HYBRIDS

Urban Systems and Information

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Abstract: Digital tools are transforming design pedagogy by continuously redefining approaches to design processes and methodologies. A recurring theme in design education is the link between the analytical processes and the project development. While the investigations are formulated during the first phase, one typically moves back and forth between the two, allowing ideas created from the analysis to influence and modify the overall design directions. The data created through digital tools can be manipulated, altered, modified and, because of its inherent properties, carried throughout the overall design process. The focus of “Hybrids” seminar was to develop a strategy in which the analytical information and data created through digital tools, were able to inform a synergistic analog:digital design process. The seminar asked students to develop a temporary installation at the New Orleans Riverfront (Figure 1) focusing on the liminal condition that exists between the city and waters edge. The site is a nodal point between the French Quarter and the river that presents different levels of information and acts as a threshold between the city and the water edge.

Keywords: New design concepts and strategies; simulation; prediction and evaluation; modes of production.

Figure 1
New Orleans Riverfront
(Photo by B. Cantrell)
Analytical phase 1: [site + data > temporal diagram]

The students were asked to frame the site through the lens of data that can be observed, analyzed and measured. The conceived representation of the site is within perceptual, social and cultural aspects making its location a unique condition within the urban context. Our perception of space is an active mental process of gathering, selecting and connecting information in order to produce a representative image of dynamic conditions. Auditory, visual, and tactile input create a coherent experiential understanding of spatial organizations within an urban system. In particular, ephemeral qualities, that we could also define as phenomena are inherently embedded in the process of observation and analysis (Figure 2).

A phenomenon (from greek : phenomena) is a quantifiable element or event that can be observed through senses and recorded through instruments. Indirectly, phenomena also refers to a datum, interpreted through multiple layers of observation. This was the initial premise in which the students framed their initial site investigations. Site data is continuously changing therefore creating multiple perceptual conditions within a singular spatial condition. Time

Figure 2  
Site Analysis (N.Yates, A.Threatt, R.Strauss, B. Massey)

Figure 3  
Dynamic Site Diagram (particle system simulation) Light and Shadow conditions on the site (N.Yates)
Figure 4
Dynamic Site Diagram (particle system simulation) Traces of objects moving on the site (L.Fasic, C. Lebeau)
that entail finding relationships among parts. It’s a goal-oriented tool toward design processes. K. Jormakka, an architecture theorist, refers to diagram in particular for its infrastructural component: “to suggest a possible virtual organization, we have used ideograms, line diagrams, image diagrams and finally operational diagrams, found in technical manuals, reproduction of paintings or random images that we collect. These diagrams are essentially infrastructural.

Students associated each observational data recorded with time in order to produce a diagrammatic, dynamic particle simulation of phenomena at the site. By introducing a temporal dimension to the analytical process, students continuously dealt with a strong conceptual shift: from object-driven analysis to event-driven processes.

Analytical phase 2: [site + data > device]

In the second phase of the analytical process, students built either a “low-tech” or “high-tech” device able to respond to the temporal qualities of the

inhertently becomes a primary component when representing phenomena as it relates to the notion of motion and dynamics. What kind of tool would best render the inherent dynamism of site phenomena? Digital tools, particularly dynamic simulations can efficiently respond to that condition through the creation of responsive systems. Students collected Data from the site by using traditional tools (photography, sketching, mapping, video, sound recording, etc) to record a single phenomena (wind, light, noise, circulation, water, etc) that influenced them during their initial observations. After recording, using digital simulations such as particle systems, the students expressed the collected data in a dynamic site diagram representing behaviors spatially based on observed phenomena (Figure 3 and 4).

Digital simulation, especially the diagrammatic component, engage a decisive element of the design process. A temporal dimension is added to the initial stages of design and carried throughout the entire process. Digital tools become active agents concurrently testing design strategies based on user input. Diagramming is a process of selection and reduction
Figure 6
Device – A set of images layered on top of one another, each cut/scored at different places. As people walk by, they would begin revealing and uncovering the layers that lie beneath. By logging on to the website the image can be seen in its entirety. (P. Micheals, J. Pablo)

Figure 7
Device – Objects on the site are labeled with a code. People can have access to the object history by entering the code on the website. The information are collected through the website that can track the object position based on location and time. (C. Lebeau, L. Fasic)
Temporary Installation—Each cube can monitor through sensors movement and proximity of people within a space. If one person passes the device begins to grow regularly in a specified direction. However, if multiple people pass the device— it begins to grow in all directions around the original object. The object will grow in relation to its surroundings, creating an interaction between people movement and space configuration. (A. Threatt, R. Strauss, B. Massey)

Temporary Installation—Objects moving on the site based on people interaction and time. (L. Fasic, C. Lebeau)
simulation. Device, intended as an instrument designed for a specific purpose, is used as a tool to record data in space. Students built site-specific devices [FIGURE 5, 6 and 7] to record the same phenomena previously recorded with traditional tools. For instance, if a student had analyzed wind conditions, he or she built a device with an ability to record data expressed through wind patterns. Once they tested the device at the site and gathered data from it, they revised the temporal diagram to produce a final analytical simulation. An on-going process is established between data recorded and digital representation creating a dialogue between analog and digital, ephemeral and real.

**[Temporal Diagram + Device > Space]**

After analyzing data through temporal diagrams and devices, students transformed the analytical phases in a proposal for a temporary installation on the site. The proposal was directly related to the studied phenomena and the concept of time represented in the initial simulations. One of the main focus was to transform the simulations temporal qualities and
devices into temporary spaces (installations) able to alter spatial morphology either physically or perceptually. In all of the students proposals, time was the main component associated with their installation prototypes. Time, and particularly its qualities analyzed in the simulation, was directly embedded in the spatial characteristics of the proposed projects (Figure 8, 9 and 10). Also, the devices used in the second phase for recording, were then realized at the site scale.

**Conclusions**

The course pedagogy framed digital and analog as multiple, congruent methods to represent dynamic site conditions. Subsequent explorations allowed students to reframe site phenomena through simulation, device, and installation developing a diverse language of analytical tools and design methodologies. Digital simulation allowed students to abstract experiential observations into discreet time based diagrams. These diagrams served as a starting point to build tangible devices for recording dynamic events within the site. Analog or digital devices then re-informed the diagram and guided the final site installation. Students developed a language to translate complex phenomena through multiple representational media.

**References**