COLLABORATIVE DESIGN PRACTICE WITH NEW CONCEPT

RONG DU
School of Architecture, the Southeast University, Si-pai-lou 2# , Nanjing , Jiangsu, 210096
durong_seu@yahoo.com

AND

YUAN GAO
School of Architecture, the Southeast University, Si-pai-lou 2# , Nanjing , Jiangsu, 210096
gaoyuanseu@yahoo.com..cn

Abstract. Collaborative design is increasingly important in the design and building industry. These kinds of communication have been lagged in the institutes of China because of the lack of correlative software and hardware equipments or research funds. The paper describes the collaborative design between TUD and SEU in 2005.

1. Introduction

Collaborative design is increasingly important in the design and building industry. With the advent of the World Wide Web, the accessibility of these communication means has become almost ubiquitous. [1] These kinds of communication have been lagged in the institutes of China because of the lack of correlative software and hardware equipments or research funds. With the communication of the School of Architecture, the Southeast University and the Department of Architecture, the Delft University of Technology, we got the chance of the collaborative design between the two universities in 2005.

We started our collaborative in November, which lasted nearly three months. From the process of the collaborative design, we think that there is an obviously potential in the collaborative environment for the participant's creative work. So we would describe about the collaborative design in the following paper, the focus would be on the new concept of the design idea

2. Collaborative mode and timetable

Eleven undergraduate students (grade 4) from the Department of City Planning of SEU and five graduate students from the Department of Architecture of TUD took part in the collaborative design. The time difference would be 7 hours between the two universities. The theme of the design would be the hotel design. The sites would be located in

three different locations, which represent three different environments. The three locations are Dubai, Rotterdam and Nanjing.
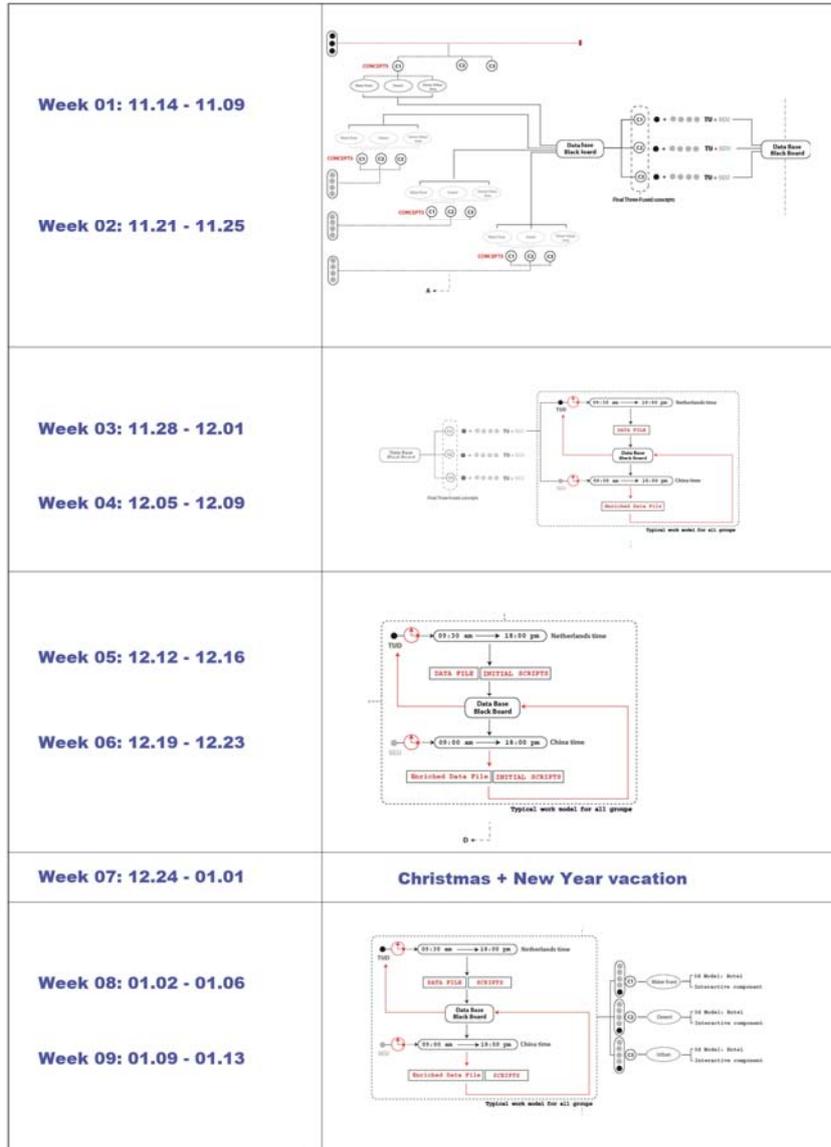
Week 01: 11.14 - 11.09	
Week 02: 11.21 - 11.25	
Week 03: 11.28 - 12.01	
Week 04: 12.05 - 12.09	
Week 05: 12.12 - 12.16	
Week 06: 12.19 - 12.23	
Week 07: 12.24 - 01.01	**Christmas + New Year vacation**
Week 08: 01.02 - 01.06	
Week 09: 01.09 - 01.13	

Figure 1. the time table and design process

2.1. design process
The design process has been divided into five phases.

2.1.1. First phase – section AA
In the first phase, TUD students have been divided into three teams, each team has one student. SEU students have also been divided into three teams, each team has four students. Three concepts have to be developed by all teams at the TUD and SEU individually (C1, C2, C3). Three sub-concepts are embedded within one concept: e.g. C1 involves the development of three concepts, Water front based hotel design concept (Rotterdam or China), Desert based hotel design concept (Dubai), Dense Urban Area based hotel design concept (China).

Final concepts by all teams in the form of sketches, power point presentations, web sites etc to be pooled in to one single database: the Black Board account so that both TUD and SEU students can access the concepts.
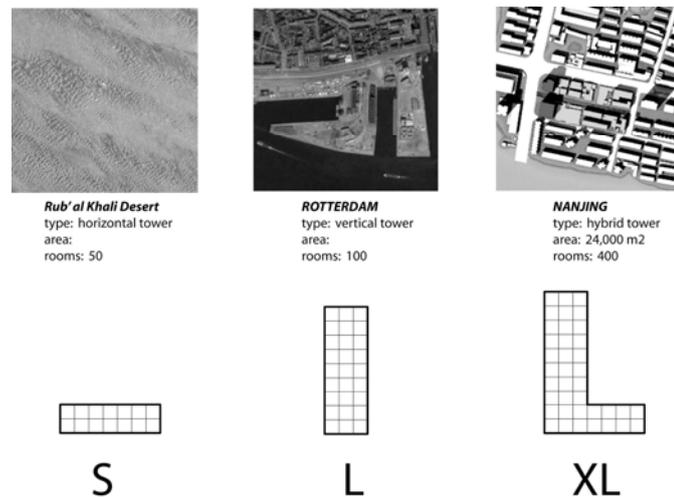

Figure 2. one team concept

2.1.2. Second phase – section BB
In the second phase, The collaborative concept would be developed. New team to be formed: 1 TUD student + 4 SEU students on the basis of mutual agreement of selection of concepts to work with. TUD and SEU students filter out / merge concepts to create three final concepts.

2.1.3. Third phase – *section CC*
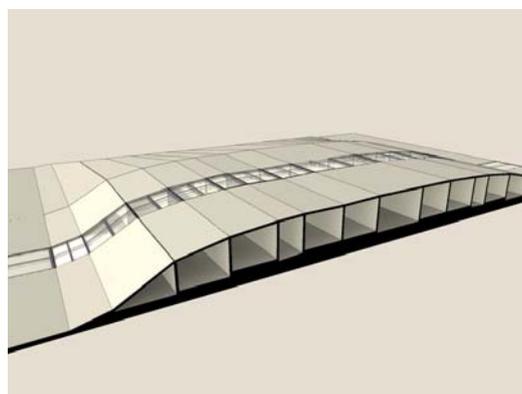Collaborative project developed, which focused on developing the designed form.

Figure 3. students concept from TUD + SEU (hotel in Dubai)

2.1.4. Fourth phase – *section DD*
A joint decision was reached in each group about which component to develop in Virtools. The component should possess some degree of interactivity / kinetic abilities etc, which can be termed as the behavior of that component. Students began to explore the possibility of interactive architecture.

2.1.5. Fifth phase – *section EE*

Final presentations by all three groups would be represented in respective universities. Comments delivered by tutors at each university on all three concepts to be summarized as a word document and posted on the black board for each group. In the phase, we tried to organize the video conferencing so that real time comments can be exchanged but not success.
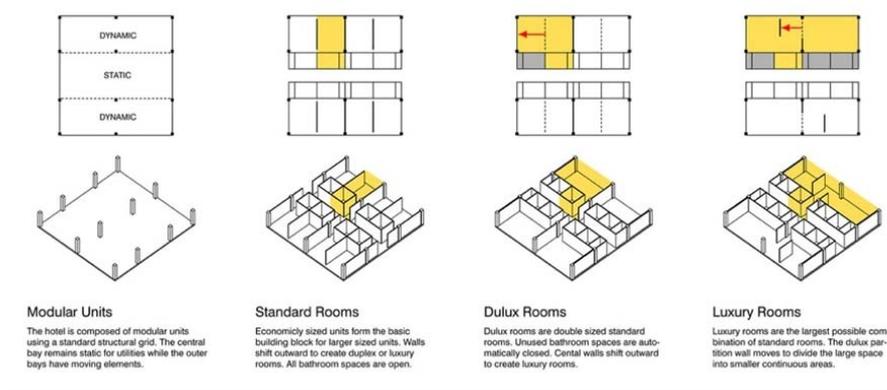

Figure 4. final presentation   (hotel in Nanjing)

3. Design idea and design script

The design idea for the collaborative design is the theory of swarm behavior. It is a way of parametric design. Hereby every member of the population reacts on the other members in almost the same manor. [2] Interactive architecture became the discussion subject in the collaborative design. The design idea expands the students' creative thinking largely during the collaborative time.

Before the communication of the collaborative design, students visited the famous hotel in the guide of the teacher respectively in order to study the management and key elements in the future design. TUD visited the hotel in Dubai, while SEU visited the hotel in Nanjing. After the excursion, students would put the observed data in the table (the teacher prepared for them in advance). The table contains many elements which would have effect on the hotel design. These elements became the relative interactive elements in the future design environment.

Another characteristic of the collaborative design would be the software of the design, Virtools. It is a virtual reality development software program of the Paris company with the same name. We use it for creating the students' interactive environment. The design script is the code of the design, but it looks like a flow diagram.
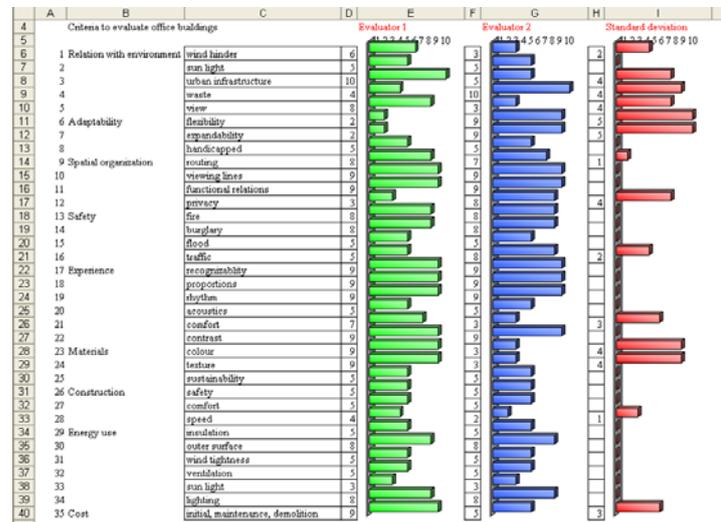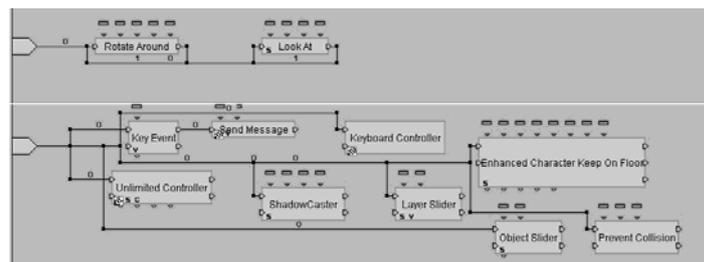
Figure 5. TUD students finished table

Figure 6. design script

4. Communication in the design

Considering the time difference and culture background difference from the two countries, we tried to establish means for synchronous as well as asynchronous communication (email, msn, ftp, camera, etc). The blackboard is the main exchange place on the Internet. Students use msn and camera talking during the collaborative time.

Because of the time difference, TUD students started work at 09:30 hrs and worked on the project development phase till 18:00 hrs. TUD students submitted a file (3d graphics/models etc) on the black board with a detailed explanation of what has been done and what needs to be developed further and suggestive outlook based on a work process discussed between the students from SEU and TUD). Then SEU commenced work on the file based on the detailed suggestions from 09:30 hrs and followed the same process and submitted the enriched file with a suggestive statement from their end. The loop repeated and developed during the phases.

5. Future for the design

The collaborative design last nearly three months. Students have to give up the conventional design mode, which collaborates face to face each other.

The culture background difference and accidental factors influenced the collaborative process greatly. Virtools is a new tool for all students, the study of the Virtools software turned into the main problem in the later design phases. After the collaborative design in January, the students from TUD came to our university in July, 2006. All the students and teachers involved in the collaborative design summarized it face to face, and agreed to setup the long-term plan of the collaborative design between the two universities.

Acknowledgements

References

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