

FOOTLOOSE

Sait Ali Köknar, Research Assistant, I.T.U. Faculty of Architecture

Address: ITU Mimarlık Fakültesi, Ta k ı la, Taksim, 34437,
Istanbul/TURKEY

Phone: +90.212.2931300 (2257)

Fax: +90.212.2514895

e-mail: saitali@yahoo.com

FOOTLOOSE

Abstract:

This paper is based on a series of assignments devised for the 'expression techniques' module of the first year design studio of Istanbul Technical University School of Architecture during the Fall Semester of 2007. Officially, the studio is registered as 'architectural project one and presentation techniques'. During the evaluation of the curriculum of the school of architecture in the late 90's, the content and the goals of formerly separate 'architectural project one' and 'technical drawing' courses were merged in order to realize an 'integrated studio', although 'basic design' course was left intact and separate.

The motivation behind the 'integrated studio' was and still is to reconcile the divide between compositional, graphical, scientific and technical knowledge, and to fuse them into design knowledge. With the existing paradigm, the curriculum is divided asymmetrically in favor of 'auxiliary' courses and the studio. During the seasonal evaluation seminars of the design studios main topic of concern is still the lack of integration of the knowledge given in the classrooms into the design activity.

In the first year design studio, one of the main divide is between technical drawing and architectural representation. Learning to draw a coordinated section and plan doesn't necessarily lead to thinking with section and plan. Going beyond presentation of ideas into the realm of conceptualizing and representing the world in many different but appropriate ways was the key to our understanding of the studio. To reconcile the gap between technical drawing and architectural representation we devised a series of assignments going parallel to the other design activities in the studio. The assignment is basically to draw and make alternate models of a pair of shoes a number of times. The shoe was the most appropriate available object at the time with an internal space, free form and complex internal structure.

Assignment 'shoe' started with finding an ordinary pair of shoes, and cutting it longitudinally with a saw. Students were asked to draw a plan and a section of the existing shoe on a paper with a

prescribed layout. Following six assignments asked from students to build models of the shoes in different techniques and draw a coordinated plan and section. They were also asked to turn in a representation of what they did using a given layout technique. They produced six models, seven drawings and six representations each, summing almost to seven hundred drawings and models in the course of ten weeks.

The triplet of model, plan-section and representation has provided a surprisingly fruitful framework to talk about graphical and structural knowledge in terms of conceptualizing the world and representing it appropriately.

The full paper will try to discuss the process, output and consequences of the assignment in detail using diagrams, texts and visuals based on the first year design studio experience of Fall Semester 2007.

Keywords: first year design studio, graphical presentation, representation, design communication, technical drawing.

FOOTLOOSE

*“you can fly if you’d only cut
(chorus) loose, footloose
kick off your sunday shoes”ⁱ*

This paper is based on a weekly ‘shoe assignment’, devised for the ‘expression techniques’ module of the first year design studio of Istanbul Technical University School of Architecture during the Fall Semester of 2007. The program and content of the studio was designed and applied by Asst. Asoc. Prof. Pelin Dursun, Research Assistants Dr. Funda Uz Sönmez, Burçin Kürtüncü, Saitali Köknar and Aslıhan enel.

A Slightly Different Introduction

Monday, it is officially the first day of your university life. There is a couple of hundred freshmen like you running up and down of the 90-meter long studio hall looking for his/her group. Everything is new and strange. You are looking for friends, a familiar face in the crowd. Teachers, it seems, are badly prepared for the first day. It is all confusion and stress. Finally they call for a gathering. They give you your first assignment: find a partner, take two cardboards and make a working cardboard stool without using glue. You manage to do it despite the burden of having a partner. All the stools gets displayed and voted, selected, discussed and criticized. This brings an end to the first day. Then the second assignment is announced: Find a cheap pair of shoes, cut it longitudinally and draw its plan and section by the next Thursday. Your jaw drops...

About Integrated Studio

Designing requires a set of often conflicting skills such as developing ideas, analyzing the situation, making operations in constructed three dimensional space, communicating concrete and vague ideas, collecting a quite large amount of knowledge about practical world, understanding mathematical abstractions, managing resources like time and material, seeing the big picture, making connections etc. It is very crucial from the very beginning how we categorize the required skills to be a designer. It represents our understanding of design and effects the way we teach it. The design of the curriculum of a design school is based on these assumptions. For example if the ‘making’ is highlighted in the understanding of

design then a hands-on curriculum is adopted. Highlighted designing skills differentiate the institutions and their philosophy of using new technology, understanding of the precedents, design as a multidisciplinary activity etc. And yet all the institutions are trying hard to introduce all the designing skills into their curriculum to present a complete picture of designing to their students. But one dilemma remains to be solved: where to start? This question is in the jurisdiction of first year design studios.

In the curriculum design of many modern schools the studio is accepted as the application arena for the reflective practitioner, so well described by Schön (1987). The knowledge learned in other lectures and class' is supposed to be integrated into the projects within the studio hour. Building construction technology, history of architecture, structural mechanics, strength of materials, arts, philosophy, social psychology, construction materials etc. are thought respectively outside of the studio in a hands-off, listen and take notes environment. The curriculum disintegrates design knowledge then requires from the studio to reintegrate it. If the studio is where designing happens then 'integrated studio' is an oxymoron. It is a cover-up for an actually disintegrated studio.

During the evaluation of the curriculum of ITU Faculty of Architecture Department of Architecture in the late 90's, the content and the goals of formerly separate 'architectural project one' and 'technical drawing' courses were merged in order to realize an 'integrated studio', although 'basic design' course was left intact and separate. The actual debate on integrated studio is beyond the integration of basic design, plastic arts, technical drawing, and visual expression techniques. During the evaluation seminars of the design studios main topic of concern is the lack of integration of the knowledge given in the classrooms into the design activity and the need to reconcile the divide between compositional, graphical, scientific and technical knowledge, and to fuse them into design knowledge. The goal of the studio is to provide an environment for the students to *internalize* the knowledge they had access during their design education.

Awareness is a key concept toward internalization (Aydınlı 2007). In his detailed dissertation Heape (2007) quotes Kimbell (1999) who made a survey on design schools in Britain in 1998-99 who

encountered a lack of awareness towards the skills and process that students and tutors uses tacitly. In the article of Fazey and Marton (2002), they study how abstract *learning* and *understanding* are differentiated and distinguished from each other in people's experience and thinking. The process of internalizing knowledge may be described and modeled according to the surveys they have produced:

'understanding (1) – learning – understanding (2).

First, they explained that you understand that which you are supposed to learn. This act of understanding is light, instantaneous and effortless. Synonyms such as 'you accept it', 'you take it in' are used. The next step includes all the processes of working on that which you have grasped. Somehow you process it, you absorb it, you make it really yours. And the third step: you really understand it – now you have appropriated it for yourself'.

How to Appropriate Technical Drawing to the Design Studio: The Shoe Assignment

If we represent design activity as an ongoing parallel thought process where the designer is exploring and interweaving appropriate solutions to a design problem, a beginner designer faces the challenge to bring together all the process. It is almost like building a bridge or arch. Structurally they don't work like they are supposed to until they are finished.

During this cognitive reformation, an intellectual guide or a control question helps reaching to awareness. Learning to design and designing itself is like an odyssey. You can get lost easily and getting lost is very necessary in design education. A vague idea of what you are supposed to do, the first step of Fazey-Marton model, a control question, a hint of direction to follow helps to move forward. Mayer (2004) argues that learning in general is a discovery but it is more efficient if it is a guided discovery.

Constraints and rules help to formalize thought process. It is always possible to break the rules. Students trained with formal exercises tend to be more agile to find their ways in more complex and informal situations. If this is a guided discovery, there must be a lot to discover otherwise a couple exercises and a handful ways to

solve them becomes very didactic and leads to a false impression of the true complexity of design activity.

Using changing constraints and rules implies the volatile and ambivalent character of the designing process. Students learn to navigate from a cloudlike problem definition to a cloud of probable solutions. They can appreciate the alternating network-like character of designing. They can move beyond 'right and wrong' and start to appropriate.

The shoe assignment integrates technical drawing and graphical design as visual communication and also merges model making, form making, structural design, analyzing and rationalizing a complex form. The shoe is a very convenient object for the assignment; it is hollow, it has a layered structure, complex form, and manufacturing philosophy, which is similar to architectural objects. It is a reversed and implicit way to introduce how to design a shape as complex as a shoe using several modeling techniques and how to represent internal qualities of the project using different graphical tools. Making a model of an existing object is easier compared to building a model of a non-existing one. This is an opportunity to discover the technique itself. It is easier to draw parallel projections of an existing object available to close inspections, preferably something that you can hold. One can concentrate to the act of drawing.

Previous studio experiences identified some problems during the introduction of parallel projections known popularly as technical drawing -or TD- to the first year design studio, which must be addressed while designing a new assignment. Students come to the school of architecture pre-loaded with conceptions about technical drawing. They categorize drawings into technical drawing and free style drawing. When they draw a technical drawing they draw what it should be not what it could be. Technical drawing is based on rules leaving a very narrow space to customize. Students perceive TD as a black and white line drawing based on external reality. They don't integrate their feelings, thoughts and personal realities into TD using graphic tools such as collages, texts, colors and 2D textures. For some students it is extremely hard to draw a mentally constructed parallel projection i.e. plan, section, elevation. They can't grasp quickly the benefit of using scaled parallel projections

therefore they identify TD as a boring, procedural, compulsory procedure that you have to use. Some of them cannot mentally rotate objects that they draw. Some of them cannot really see what they are looking at. They look but cannot see the details. Their understanding is a quick general outline of the object. Beginners can draw a silhouette but they cannot grasp the details or the intricate relationships within the object. The observation depth is shallow for the beginners. These handicaps to internalize parallel projection and other visual communication tools into design activity are to be overcome by the individuality of the design activity itself. Every shoe model, drawing and representation is designed by the student and belongs to her/him.

Procedure

At the first day of the semester, students were asked to find a pair of cheap shoes with a complex layered structure. They were asked to cut one longitudinally. Some of them cut it at home, some of them found a carpenter to cut it for them. For the next studio hour they were asked to draw a plan and a section of their shoe as best as they can.

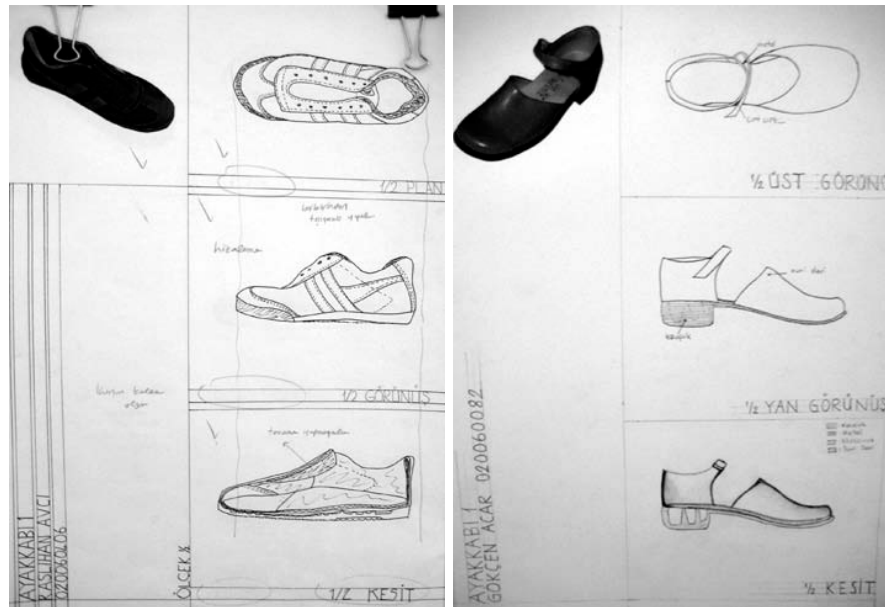


Figure 1. Layout of the drawing, from the 'shoe assignment' of first year design studio ITU, fall semester 07-08

Next session the drawings they brought in were criticized and they were assigned to take picture of the shoe from a given angle, and draw it again, this time one by two scaled top view, side elevation and a section of the shoe with a pencil on an A3 format drawing paper. The layout of the A3 was standard for everybody; a picture on the left column and an aligned top view, side view and section on the right column. On the bottom of the left column they were asked to write the code of the assignment and their names vertically (Figure 1). They were not told until they have turned in the first step of the assignment in that they were going to repeat this process every week. Every Monday they were going to make a different model using a different technique that would be explained, make a drawing of the model as they did for the shoe, plus on another A3 drawing paper they were going to represent the process and their ideas using a visual expression technique that would be explained as well.

In brief every week they were asked to build a model using a given technique, to draw parallel projections of the model, and to express their ideas and process using a given graphic technique. They were asked to use their creativity under two constraint, one for the model and one for the representation, and the other drawing was also predefined and based on simple rules (Table 1). Constrained nature of the assignment leaved them a very narrow space to personalize their work. Towards the end of the work, when they got used to the procedure and it became repetitive and predictable, they expressed some of their complaints and concerns about the assignment, which was perhaps ‘killing their creativity’.

Step (Code)	Model Making Techniques	Drawing 1 Parallel Projection 1/2	Drawing 2 Representation
1	Original Shoe	plan, section, elevation	-
2	Horizontally Sliced	plan, section, elevation	Alignment
3	Vertically Sliced (hollow)	plan, section, elevation	Photo collage
4	Folded	plan, section, elevation	Typography
5	Triangulated	plan, section, elevation	Mixed Media
6	Wire frame	plan, section, elevation	Line
7	Composite	plan, section, elevation	Texture

Table 1. List of Constraints for ‘shoe assignment’, from the program of first year design studio ITU, fall semester 07-08.



Figure 2. Exhibition Space, from the 'shoe assignment' of first year design studio ITU, fall semester 07-08.



Figure 3. Exhibition, from the 'shoe assignment' of first year design studio ITU, fall semester 07-08.

Exhibition layout is simple and easy to read differences and resemblances between shoe models. Every student has a column of 30 cm wide. The column starts with the drawings they have produced, following the original shoe and the models. Layout provides parallel reading. Vertically it is possible to study the work of the same student using different techniques. Horizontally one can compare the different approaches of the students to the same technique (Table 2).

Benefits and Consequences

Many skills require time to internalize. The assignment was repetitive and lasted 10 weeks. It was not required to draw 'correctly' at the first step. Student had a chance to improve him/herself at the next step. Every student had a different pace of improvement. 10 weeks provided time for individual adjustments, catching ups and refinements.

Studio communication between tutor and student benefited from a constricted narrowed down ground to discuss, propose and criticize. A well-defined assignment can guide a student through the process without unwanted intervention from a moderator. Student can work the problem with his/her own control questions e.g. ‘is the model satisfactory, does it look like the original, is the model making technique used properly’ or ‘is plan and section satisfactory, do they conform with the object, are line weights used to give a depth’ etc.


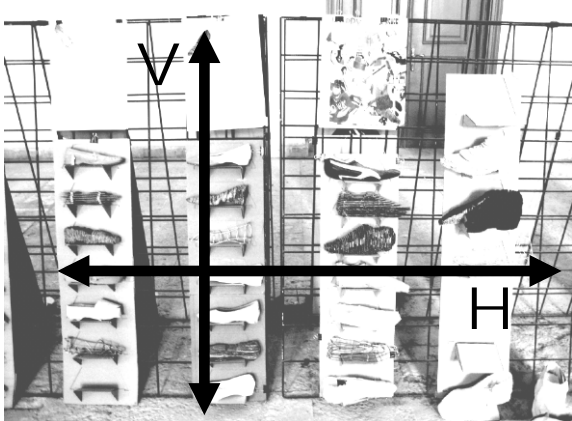






	Original		
	Horizontal slices		
	Vertical slices		
	Folding		
	Triangulation		
	Wire frame		V: Vertically one can study same students variations
	Composite		H: Horizontally one can study same technique applied by different students

Table 2. Exhibition Layout, from the ‘shoe assignment’ of first year design studio ITU, fall semester 07-08.

The topics in the studio dialogue during the evaluation hours of the assignment has changed or build-up from simpler or primary issues to the more complex or secondary issues; coordinating plan and section using guidelines, constructing a parallel projection, line weights and perception of the drawing, learning to draw letters and using texts, putting more detail into the drawing.

Third step of the assignment required a representation of the process and qualities of the week’s theme. This second drawing provided a relatively larger space to personalize the expression of the work and an opportunity to discuss presentation and representation in terms of abstract ideas, appropriateness of the model and graphical

representation to the given constraints. This is the least *understood* step giving no clue or guide to the student.

Benefits of the mass education are discovery in teams. Production of large numbers of variations in the studio creates a fuzzy environment where experimenting with ideas and exploring different solutions encouraged. The studio creates the opportunity to observe a number of solutions instead of one leading possibly to an understanding of design as navigation through probabilities.

Well-defined and constricted nature of the assignment exposed, variations, alternate solutions, different model making and representation techniques, initiating the skills to navigate, discover, select knowledge.

References

Aydınlı S. (2007), '*Awareness*' as a design paradigm, chapter in The Design Studio: A Black Hole, ed. Sa•lamer G., pp 113-136, YEM Istanbul

Fazey J. A. and Marton F. (2002), *Understanding the Space of Experiential Variation*, Active Learning in Higher Education, Vol 3, pp 234-250

Heape C. R. A., (2007), *The DesignSpace*, PhD Thesis, University of Southern Denmark, Sonderborg

Kimbell R. (1999), *Distinctive Skills and Implicit Practices - Design Skills for Work*, Goldsmith University of London, for UK Design Council

Mayer R. E. (2004), *Should there be three-strikes rule against pure discovery learning?*, American Psychologist, 59 (1), 14-19

Schön D. A. (1987), *Educating the Reflective Practitioner*. Jossey-Bass Publishers, San Fransisco

ⁱ Lyrics from the Kenny Loggins song of the 1984 movie Footloose starring Kevin Bacon.