

SMYRNA STUDIO TEMPORAL AND URBAN PERIPHERIES IN SYSTEMS THINKING

Gudjon Thor Erlendsson and Gul Kacmaz Erk

Abstract

The "Temporal and Urban Peripheries" is the fall project of the final year of the Architecture program of Izmir University of Economics in Turkey. With a critical and contextual look at the built environment, the studio focuses on the significance of the incorporation of history, urban design, and parametric architectural design. This short article presents the thrust of the studio, basic concepts, the process, and outcomes.

Keywords

Architectural design, parametric design, urban design, digital tools, history.

Introduction

Izmir University of Economics has a four-year Architecture program founded in 2004 as one of the five departments of the School of Fine Arts and Design. In search for a digital/parametric design approach to architectural education, Gudjon Thor Erlendsson, Gul Kacmaz Erk, Serdar Asut and Can Gunduz have generated a senior studio project entitled "Temporal and Urban Peripheries" in 2009. The 15-week studio took place between September 2009 and January 2010 and focused on historical, urban and parametric design. In this article, we comment on our experience of tutoring an experimental studio with almost 50 students.

Digital Crafting

We primarily use Rhinoceros NURBS modeling and its Grasshopper plug-in. Within the methods of "digital crafting", the product of the semester is a tangible architectural project in which "digitally" depends on the individual student. We encourage students to explore the "diagram" of the digital tool(s) (or the apparatus/apparata in Vilem Flusser's terms).

Through the opening up of the techno-scientific black boxes, digital craft becomes the skill objective of the studio. The digital tools (such as parameters, algorithms, and codes) need a new way of thinking and communicating with design tools. The more designers become digital craftsmen, the more the tools become idea generators. The tools work on the principle of interconnections. Forms can be created using algorithmic mathematics, and design elements can be inter-linked, making each model automatically responsive to both local and global changes. The process is therefore based on non-linear input, flexible process, and adaptive formal output. This method is known as "causal loop" in "systems thinking."

"Systems thinking" is both a tool for problem solving and a universal paradigm or philosophy. It views situations and behaviors as a part of an overall system rather than isolated problem-solution methods (Weinberg, 2001). As such, it poses a counter point to immediate reaction to frivolous pseudo-agendas of the day.

The studio uses contemporary and traditional architectural tools for "digital crafting" to produce future design anchored in a historical urban context. The aim is not to replace the pen with the computer but to use the logical concept of "systems thinking" to develop architectural design projects. The term "craft" here refers to the skills. Proficiency at these skills comes from the understanding of their nature. The digital tools have been utilized for all phases of design, from conceptualization, through analysis to production. Further reading on this topic is available (DeLeuze and Guattari, 1987; Koolhaas/OMA, 1995; de Landa, 2000; Schumacher, 2009).

Temporal and Urban Peripheries

While exploring the overall idea of designing both in a physical and cerebral historical and urban context, the studio explores the idea of the periphery. Periphery as a condition can be a limitation, and/or a probability or connectivity. It can be the outer limits or edge of something, a marginal situation, or a spatial periphery. At the same time, it can be the node of connectivity between one domain and another, an opportunity that offers new amalgamations.

Upon completion of the studio, students have come away with a better understanding of the idea of seamlessness and context: how a building and the (urban) environment, and the past, present and future, are inseparable conditions. This seamlessness is a driving concept in "systems thinking," where constructs are defined by their dynamic relationships rather than as unchanging singularities in isolation.

Modernism is a theory of hierarchical categorization. It separates functions into zones of analogous characteristics. Modernism largely rejects the past in favor of the creation of the new. It forms a historical boundary, pre- and post-modernism, which has not been successfully re-balanced without appearing kitsch.

The studio presents an anti-thesis to this historical periphery, to suburbanization, zoning and the internationalism of the modern movement. The studio notion of the periphery embraces the aim of bridging this boundary: A contextual Aegean future vision based on the past, minus the kitsch.

Izmir, being on the western border of Turkey, sits on the ancient city of Smyrna (now in the district of Bayrakli). Smyrna is a historically important Aegean city that dates back to 1102 BCE. The location for the project site is in and around Old Smyrna, which is now an archaeological site (see Figures 1-5).

What are the reciprocal cultural and historical affects of the periphery in Smyrna, Turkey? The present is a periphery of the past, the edge of history, and at the same time the beginning of the future, the "now" is therefore a "temporal periphery." The "now" is a condition that perpetually presents an opportunity for a connection between the past and the future.



Figure 1: Map of Izmir (Source: Unknown).

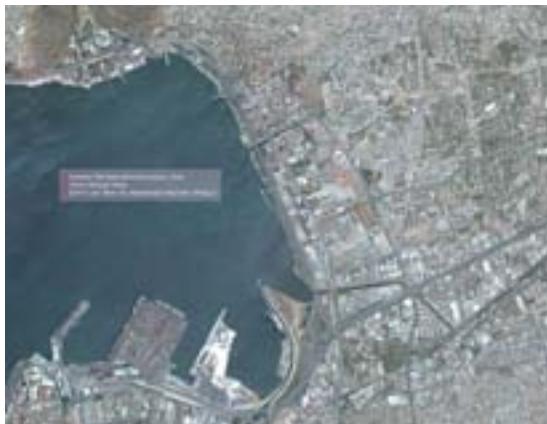


Figure 2: Map of Bayrakli (Source: Unknown).



Figure 3: Map of Smyrna (Source: Akurgal, 2007).

Project Analysis

Initially the students take part in a two-week workshop where they explore the use and



Figure 4: View of Smyrna (Source: Gul Kacmaz Erk).



Figure 5: View of Bayrakli (Source: Can Gunduz).

possibilities of digital tools. The students familiarize themselves with Grasshopper for Rhino and complete a small installation project using digital platforms.

The students begin their principal project design by gathering information on historical topics related to the site, including historical maps of Smyrna and surrounding area as well as historical building types in the Aegean and Anatolian regions from diverse cultural periods.

The students then proceed with an urban analysis of the site. The analysis is developed

diagrammatically and formatted through dissection into a conclusion for a strategic approach to the site. This includes flows of traffic and pedestrians, placement of attractors, overlaying of historical maps, and historical building and space types. The immediate use of digital methodology for research later matures into digital design production.

Based on the historical site analysis and/or selection of specific time period, the students develop a parametric component for their buildings, which is based on historical design approaches such as peripheral conditions, (public - private) space types, screening/wall types, cultural concept of art and spatial sequences.

The components developed range from a cladding system to a structural logic, or spatial sequence, which is ultimately applied to an overall project design. The components deal in different ways with edge conditions. In some cases a "wall" to explore the historical connections and deal with environmental factor such as sun, rain or wind. Most of the work questions the meaning of such conditions; wall and/or an opening, threshold, gate, exit, boundary, edge condition, etc. as a private, urban and historical construct.

Principal Project Design

Production output during the design development includes 3-D modeling, physical modeling, parametric definitions, and presentation output. These have to demonstrate the design process in each stage and lead to a completed design. The

scale of the projects is fixed to a building or an interdependent cluster of buildings. The building should revert an identified negative situation, while at the same time integrating into the context and presenting something new to the historical environment of Izmir.

With the combination of site analysis and the component design, the students demonstrate one of the fundamental ideas of parametric design where the internal (component) and external forces (context) are integrated. Each



Figure 6: Bayrakli site model by students (Source: Gul Kacmaz Erk).

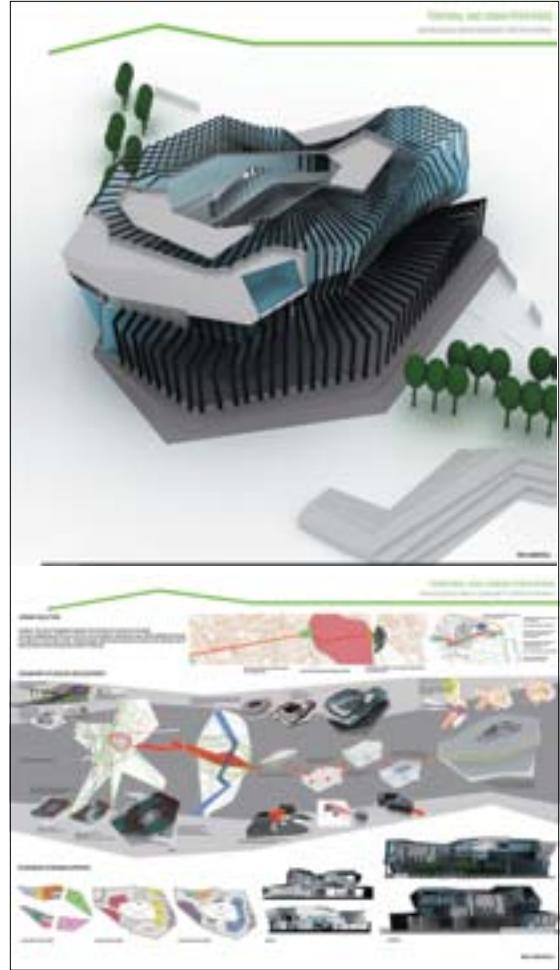


Figure 7: Analyzing 'agora' for her component design, Irem Cabbaroglu finds the form of her community center and archaeological park intersecting Athena Street of Old Smyrna with the new streets of Bayrakli (Sources: drawn by Irem Cabbaroglu).

of the 49 students of the studio chooses his/her own site for a local and a global program as well as an urban solution. The proposals show an understanding of the context both in terms of the urban situation, links to wider context and the temporal periphery. The

students are reminded at all stages that history is the main notion of the studio and they should demonstrate with their proposals how they deal with the existing peripheral condition between Old Smyrna and new Izmir (see Figures 6-13).



Figure 8: To link the ancient 'port' of Smyrna and the new port of Bayrakli, Asli Cagliyurt designs a linear water sports center on an archaeological park along the canal (Sources: drawn by Asli Cagliyurt).

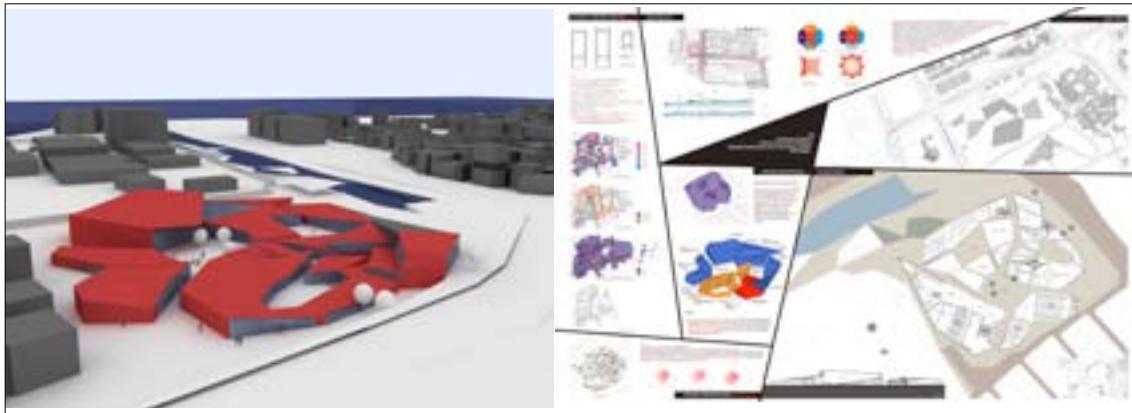


Figure 9: By the canal, Pelin Dogan designs a conference and community center, the layout of which is based on her analysis of 'megaron' (Sources: drawn by Pelin Dogan).

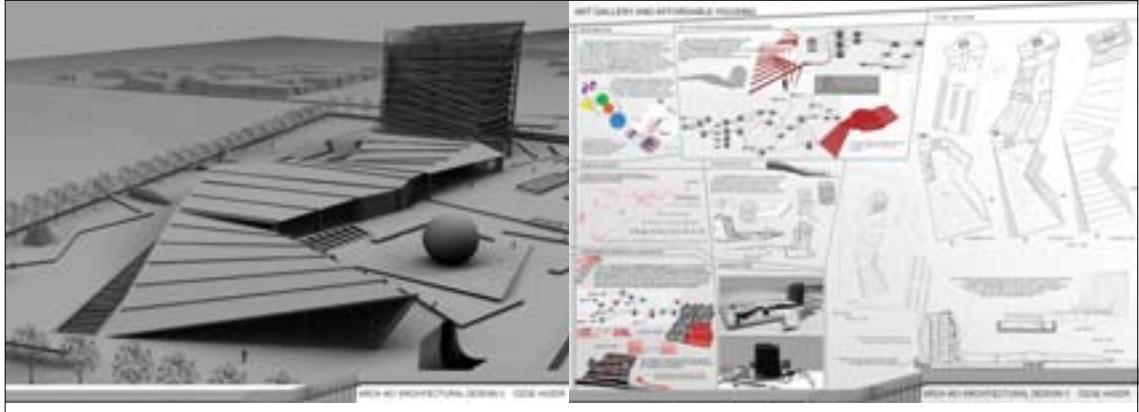


Figure 10: Ozge Hazer combines a horizontal art gallery with a vertical mass of affordable housing through a component based on 'street' design (Sources: drawn by Ozge Hazer).

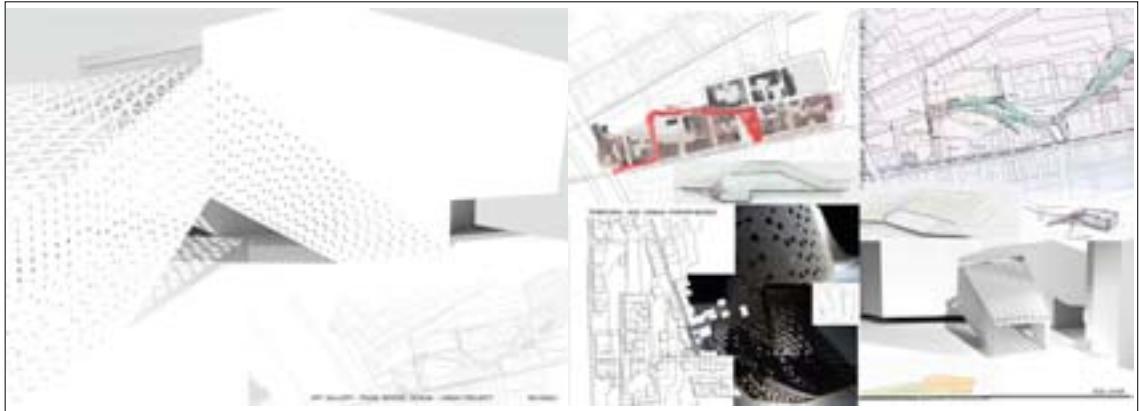


Figure 11: Ece Uyar's urban approach consists of a secondary route parallel to the main pedestrian shopping street of Bayraklı with nodes of sub spaces and a small art gallery and trade school, the façade of which is designed as to her analysis of 'bay window' (Sources: drawn by Ece Uyar).

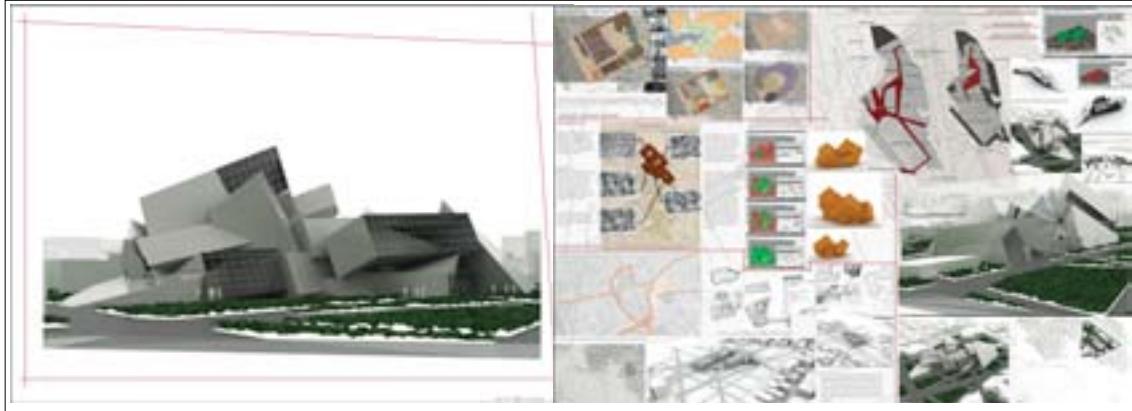


Figure 12: Ozan Yeniay demolishes the contemporary high-rise apartment blocks for an archeological college and community center interpreting 'imperial forums' for form finding (Sources: drawn by Ozan Yeniay).

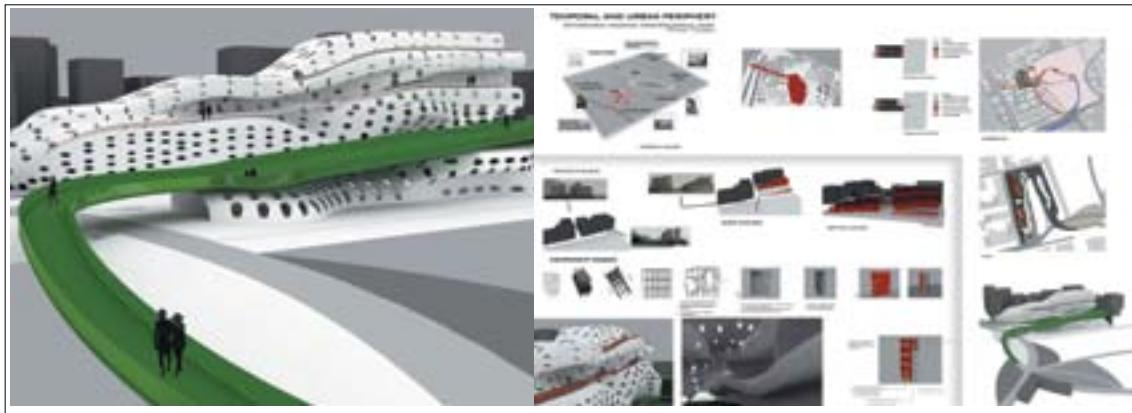


Figure 13: Pinar Yuksel studies 'mud brick wall' for the parametric façade of her affordable housing and archaeological park (Sources: drawn by Pinar Yuksel).

Successes and Failures

Although the studio paradigm is founded in traditional architectural design methods, the theoretical side of digital crafting demands a different way of thinking. This proved to be challenging. While one half of the studio made the paradigm shift necessary, a large portion of students were not able to do so and their work suffered as a consequence.

The approach to history was twofold; as a reaction to the context of a globally important archaeological site, and as an idea based on the analysis of a historical approach to the built environment. This was very successful in general and unearthed interesting information and approaches. Although the idea of the periphery was central to the studio brief, the concept was not explored as the backbone of the studio. This is mainly due to the lack of emphasis by the studio and the amount of other information the students had to process.

The urban analysis, although not a primary focus, became an important factor in the contextualization of the projects. As such, it was a good exercise and the students will use this know-how in their graduation project in the spring.

One of the best results from the studio was how much the students learned about their city. This is a useful background for whichever endeavor they chose to pursue in the future.

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