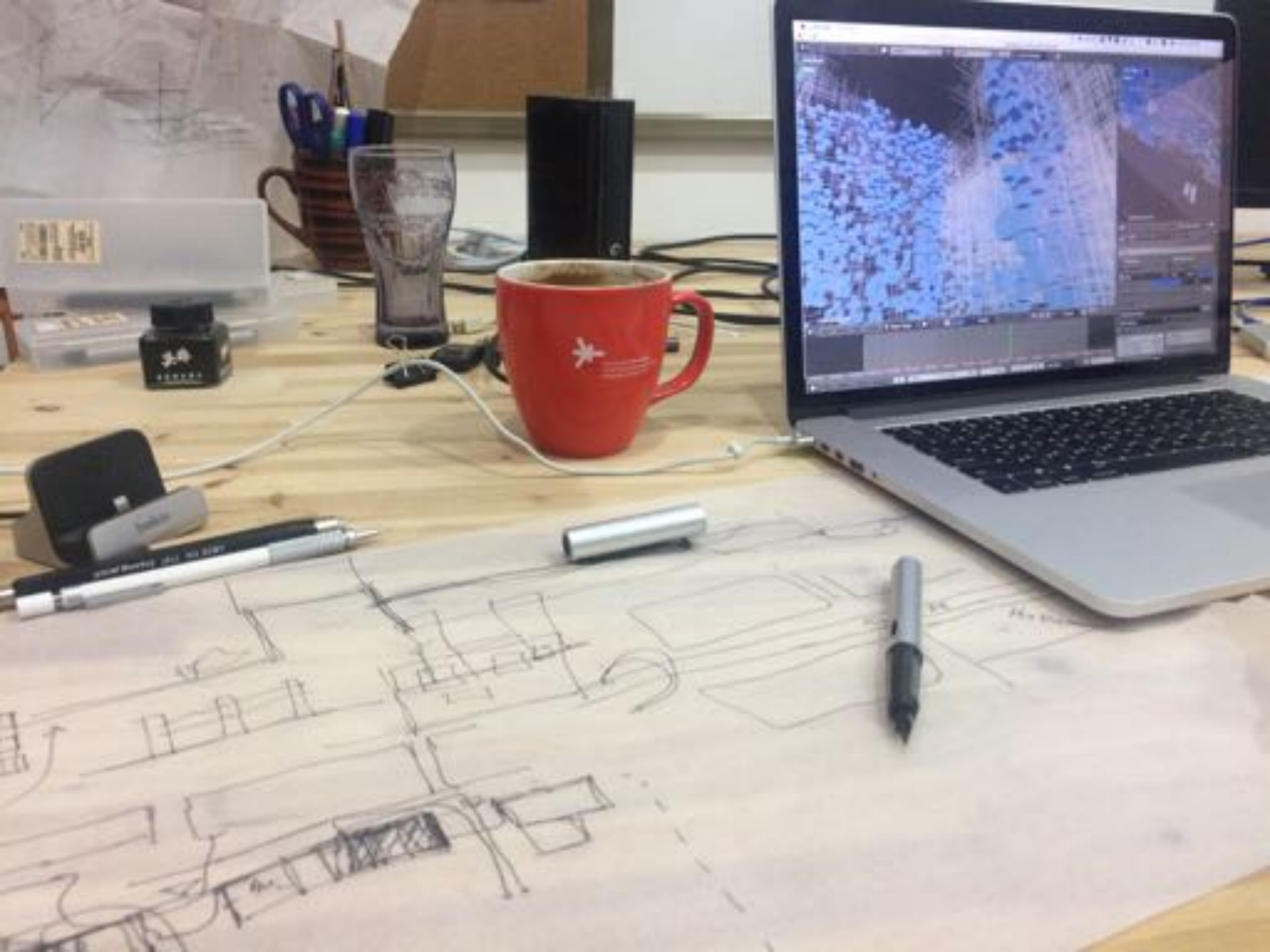
Architect - Gentleman from Teknsik Ukeblad technical journal 1893



Ivan Sutherland - Sketchpad,
Vision and Realities of Hypertext and Graphical User Interfaces, <http://www.mprove.de/diplom/index.html>

architecture studio













drawing as a
thinking tool



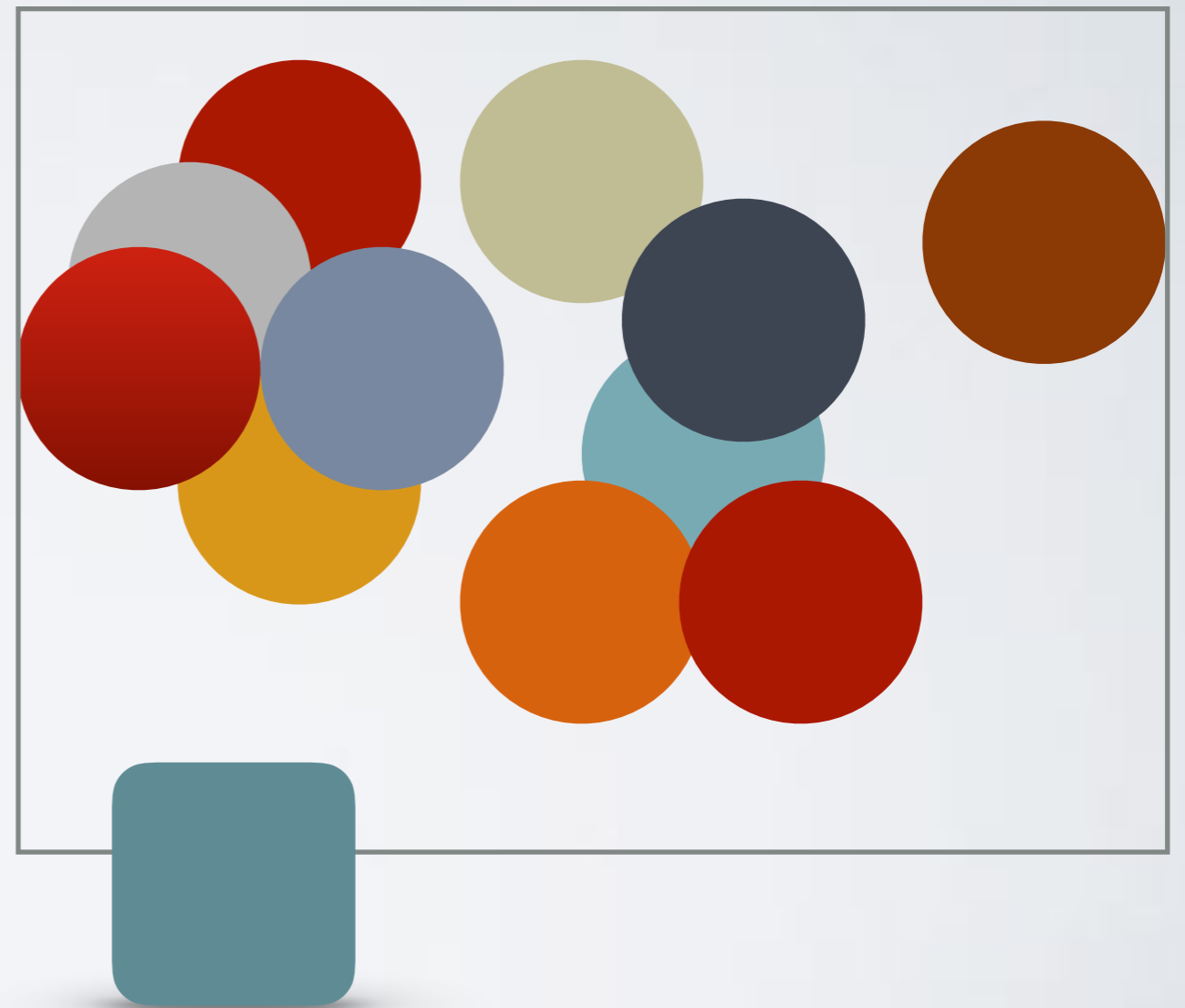
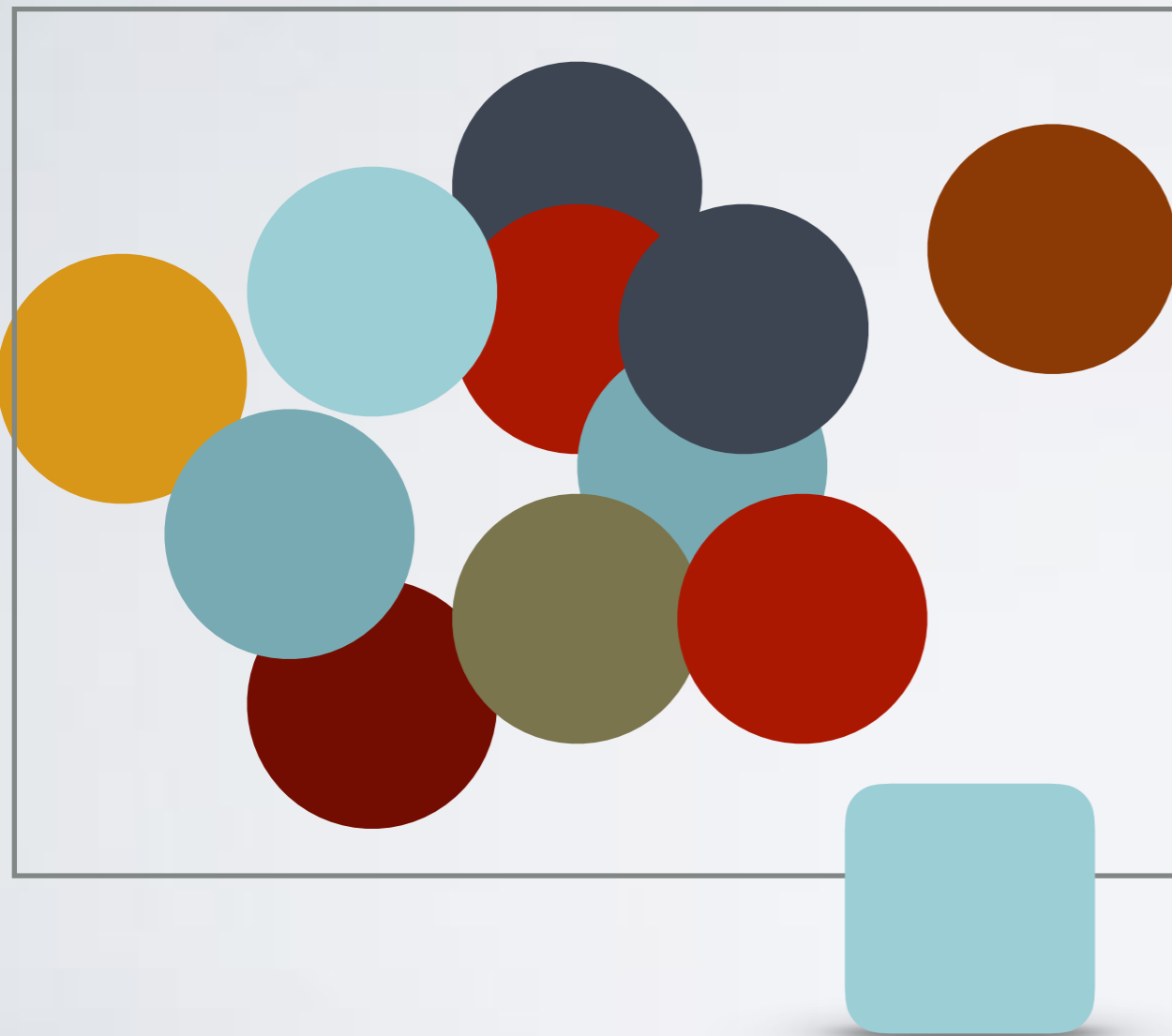
20 students
2 tutors
2 groups
2 Final Year Projects

each student was given a
tablet and a pressure
sensitive pen



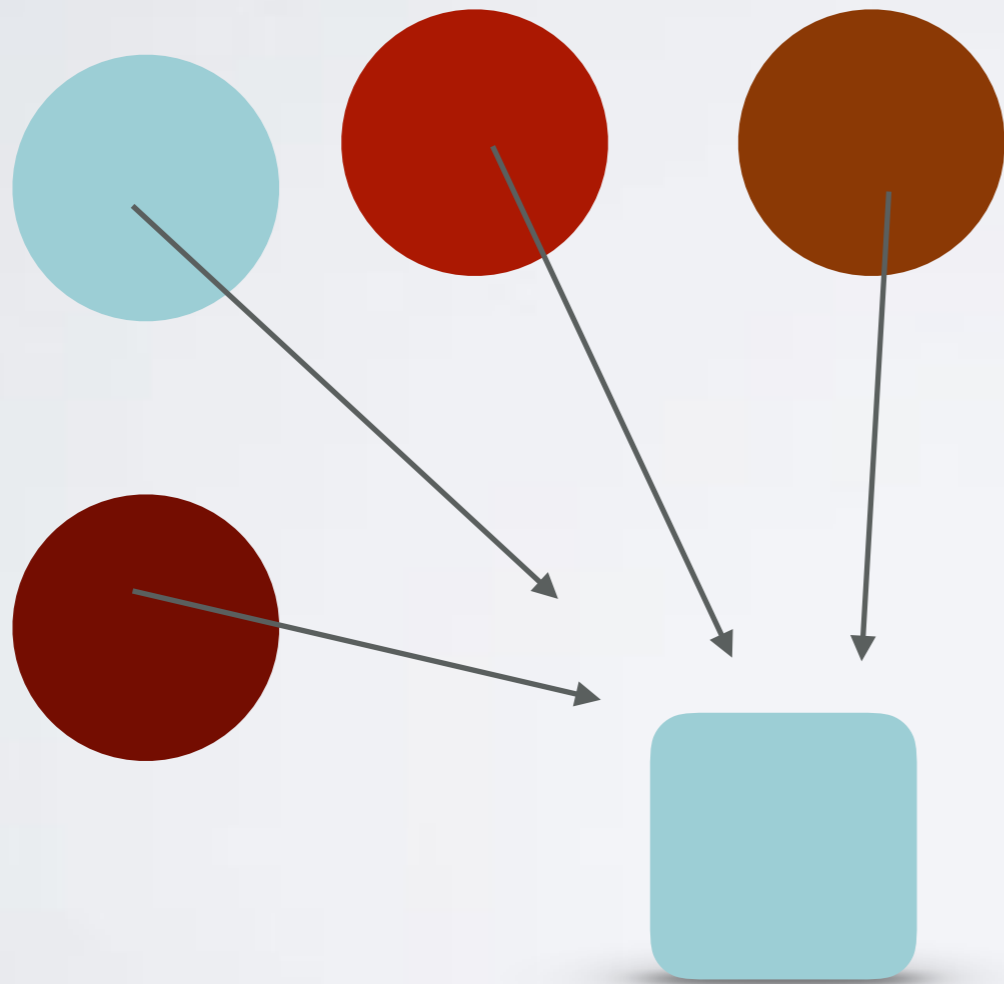
each student was given a
tablet and a pressure
sensitive pen
& an **evernote account**

All students shared
each others' notebooks
-Plus the tutors have instant access
to everything, all the time, anywhere.

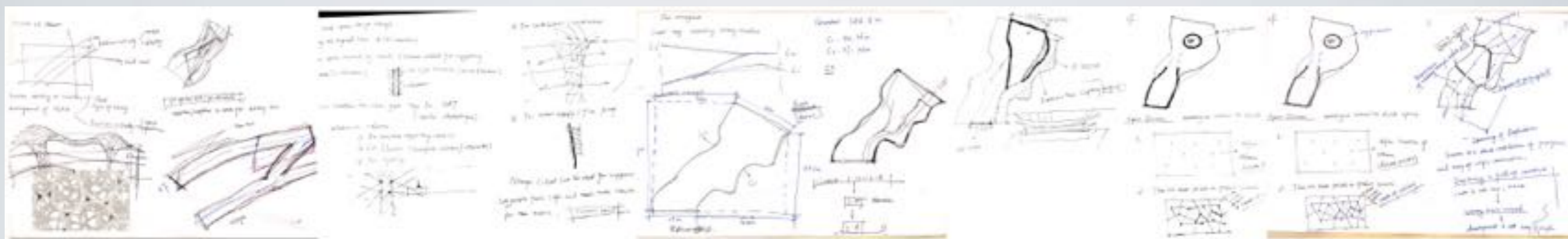


**record
EVERYTHING**

**All devices allowed
(including paper)**



paper





Handwritten notes in cursive script, likely describing the drawing above.



Handwritten notes in cursive script, likely describing the drawing above.



Handwritten notes in cursive script, arranged in several lines, possibly providing instructions or a description.

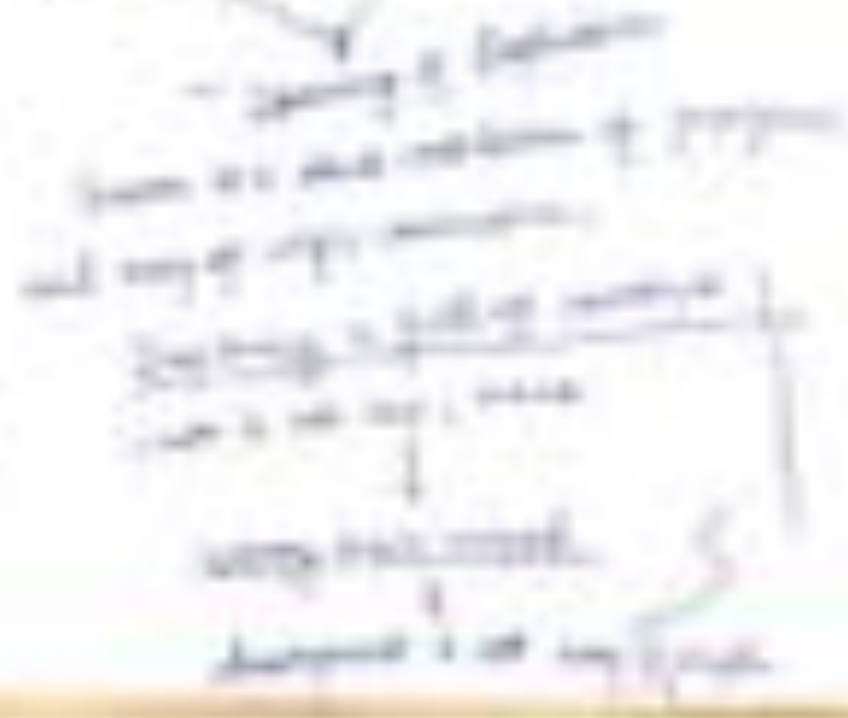


1. 1000
 2. 1000
 3. 1000
 4. 1000
 5. 1000
 6. 1000
 7. 1000
 8. 1000
 9. 1000
 10. 1000
 11. 1000
 12. 1000
 13. 1000
 14. 1000
 15. 1000
 16. 1000
 17. 1000
 18. 1000
 19. 1000
 20. 1000
 21. 1000
 22. 1000
 23. 1000
 24. 1000
 25. 1000
 26. 1000
 27. 1000
 28. 1000
 29. 1000
 30. 1000
 31. 1000
 32. 1000
 33. 1000
 34. 1000
 35. 1000
 36. 1000
 37. 1000
 38. 1000
 39. 1000
 40. 1000
 41. 1000
 42. 1000
 43. 1000
 44. 1000
 45. 1000
 46. 1000
 47. 1000
 48. 1000
 49. 1000
 50. 1000
 51. 1000
 52. 1000
 53. 1000
 54. 1000
 55. 1000
 56. 1000
 57. 1000
 58. 1000
 59. 1000
 60. 1000
 61. 1000
 62. 1000
 63. 1000
 64. 1000
 65. 1000
 66. 1000
 67. 1000
 68. 1000
 69. 1000
 70. 1000
 71. 1000
 72. 1000
 73. 1000
 74. 1000
 75. 1000
 76. 1000
 77. 1000
 78. 1000
 79. 1000
 80. 1000
 81. 1000
 82. 1000
 83. 1000
 84. 1000
 85. 1000
 86. 1000
 87. 1000
 88. 1000
 89. 1000
 90. 1000
 91. 1000
 92. 1000
 93. 1000
 94. 1000
 95. 1000
 96. 1000
 97. 1000
 98. 1000
 99. 1000
 100. 1000

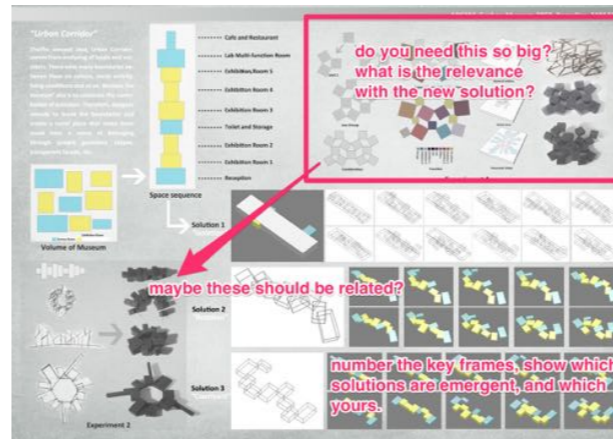
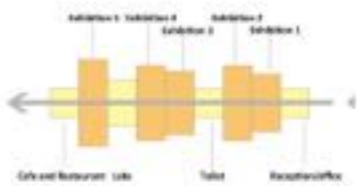


1. 1000
 2. 1000
 3. 1000
 4. 1000
 5. 1000
 6. 1000
 7. 1000
 8. 1000
 9. 1000
 10. 1000
 11. 1000
 12. 1000
 13. 1000
 14. 1000
 15. 1000
 16. 1000
 17. 1000
 18. 1000
 19. 1000
 20. 1000
 21. 1000
 22. 1000
 23. 1000
 24. 1000
 25. 1000
 26. 1000
 27. 1000
 28. 1000
 29. 1000
 30. 1000
 31. 1000
 32. 1000
 33. 1000
 34. 1000
 35. 1000
 36. 1000
 37. 1000
 38. 1000
 39. 1000
 40. 1000
 41. 1000
 42. 1000
 43. 1000
 44. 1000
 45. 1000
 46. 1000
 47. 1000
 48. 1000
 49. 1000
 50. 1000
 51. 1000
 52. 1000
 53. 1000
 54. 1000
 55. 1000
 56. 1000
 57. 1000
 58. 1000
 59. 1000
 60. 1000
 61. 1000
 62. 1000
 63. 1000
 64. 1000
 65. 1000
 66. 1000
 67. 1000
 68. 1000
 69. 1000
 70. 1000
 71. 1000
 72. 1000
 73. 1000
 74. 1000
 75. 1000
 76. 1000
 77. 1000
 78. 1000
 79. 1000
 80. 1000
 81. 1000
 82. 1000
 83. 1000
 84. 1000
 85. 1000
 86. 1000
 87. 1000
 88. 1000
 89. 1000
 90. 1000
 91. 1000
 92. 1000
 93. 1000
 94. 1000
 95. 1000
 96. 1000
 97. 1000
 98. 1000
 99. 1000
 100. 1000





Initial conceptual model

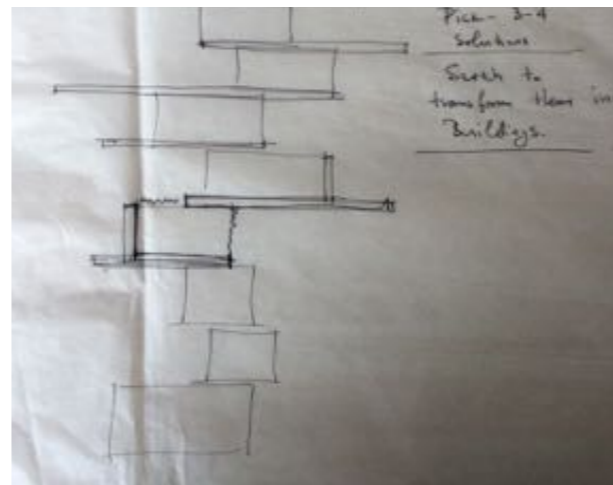


Feedback sketch:

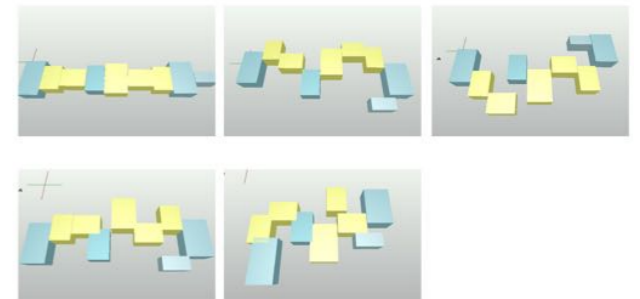


Feedback from 3rd crit

- Site plans larger and clearer
- Positioning on site, maybe needs photo-functions on site? use take?
- Sample volume rationalisation
- Space program, ambience
- Foster need a little bit of 3D dimensionality
- Fabrication of facade
- Big space as flexible space to take them
- Take them in structure
- better rhythm

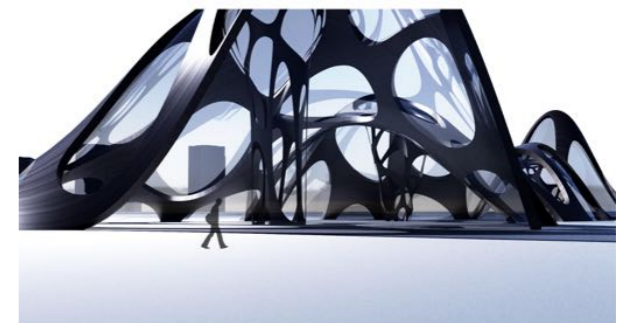
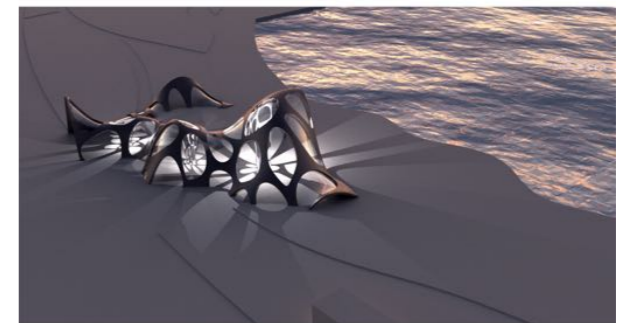


Animation results re-fed into the digital model of the building:



Student B

[Development on purely digital means, with tutor feedback using the student's own digital models:]





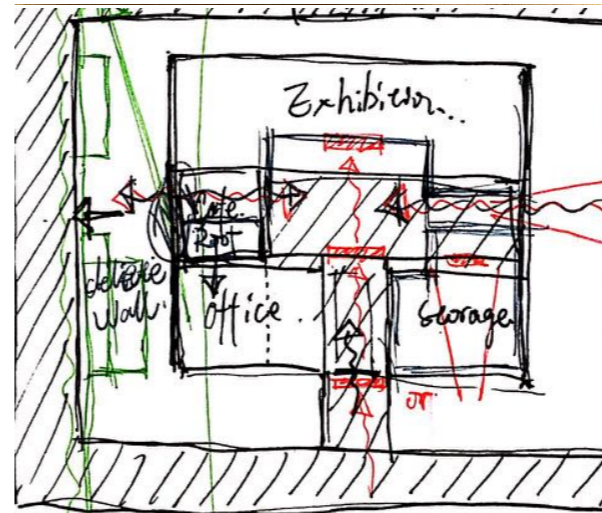
1:10



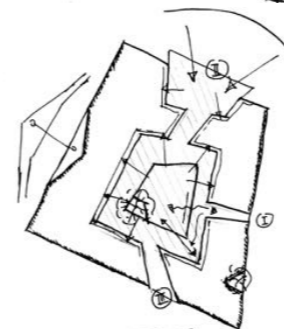
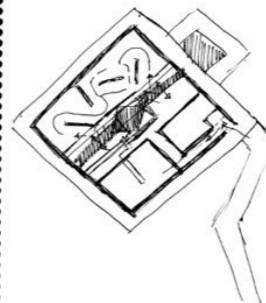
Student D

[the student developed a big part of the research on the project on a paper notebook and then uploaded unto Evernote for feedback]

Sketches:



Handwritten notes in Chinese and English discussing architectural concepts like 'visual connection', 'space', and 'visual boundary'.



ARC WALL CONN. BUT NOT A GOOD SCULPTURE

Language: 2nd floor. the alley in front.

side 1 side 2

the side 1 without scene, the visual layer is to skylights, needs to add (or remove) artificial scene.

the side 2, the courtyard the building itself join the scene, the more porous layer is unnecessary

Handwritten notes and sketches including 'site analysis', 'landscape', 'Building situation around site', and 'Distance when closed, inspire the change on visual expression'.

Handwritten notes and sketches including 'the dimension will can reflect many thing more than form of the building', 'ISOCUTOR', and 'an open view offer a narrow alley'.

Handwritten notes and sketches including '2nd floor open for summer', 'visual connection', and 'the side 1 without scene'.

We started the project with high hopes that the tools were now in place to develop completely digital processes in the architectural education studio. However the **students were also too entrenched in modes of operation and organization of production suited in analog processes.**

This effectively communicates that **habits are entrenched and difficult to break,** thus making any such experiment in curriculum design one that would have most effectiveness if **introduced early and en mass in architectural education**

On the other hand the experiment did show that the students responded positively when provided with a documentation system that captures all information in their design process

in most cases the students revealed through their lack of experimentation with the system that they still were trying to hit a final target at the end of a linear thinking process, rather than the most realistic design process of trying, failing and going back again to try again

On the other hand the experiment did show that the students responded positively when provided with a documentation system that captures all information in their design process

in most cases the students revealed through their lack of experimentation with the system that they still were trying to hit a final target at the end of a linear thinking process, rather than the most realistic design process of trying, failing and going back again to try again

student commented positively in creating their final presentation by having a consistent format and archive for all of their work, as it was already digitized and ready to be placed into production

Q&A

