PROBLEM STRUCTURING WITH USER IN MIND:
USER CONCEPT IN THE ARCHITECTURAL DESIGN STUDIO

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ABSTRACT

PROBLEM STRUCTURING WITH USER IN MIND: USER CONCEPT IN THE ARCHITECTURAL DESIGN STUDIO

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Dealing with the problem between "user-related knowledge" and "design," the present thesis underlines the guiding role of designer's *user concept* as a "concept" in problem structuring, by framing his/her understanding about user and influencing knowledge use and solution generation.

Considering limitations of prevailing *user concept* in the architectural design studio, underlying problems are detected with reference to *knowledge* and *design contexts*, which have critical influence on the formation of *user concept*, particularly on its capacity to cover qualities of user and its relation with design. Defined narrow content of *knowledge context* and the detachment between *design* and *knowledge contexts* constitute the problematic basis of limited *user concept* and indicate a need for a shift in student's user understanding.

The thesis aims to provide a conceptual framework to define required change referring underlined contexts. The broadening of *knowledge context* is defined addressing unifying perspective of Universal Design, with its emphasis on "diversity," "user experience," and "knowing user by experience." With reference to the notion of "designerly ways of knowing," required constructive relation between *knowledge* and *design contexts* is reconceptualized as "designerly way of knowing user" and defined as user-related knowledge

generation as part of problem structuring and design concept generation through this knowledge base.

The potentials of proposed framework are exemplified by an architectural design studio experience. The analysis shows that when student's user learning is organized within student's actual-user investigation as part of problem structuring, it is possible for students to acquire needs and expectations of diverse users and translate them to solutions from user perspective generating user-related design concepts. Therefore, proposed conceptual base promises to improve *user concept* of student not only to involve experiences of diverse users, but also to be "designerly."

Keywords: User concept, Problem structuring, Architectural design studio, Universal design, Designerly ways of knowing

ÖZ

KULLANICI FİKRİYLE TASARIM PROBLEMİNİ KURMAK: MİMARİ
TASARIM STÜDYOSUNDA KULLANICI KAVRAMI

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Kullanıcı bilgisi ve tasarım arasındaki probleme yönelik, bu tez *kullanıcı kavramı*nın bir "kavram" olarak, tasarımcının kullanıcı anlayışını biçimlendirerek ve bilgi kullanımı ve çözüm üretimini etkileyerek problemi kurma sürecindeki yönlendirici rolünü vurgular.

Mimari tasarım stüdyosu'nda süregiden sınırlı *kullanıcı kavramı* göz önüne alınarak, problemler bu kavramın oluşumunda, özellikle kullanıcı niteliklerini kapsama kapasitesinin ve tasarımla ilişkisinin belirlenmesinde etkin olan *bilgi* ve *tasarım bağlamlarına* referansla belirlenmiştir. *Bilgi bağlamının* sınırlı içeriği ve *tasarım* ve *bilgi bağlamları* arasındaki yalıtılmışlık problemleri tasarım stüdyosundaki *kullanıcı kavramının* temel sorunsalını oluşturur ve kullanıcı anlayışında bir değişimin gereğine işaret eder.

Bu tez, söz konusu değişimi tanımlamak için vurgulanan bağlamlara referansla bir kavramsal çerçeve oluşturmayı amaçlar. *Bilgi bağlamının* genişlemesi Evrensel Tasarım bakış açısından, "çeşitlilik," "kullanıcı deneyimi" ve "kullanıcıyı deneyimle bilme" nosyonlarına odaklı tanımlanmıştır. *Tasarım* ve *bilgi bağlamları* arasındaki yapıcı ilişki ise "tasarımsal bilme" nosyonuna referansla, "kullanıcıyı tasarımsal olarak bilme" şeklinde kavramsallaştırılmış ve kullanıcı bilgisinin problem kurma sürecinin parçası olarak üretilmesi ve bu temelden tasarım kavramlarının üretilmesi olarak tanımlanmıştır.

Önerilen çerçevenin potansiyelleri bir mimari tasarım stüdyosu deneyimiyle örneklenmiştir. Analiz çalışması, kullanıcıyı öğrenme süreci, problem kurma sürecinin parçası olarak gerçek kullanıcı araştırması biçiminde düzenlendiğinde, öğrencilerin çeşitli kullanıcı deneyimlerini elde etmelerinin ve bu bilgiyi kullanıcı perspektifiyle ve kullanıcı bilgisi temelli tasarım kavramlarıyla çözümlere dönüştürmelerinin mümkün olduğunu göstermiştir. Sonuç olarak önerilen kavramsal taban stüdyoda *kullanıcı kavramının* çeşitli kullanıcı deneyimlerini içerecek biçimde gelişmesini sağlamakla kalmaz, bu gelişimin "tasarımsal" olmasını da sağlar.

Anahtar Kelimeler: Kullanıcı kavramı, Problem kurma, Mimari tasarım stüdyosu, Evrensel tasarım, Tasarımsal bilme

To Hakan

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CHAPTER 1

INTRODUCTION

In the introductory essay of his edited book, *Architecture for People*, Byron Mikellides (1980, 24) provides a brief overview on human needs, research in social sciences and architectural design, and gives a mindful framing about conceiving user needs by architects in design activity. He argues that "[k]nowing about human needs is an important first step, understanding these needs is a vital second, but evoking and expressing them through their translation in built form is a culminant third." All these constitute the main discussion fields of the problem between "knowledge" and "design" and at the same time, they are the necessary components to achieve inclusiveness in design.

In this relation between "knowledge" and "design," designer's *user concept* has a significant capacity to contribute his/her knowing, understanding, and communicating user needs, constituting a user related framework in the "problem structuring" process. With this role, it supports generation of design solutions in terms of user needs and expectations, and creates a need for user related knowledge.

Clarifying the guiding role of designer's *user concept* in problem structuring and defining limitations of the architectural design studio in the formation of sufficient and effective *user concept*, the present thesis aims to go beyond the actual problems and provide a conceptual framework to define a model for the formation of required *user concept* in the architectural design studio.

Universal design, providing a diversity included user perspective and concentrating on the contribution of experiences of actual users, is used as a

conceptual base for defining content of *user concept* (involving experiences of diverse users and experiential way of knowing user). On the other hand, the relation of *user concept* with design is discussed as an active/constructive part of design knowing, with reference to Nigel Cross' (1982; 2006) notion of "designerly ways of knowing."

1.1 The Context of the Study: Knowledge and Design

The plain definition of user, in general sense, refers to "one who has or makes use of a thing; one who uses or employs anything," and related term "use" is defined as "to put into action or service; avail oneself of and to inhabit, reside, or dwell in or at a place" (Oxford English Dictionary 1983). Within design context, user[1] is conceived as the one whose needs are aimed to be satisfied by design solutions. Since 1960s, a great effort has been given to understand "user." User needs, preferences, and expectations have become main issues and various methods, from analytical to observational and participatory, have been developed, in order to provide an effective representation of user in design and to provide satisfactory design solutions.

Despite this valuable body of knowledge about user, still, there is a great body of criticisms that are directed to insufficiencies of design to respond to user needs. Increasing problems related to designed environments, growing gap between architectural design practice and public, in other words, between architect and user, and as a consequence increasing demand from public for more user inclusive environments require existing attitudes in architectural design practice to be reviewed and draw, once again, the issue of user to the fore.

In the recent literature, it can be observed that the representation of user in design is seen as the problem of learning more about user, problem of content, form, and representation type of user related knowledge and the problem of

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[1] In this study, the term "user" is used with reference to end-user of the designed environments, products, and services, not with reference to "consumer" of the products, as in the market based approaches.

method to gain required knowledge. However, translation of user related knowledge to design solutions remains as a critical problem area.

The thesis is based on the hypothesis that the main problem about user in design process goes beyond the accumulation of user related knowledge and methodologies of gathering user related knowledge. The main problem is utilization of user related knowledge in design process, and effective translation of user related knowledge to design solutions.

Therefore, the representation of user and the problem of meeting the needs effectively in design are treated in relation to the ongoing debate about the problem between "knowledge" and "design." The relationship between "knowledge" and "design" has been discussed since 1970 with reference to nature, type, and means of architectural knowledge and its dialectical concern with design process.

In terms of generation and integration of knowledge in design, the influential role of designer has been strongly emphasized in these discussions, particularly by the descriptive approaches to design. This emphasis on designers' significant role in utilization of knowledge in design is getting stronger with the contribution of research on actual design activity of designer. It is largely underlined that generation of solution concepts are largely guided by the designer's structuring of design problem[2] with his/her prior knowledge (Hillier et al. 1972; Hillier and Leaman 1974; Darke 1973; Schön 1984; Cross 2001a; Restrepo and Christiaans 2003). This emphasis indicates the need for designer's capacity to understand user in a comprehensive way in order to recognize and utilize user related knowledge in design effectively.

Designer's knowledge and experiences about user constitutes a knowledge structure and provides a mental model, in other words, the *user concept* in design. Designer's *user concept*, as part of his/her pre-existing cognitive field has an important potential to influence the direction of problem structuring,

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[2] The notion of "problem structuring" can be briefly defined as designer's interpretation of the design problem, when confronted with a new design situation, by imposing possible solution images. These early solution approximations provide means for designer to analyze and structure the design situation. This concept will be elaborated in detail in Chapter 2.

providing a stance about user and guiding need for user related knowledge and utilization of it in problem structuring.

The role of designer's *user concept* in design activity, despite its significant potential to guide generation and integration of user related knowledge in design, remains addressed but insufficiently understood. Therefore, the main problem is related to better and clear understanding of "user" as a "concept" in the relationship between "knowledge" and "design."

Since, design education, particularly the design studio, where the basis of necessary skills, attitudes, and knowledge for design activity are developed, has an important role in the formation of *user concept*, this study particularly deals with the "problem of *user concept*" in the architectural design studio.

Contrary to the developments in academic level towards an expanded understanding about user involving experiences of diverse users, the prevailing approaches in the architectural design studio cannot reflect similar kind of advancement. Clarifying the nature and the limitations of designer's *user concept* in architectural design studio is worth to be investigated for the achievement of effective integration between user related knowledge and design.

1.2 Problem Definition

As a contribution to the integration of user related knowledge to design, this study emphasizes the significance of the *user concept* as an essential component of designer's prior knowledge, in framing designer's understanding and knowledge about the user and influencing its use in problem structuring process and generating solutions.

The effectiveness of *user concept* in problem structuring depends on its capacity to cover qualities of user sufficiently and on its capacity to support translation of these qualities to design solutions. In the formation of *user concept*, two contexts are seen to be provided in design studio, which determine these capacities of *user concept*; *knowledge context* and *design context*. *Knowledge context* can be defined as the user related conditions that

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cover user related knowledge and the way of knowing the user in studio setting. On the other hand, *design context* can be defined as the design related conditions in which student's understanding/conceiving of the user takes place as part of his/her design knowing/learning.

Regarding the critical influence of these contexts on the formation of *user concept* and its capacities, the present study addresses their limitations in the architectural design studio. Considering the current state about the user understanding in the architectural design studio, the problem of *user concept* in architectural design studio in relation to provided *knowledge* and *design contexts* has been defined as twofold;

- The first one is related to the nature of *knowledge context*. Existing *knowledge context* in architectural design studio reflected a circumscribed character, due to the narrow content of self-referential experiences, generalized, prospective character of research knowledge, and theoretical way of knowing user. Provided *knowledge context* seems to limit user understanding to the individual experiences, veil dynamic, contextual,and up to date characteristics of users and cannot reflect actual image of them.

- The second one is related to the nature of *design context*, which determines the relation between *knowledge context* and *design context*. The analysis-synthesis model of design, introduced predominantly in the design studio education, leads to formation of a *user concept* disintegrated from design knowing/learning as a passive part of it, due to the separation of analysis and synthesis.

These limitations in *knowledge* and *design contexts* and their detachment from each other are underlined as the possible reasons of the prevailing narrow and passive user concept in the architectural design studio.

Development of a *user concept,* which reflects diversity, contextuality, specificity, dynamic nature of needs, and value of experiences, as necessary

qualities of user, and which is embedded in design knowing of student in design studio can be underlined as an urgent need.

1.3 The Research

This study emphasizes the critical role of designer's *user concept* in constructing required relationship between "design" and "knowledge" and in searching, obtaining, and utilizing user related knowledge in the design process. It underlines the need for a shift in student's user understanding in the architectural design studio and aims to provide a conceptual framework to address required dimensions of *knowledge context* and *design context* that will give way to the formation of necessary qualities of *user concept* in the architectural design studio.

Proposed shift requires necessary transformations in *knowledge* and *design contexts* provided in the design studio. "Universal design"[3] approach, as an integrating strategy, which concentrates on the formation of diversity-included design approach and the value of experiences of users is discussed to address better definition of *knowledge context*. Grounding on "universal design's" unifying conception of user, required broadening of *knowledge context* is defined as extending the content of user related knowledge towards experiences of diverse users and knowing user by experience, in addition to the students' individual experiences, user related knowledge as research results, and theoretical way of knowing the user in the architectural design studio.

On the other hand, required integrated relation between *knowledge context* and *design context* is discussed by addressing intrinsic characteristics of "designerly ways of knowing" (Cross 1982; 2006), which provides a dialectical relation between *knowledge context* and *design context*. This active/constructive relation is based on user related knowledge generation within design activity and the formation of user related "concept knowledge" in problem structuring. This kind of relation between *knowledge context* and

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[3] "Universal design" can be defined as an integrated approach to design products, buildings and urban environments for all people rather than creating special design solutions (Ostroff, 2001), which develops by the end of 80s, as part of the growing social power of design. The approach and underlined user conception will be discussed in detail in Chapter 3 and 5.

design context leads to the formation of a "designerly way of knowing user" in the architectural design studio.

Therefore, with this conceptual base, the direction of required shift is defined from a self-referential, theoretical, and design- separated *user concept* to the diversity-included, experience-based, and design-integrated *user concept* in the architectural design studio.

The potential and contribution of the underlined conceptual basis are illustrated with a second year architectural studio experience at METU, Department of Architecture, Ankara. The experience involves user-student interaction as part of problem structuring during a design project: User-Case: Ürünlü experience.

Although, the experience and knowledge gained from this study may not be generalized to all students or to all design situations, they provide valuable insights about the potentials and the contribution of proposed conceptual framework to students' user understanding.

The material produced by students as part of the process is examined in terms of its user related knowledge content (the influence of proposed *knowledge context*) and its translation and contribution to design knowledge (the influence of proposed *design context*). The analysis shows the expansion of students' user related knowledge repertoire towards experiences, values, problems, and expectations of diverse users and structuring of the design problem by the students from user perspective and with the contribution of acquired user related knowledge. Therefore, the development in user understanding of students is observed as diversity-included, experience-based and as "designerly."

1.4 The Structure of the Study

This study aims to frame critical dimensions of required shift in user understanding (*user concept*) in architectural design studio, with reference to *knowledge* and *design contexts*. It does not particularly aim at providing an overall exploration and definition of the concept of user; rather it clarifies the

role and the problematic features of the *user concept* as part of problem structuring in design studio.

After the introductory chapter that presents contextual background and problem definition of the thesis, the argument of the thesis is presented in two parts. Part I sets the problem of the *user concept* in the architectural design studio. Chapter 2 introduces the concept of user and clarifies the significant role of designer's *user concept* in problem structuring process, and the role of *knowledge context* and *design context* for the formation of *user concept*. Chapter 3 includes the critical-historical overview of shifts in *user conception* in the field of design and illustrates the effects of dominant epistemologies and design models (*knowledge context and design context*) on the formation of *user concept*. Chapter 4 presents the current state about the issue of the user, underlines the limited *user concept* in design practice and design education, and detects the problems of the provided *knowledge context* and *design context* in the design studio. Part II of the thesis provides a conceptual framework to set critical dimensions of *knowledge* and *design contexts* considering the required shift in user understanding in the architectural design studio. From the perspective of universal design, and with the contribution of descriptive models of design approach and the notion of "designerly ways of knowing," Chapter 5 defines necessary transformations in knowledge base and design model provided in the design studio. Chapter 6 presents a studio experience (User-Case: Ürünlü), conducted with the second year architecture students at METU, Department of Architecture, Ankara, as an illustration of the contribution of the proposed conceptual base to students' user related knowledge repertoire and "designerly way of knowing the user." Thesis is concluded with an overview, a general discussion, and suggestions for future research in Chapter 7.

PART I: SETTING THE PROBLEM OF USER CONCEPT IN THE ARCHITECTURAL DESIGN STUDIO

CHAPTER 2

THE USER CONCEPT OF DESIGNER IN PROBLEM STRUCTURING

With regard to the integration problem between user related knowledge and design, which is one of the main reasons of the insufficiencies in representation of user in design, designer's guiding role can be underlined as significant as the role of nature of design and the role of qualities of knowledge provided during design activity. Prior knowledge or preconceptions of designer provide him/her this guiding power particularly in early conceptual phase of design. *User concept* is one of these preconceptions of the designer and it has ability to influence need for user related knowledge and generation and integration of it in the design process, particularly in problem structuring.

In order to clarify the nature of *user concept* and its role in problem structuring process, this chapter starts by a brief review of what the *user concept* is in section 2.1. To elucidate the role of *user concept* in design, section 2.2 focuses on designer's problem structuring as a pattern of "designerly ways of knowing," knowledge use and the role of preconceptions of designer in this process. On this background, *user concept* of designer, its role in the utilization of user related knowledge are clarified and *knowledge context* and *design context* are underlined as significant for the formation of *user concept* in section 2.3.

2.1 User Concept of Designer

Concepts can be treated as cognitive tools for coping with the world and solving problems. Plainly, "concept" can be defined as something conceived in the mind, thought, idea, notion, or a general and abstract idea (Merriam Webster's Unabridged Dictionary 2000). In his book *Displacement of Concepts*, Donald Schön (1963, 8) points out that "there are no observations, data, perceptions, objects, independent of concepts. We cannot even name things without giving clues to the concepts which make 'things' of the situations confronting us." Concepts, as mental models, are emphasized as the underlying knowledge structures, which lead individuals to construct their perception of a system or content domain (Bell and Johnson-Laird 1998, 72). They contain entities and persons, events and processes, and the operations of complex systems (Johnson-Laird 2005, 187). The main sources of this knowledge structure are perception, imagination and knowledge, and the comprehension of discourse.

User concept of the designer can be conceived as a knowledge structure, which is formed by the accumulation of personal experiences, experiences and knowledge about user provided by design education and practice and which determines designer's stance about user in approaching any design problem. Peter Stringer (1980, 176) clarifies the role of the *user concept* in architectural design stating that designers' set of assumptions about user constitutes their models of human being,

> … which may lead to quite different views of architecture for people… They are often implicit in professional matters. They regulate the kind of architectural or psychological theories we might develop, and as a result determine our practical strategies for designing buildings or studying and developing people's behavior and experience.

He represents two housing schemes in Milton Keynes, Netherfield by Chris Cross and Eaglestone by Ralph Erskine, which reflect designers' different

assumptions about their users, leading to different spatial results. Two selected parts from architects' statements, which reflect different assumptions about users, will be introduced in the following part. The first one is extracted from the team of architects which designed the Netherfield housing;

> … Although certain city ground rules had already been established when we began work… our initial studies involved the investigation of ideas to achieve spatial continuity in spite of the grid system… Terrace housing: conventional house plan with as many variants as possible-fronts and backs; one formal side addressing public space the Regent's Park analogy; one side open with possibilities for future extensions; a private garden having a sense of being connected to other open spaces… the large scale interplay between informal landscape (existing hedges and trees reinforced by new planting) and harder geometry of buildings-English landscape tradition…The strait line of the terrace accentuating the low curves of the natural topography; the sum of the parts etc. as in 18th to 19th century street architecture or as in Qud's little house at Kiefhook in Rotterdam.

In these statements, as Stringer (1980, 181) points out, it is observed that assumptions of Netherfield architects about their project reflect a class based *user conception*, without reference to individualities or social relations, in which user is conceived as "a passive recipient of the forces and influences of society" (1980, 176). We can observe the effects of this *user concept* on the direction of design activity from architects' approaches to the problem at hand, their priorities, preferences, and design decisions. This influence is noted by Stringer (1980, 181) as follows;

> [s]ocial meaning is delivered in the form of bureaucratized, large-scale development, embellished with an arcane eighteenth-century aesthetic. The brief is interpreted in terms of the bureaucratic infrastructure of Milton Keynes, and the master development plan is readily accepted after a brief struggle.

As for the second part, it is extracted from the statements of the architect of Eaglestone housing;

… More than half those living in a district- small children, housewives, the elderly and infirm, invalids and sick-are there all day. Schools, shops, community centres, open spaces, and above all, places of work, should all be incorporated into a housing district. The physical structure give sense of social community and must identify both 'place' and 'community'. In Eaglestone the main and the temporary centre… as well as the housing groups are planned around major open spaces and on the hill and in the valley. Groups are subdivided into recognizable 'gossip groups' (30-50 dwellings) around pedestrian streets and squares, car courts with arrival bays, community rooms and play places. Work places, schools, play spaces and front door contact create activity along main pedestrian streams-strong social lines with urban qualities. These are offset by quiet semi-private interiors within groups of houses. Individual privacy in the gardens and the houses is protected as far as possible.

In the Eaglestone project, on the other hand, Erskine's statements point at an active user, in Stringer's words (1980, 177), which is "influencing and being influenced by his/her social environment." The strong influence of this *user conception* is felt from architect's effort to understand relations between users and their environment and from his framing the problem on the knowledge that is derived from the users of the site. Stringer (1980,182) interprets this assumption as community-oriented, which considers all levels from individual family to schools, and to community centre. He also states that in Eaglestone "[t]he physical environment is associated with social episodes which carry meaning for the individual and the society alike." In this approach, the aim is to illustrate the influence of different *user conceptions* on approaching the design problem taking different aspects of the situation into account and the formation of different architectural solutions.

Considering the critical role of the user concept of designer in design, due to its ability to govern, directly or indirectly, designer's actions in design process and to affect his/her understanding of design in terms of user, it seems evident to elaborate *user concept* by focusing on the characteristics and its role in design activity. For this aim, following section aims to clarify designer's problem structuring activity as a core pattern of "designerly ways of knowing" in terms of its effects on solution generation and knowledge need and utilization in this process.

2.2 Designerly Ways of Knowing: Problem Structuring

In the field of design, with the developments in philosophy of science, such as Karl Popper's and Thomas Kuhn's works, and descriptive studies that focused on designer's actual design activity, the nature of design activity is clarified, particular character of design problem is defined, and the role of designer in this process in terms of knowledge use is underlined (Hillier et al. 1972; Darke 1973; Schön 1984; Restrepo ve Christiaans 2003).

Cross (1982, 2006) states that "these studies tend to support the view that there is a distinct 'designerly' form of activity that separates it from typical scientific and scholarly activities." He underlines that while science is analytic, design is constructive. Developing on Archer's notion "design has its own distinct 'things to know, ways of knowing them and ways finding out about them'," Nigel Cross (1982; 2006) expresses this intrinsic nature of design as "designerly ways of knowing." The main aspects of designerly ways of knowing are described as follows;

> designers tackle "ill-defined" problems; their mode of problem-solving is "solution-focused"; their mode of thinking is "constructive"; they use "codes" that translate abstract requirements into concrete objects; they use these codes to both "read" and "write" in "object languages."

Cross (2006, 19) summarizes that

> design ability is therefore founded on the resolution of ill-defined problems by adopting a solution-focusing strategy and productive or appositional styles of thinking… relies fundamentally on non-verbal media of thought and communication

The process of problem structuring can be underlined as the key feature of design activity (Cross 2006, 91). During design activity, particularly in its early conceptual stages, it is underlined that various types of knowledge from

various domains are required and designer is the major source for bringing this knowledge to bear on the design problem and organizing and relating it in a coherent whole.

Nigel Cross (2001) states that designing differs from common scientific "problem solving" activity, due to the special character of design problems. These types of problems are characterized as "wicked" like social problems, which are not definable, separable, and have not findable solutions, instead of former approach's tendency that saw design problems as "well-defined" like scientific problems (Rittel and Webber 1973). Lawson (1990, 40) explains this undefined character stating that; "[u]nlike crossword puzzles, brainteasers or mathematical problems, neither the goal nor the obstacle to achieving that goal are clearly expressed." Therefore, as Cross (2001) underlines, designing involves "finding appropriate problems" and solving them and "includes substantial activity in problem structuring and formulating, rather than merely accepting the 'problem as given'."

The early formulation for problem structuring in design is made by Hillier, Musgrove and O'Sullivan (1972), with the notion of "pre-structuring." In their "analysis-test" model of design, which is based on Popper's model of science, they suggest that design problems are only understandable in relation to the design solutions and this process is achieved through defining boundaries of design problem suggesting tentative solution with the guidance of designer's pre-existing cognitive capability. To cope with this vast majority of knowledge and possibilities Hillier et al. (1972, 78) emphasize two sets of limiting factors; external and internal constraints. The first set of constraints is external to the designer and comes from clients, users, site, or regulations. They can be explained as "quite powerful, or even totally deterministic of design." The second set of constraints is on the other hand internal to the designer and they are "an expression of the designer's cognitive map."

Similarly, Schön (1983, 40) defines "problem setting" or "framing" as a kind of activity, that the designer should perform in order to convert a problematic situation to a problem. For him, in problem setting;

we select what we will treat as the 'things' of the situation, we set the boundaries of our attention to it, and we impose upon it a coherence which allows us to say what is wrong and in what directions the situation needs to be changed. The problem setting is a process in which, interactively, we *name* the things to which we will attend and *frame* the context in which we attend to them.

In this way, designer may "organize and clarify both the ends to be achieved and the possible means of achieving them" (Schön 1983, 41). Lawson (2004, 10) explains this as stating,

design as opposed to mere problem solving requires the application of a body of knowledge not stated or necessarily even referred to in the brief… Unlike problems of science there is no one commonly shared theoretical body of knowledge which can be applied to generate a solution.

To cope with design problems, ill-defined and wicked in nature, designers need to provide a special kind of knowledge, which may cover different aspects of the problem situation, in the beginning of the design process. Darke (1979, 38) proposes the term "primary generator" to identify this underlying idea(s) and defines it as "concept or objective that generates a solution." According to her, these ideas provide a starting point for designers. These underlying ideas are also conceived as "organizing principles" or "concepts."

Heylighen and Neuckermans (2000) emphasize, "the value of concepts in architectural design derives from their potential to help managing complexity by offering a framework to integrate the different aspects of a building into one coherent and meaningful design." With this solution concepts, as Rowe (1982) states "new information about a problem is generated, evaluated together with a priori knowledge, and solution strategies amended accordingly."

In this process, according to Zeisel (1984, 9-10), two types of knowledge can be observed in terms of their intended uses; for imaging and for testing. The former one is related to how things might be, prescriptive in nature, predictive,

and value-laden. This type of knowledge is the main source for the designer's unique interpretation of the design problem. On the other hand, the second type of knowledge is related to how well things might work, descriptive in nature, more empirically based and commonly shared and is used by the designer to test the relevancy of his/her tentative solutions or conjectures.

Similarly, Heylighen (2000, 11) suggests two types of knowledge to conceive design; component knowledge and concept knowledge. Component knowledge contains a specific aspect of design and is characterized as local, active, and focused, as it enables one to deal with a specific aspect without needing to understand the internal functioning of the whole. Architects use it to analyse whether their design fulfill a specific requirement, such as in cost calculation, structural safety analysis or energy studies. In parallel to Zeisel's knowledge for imaging, Heylighen's (2000, 11) concept knowledge provides integration and linking of several bodies of component knowledge in a coherent whole.

All these knowledge types can be provided by the designer and/or external sources and used for structuring and solving the design problem by designer. The crucial contribution of the designer comes, when he/she generates design concepts to integrate complex and different aspects together in problem structuring.

Therefore, above explanations indicate that emphasizing early concept generation, problem structuring as a core pattern of designerly ways of knowing is vital to connect knowledge and design by the guidance of designer's cognitive capabilities while searching, generating and utilizing knowledge in the design process.

Following part clarifies the role of *user concept* in problem structuring as part of prior knowledge of designer and underlines the importance of *knowledge context* and *design context* in the formation of *user concept*.

2.3 The Prior Knowledge of Designer and User Concept in Problem Structuring

Design problem can be seen as the special sum of the required and selected constraints, and "it is the designer's task to integrate and co-ordinate all these constraints by whatever device he can" (Lawson 1990, 80).

Structuring of design problem begins with designer's interpretation. These early interpretations of designer have a great influence on how the process continues. Rittel and Webber (1973) state that designer's "choice of explanation determines the nature of the problem's resolution," in other words, "the analyst's "world view" is the strongest determining factor in explaining a discrepancy and, therefore, in resolving a wicked problem. On the influence of designer's world view, Harfield (2007, 169) notes that;

> knowingly or unknowingly, each designer thus brings to bear on the problem as given a viewpoint or a position, a set of formal and aesthetic and technical sensibilities, based on prior experiences and preferences and prejudices, which determine not only how the problem at hand will be solved, as if it is somehow neutrally presented for the most efficacious solution, but just what problem the designer will choose to solve.

Hillier et al. (1972, 78) explain designer's role with reference to their notion of "internal constraints," which are defined by designer's prior knowledge, and they underline the importance of pre-existing cognitive map of designer on the guidance of problem structuring. They point out that;

> It is largely through the existence of such maps that any cognitive problem solving activity can take place. They are, and must be, used for the problem solver in order to structure the problem in terms in which he can solve it. It acts as a plan for finding a route through problem material that would otherwise appear undifferentiated and amorphous. Its role is equivalent to the role of theory and theoretical frameworks in science.

The chief elements that constitute designer's pre-existing cognitive field, which triggers his/her prestructuring, are categorized as knowledge of instrumental sets, knowledge of solution types, and informal codes (Hillier, Musgrove and O'Sullivan 1972). Instrumental set represents the knowledge of technological means. Solution types provide the knowledge of past solutions of similar problems. Informal codes, on the other hand, linking abstract functional requirements and instrumental sets constitute a theory-like role and provide route for prestructuring of designer.

User concept of designer, as a knowledge structure, is an important component of designer's prior knowledge, or culture medium and is formed by accumulation of knowledge, experiences, and values, which are gained through designer's everyday experiences, learning experiences, and experiences in practice in time. These experiences, knowledge, values, and relations in turn form a mental image about user in designer's mind. With this knowledge base, it can be stated that *user concept* has two potentials in problem structuring in any design situation;

- provides designer a stance, a framework as a theory-like structure to define the situation and to predict the future needs,

- provides designer a knowledge repertoire to be used as a base in problem structuring and to support concept generation and evaluation of the solutions.

| user | → | **DESIGNER**
with his/her user
concept | → | **design solutions** |
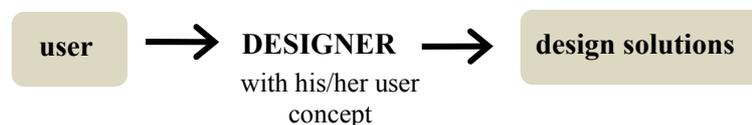
Figure 1 The critical role of *user concept* of designer between user and design solutions

On this basis, taking account of the idea that design inevitably depends on designer's perspective, interpretation, actually, structuring of the design problem to be solved. It seems possible to state that *user concept* of designer, as part of his/her prior knowledge, has potential to guide need for knowledge and generation and integration of it in problem structuring, in terms of user. In this process, *user concept* provides designer a framework to conceive user, to determine need for knowledge and to filter required knowledge according to this framework, a base to contribute building user model for design problem at hand and supports concept generation providing concept knowledge with its knowledge base.

Knowledge Context and Design Context

With regard to integration of user related knowledge to design, the effectiveness/functionality of designer's *user concept* in problem structuring depends largely on two critical capacities related to the knowledge base. The first one is the capacity to address necessary qualities of the user, and the second one is the capacity to support communication of user related knowledge with design solutions.

Designer's *user concept* begins to form in educational settings, particularly in the design studio, and develop in design practice. User related knowledge and the way of knowing the user shapes *user concept*'s capacity to reflect user related qualities. This knowledge setting can be defined as *knowledge context*. On the other hand, proposed design approach determines the *user concept*'s capacity to communicate user related knowledge with design. The design setting, in which user related knowledge is used and user knowing takes place (*knowledge context*) can be defined as the *design context*.

From this perspective, it can be stated that the character of *knowledge context* and *design context* and their relation have significant influence on the effective representation of user in design. The critical role of *design* and *knowledge contexts* provided in the design studio will be discussed in detail in chapter 4.

Considering contemporary approaches to user, universal design, as a developing strategy, celebrating diversity and emphasizing the value of actual user experience, provides a perspective to define the content and character of knowledge context. On the other hand, communication of user related knowledge to design requires understanding user from a "designerly" perspective, which means formation of dialectical relation between *knowledge context* and *design context*.

Following chapter aims to address critical shifts in *user concept* and the influence of the changes in *knowledge* and *design contexts* on formation of these conceptions in design field through the critical-historical examination of user and design approaches.

CHAPTER 3

CRITICAL-HISTORICAL OVERVIEW OF USER CONCEPTIONS IN ARCHITECTURAL DESIGN

On the formation of prevailing *user conception* in design field, dominant epistemologies and design approaches have significant effects, with their emphasis on particular qualities about user and user related knowledge, defined, provided, and utilized in design. This chapter examines changes in conventional approaches, which determine both quality and content of user related knowledge provided in design, and design models, since 1940s, in line with the critical shifts in common *user conception*, to illustrate their influences on formation of *user concept*s. It is also expected that, this examination of the effects of *knowledge* and *design* contexts on the formation of *user concept*s reveal the roots of some current problems and limitations of *user concept* of designer.

Considering this aim, after a brief introduction for the historical roots of the issue of user, the present examination indicates three approaches, whose continuous effects can be traced in prevailing *user conception* today in design fields including education. 1940s illustrate an idealized-universal *user concept* and self-referential approach of designer with the effects of theory of determinism and functionalism (Section 3.1); 1960s refer socio-behavioral dimensions of user, with the contribution of positivist conception of knowledge and systematic model of design (section 3.2); 1970s emphasize opinions of user and demand participation of user to design process with the effect of developments in new liberal humanism and descriptive model of design (Section 3.3). These changes in *knowledge* and *design contexts* indicate critical shifts in *user conception*, from an idealized user to objectively observed and defined user and to participatory *user concept* of designer. This chapter is

concluded with the overview of the current tendency to define user in design context, in which diversity of the users, the value of experiences of user, and their contribution to the early phases of design are strongly underlined from the perspective of "universal design," participatory approaches, and the descriptive approaches to design (Section 3.4).

This overview seeks answers to following questions, considered as essential:

1- How do researchers perceive the nature of the knowledge that they gather in their user related studies? What kind of methods do they propose, and why? (to reveal *knowledge context*)

2- How do researchers associate user related knowledge with design process? (to reveal *design context*)

3- How do researchers perceive user?

The sources of answers to these questions, are historical reviews of design research, proceedings and books on design studies, research, and methods, both in design field in general and architecture in particular.

The Issue of User in Architectural Design

The roots of more conscious concern about user can be traced back to the studies of the end of eighteenth and nineteenth century that were developed for the environmental and social problems of working classes. Frampton (1996) explains environmental problems of this period as transformation of old settlements into unlivable and unhealthy slums due to rapidly growing industrial population and its needs. This arising interest in the public and the user coincided with the constitution of architecture as a profession, in this period. With this professionalization process, architecture, like other professions, offered to bring order to chaos, to provide remedy for diverse problems and to do all this with devotion to society at large, against economic

conditions that lead to an unprecedented growth, urbanization, and industrialization (Dostoğlu 1986).[4]

"Welfare State" approach can be indicated as the grounding idea of professionalization of architecture (Tzonis and Lefaivre 1978). Alexander Tzonis and Diane Lefaivre (1978) clarify the principal idea of this approach as "a value system" both composed of "common, identifically calibrated measures" and as "a value system reflects inherent human needs dictated by human nature."

Against the problems of the urbanization process, city and community models were developed under the influence of the "welfare" approach. Charles Fourier's "new industrial world" which proposed establishment of ideal communities for the laboring masses in 1829, and Tony Garnier's "Cité Industrielle" in 1899-1904, which suggested "cooperative agricultural community bearing responsibility for the social welfare of the individual," were the significant examples of these models that demanded to form new life for the 19th century society (Frampton 1996). It can be said that one of the significant points of this period was the idealized visions of the designers who tried to determine the way of life and its city on behalf of the society as user.

3.1 Functionalist-Deterministic Approaches: Idealized User Concept

In the postwar period of the First World War, which was seen as a time of great unemployment and severe housing shortage, Modern Architecture's conception of user was formed.[5] The main task of the architecture was to respond to the

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[4] In addition, Sibel Dostoglu [Bozdoğan] mentions Durkheim's idea, related to market oriented society, as "an 'anomic state of affairs' where active forces and human greed had to be checked by social rules and moral power." In her article "On the Fundamental Dilemmas of Architecture- As- Profession…" in *METU Journal of the Faculty of Architecture*, volume 7, number 2, (spring 1986), p.51.
[5] Magali Sarfatti Larson describes four key factors of Modernism's conditions of birth as "the existence of artistic *avant gardes* in the European capitals; the devastating experience of World War I and the massive need for housing it exacerbated; the response to socialism and the revolutionary movements of the brief interwar period; and the demonstration of enormous productivity provided by large-scale industry during the war effort." In her article "Architecture" in the International Encyclopedia of the Social & Behavioral Sciences, 2001, retrieved 2003 from http://referenc.lib.binghamton.edu:2080/science

urgent needs of the modern society (Larson 2001).[6] In this changing design context from "pre-industrial craft oriented" design to design practice in the age of mechanization (Cross 2001), the development of scientific approaches to design to understand and explain complex problems was observed. Cross (2001a) emphasizes this period's approach to design as to "scientise design" which "desire to produce works of art and design based on objectivity and rationality, that is, on the values of science" and gives priority to the product of design.[7]

Grounding on this objective point of view of design, "functionalist" approach[8] was seen to be one of the prevailing approaches to cope with the problems of the masses, with the theory of determinism and positivistic thinking (Colquhoun 1991a). This positivistic and deterministic view of society and culture became a guide to the idea how architecture could reform society. Modern society was formed from this point of view, with its own unique cultural forms and as a *tabula rasa* at which "human institutions and forms could be rationally created on the basis of known needs" (Colquhoun 1991b). It was assumed that a new society would emerge simultaneously with the new architecture, in other words, a universal architecture would produce the "new man" of modern life.

From the above examples, we can summarize that the user in this period was conceived in a functionalist-determinist way within a positivistic vision and as an element in a system whose members exist only for their own sake.

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[6] As one of the eminent figures of the Modern architecture and the Bauhaus School, Walter Gropius remarked, the imbalanced relations of the life of community, the dehumanized impact of machine, and he defined the main aim of the architect as taken the "human element" as the dominant factor in *Scope of Total Architecture*, Gropius1955.

[7] Nigan Bayazit, called this as 'scientize' design," in "Investigating Design: A review of Forty Years of Design Research," in *Design Issues*, volume 20, number1, winter 2004, p.17. For more information about this concept, see Alexander C. Tzonis and Diane Lefaivre, "The Populist Movement in Architecture," published by Department of Architecture Graduate School of Design, Harvard University, 1978, retrieved April 21, 2005 from http://www.bk.tudelft.nl/dks/publications.

[8] For "functionalism," Merriam Webster's Unabridged Dictionary provides a definition as "
a philosophy of design (as in architecture) holding that form should be adapted to use, material, and structure; any doctrine or practice that emphasizes practical utility or functional relations,"functionalism."

Therefore, this deterministic conception of "user" aims to design for ideal users of idealized future rather than actual users. This understanding led architects, and other design professionals, to understand human needs in universal level with a reductionist approach that reduced different needs, wants of people into abstract models (Tzonis and Lefaivre 1978) which were employed to standardize user needs and preferences. This caused simplification of user needs, domination of design process by the designer, and formation of *user concept* limited to idealized user models and self-referential mode of designer.

Educational Implications

As a reflection of these approaches in design in this period, the Bauhaus School first in Europe (1919), then in the United States (1934) seemed to convey the new man ideal to design education. The aim was to bridge the gap between the social idealism and the commercial reality and combine them with the technological culture. Gropius (1962), as an eminent figure in the Bauhaus, states that "[m]an is to be the focus; his spiritual and material needs in relation to the life of the community should determine all stages of the student's training."

The idealistic basis of Bauhaus was a socially orientated program. Esherick (1977) states that "as the profession of architecture fulfilled itself by satisfying the needs of society, society in turn would fulfill itself through revolution in the profession of architecture." Unifying art and technology, Bauhaus model aimed to achieve this goal.

3.2 Systematic-Empirical Approaches: Passive-Stereotypical User Concept

With the beginning of 1960s and through 1970s, the issue of user became central against the negative outcomes of 1920s and 1940s' "desire to produce works of art and design based on objectivity and rationality, that is, on the values of science" (Cross 2001a). Nigan Bayazit (2004), remarks that in this period, interest shifted from product to process and to human needs and the issue of user became an object of scientific inquiry. David Canter and Thomas Markus (1970), underlined the researchers' changing attitudes to the users,

stating that "some, but not all the authors, at long last have given up talking about "building users" as some peculiar human species different from all other types of people." In the same way, Parsons (1975) exemplified this change with the change in "human factors" research whose emphasis was on the "relationships between men and machines" in the past, towards "the examination of the design requirements of constructed environments in addition to determining the effects of environments on behavior."

Also, complex design problems and user requirements demanded that design was considered as a problem-solving and decision-making activity to which scientific developments of the period contributed (Bayazit 2004). This "science based design" is underlined in Buckminster Fuller's "design science" notion that "refers to an explicitly organized, rational, and wholly systematic approach to design; not just the utilization of scientific knowledge, but design in some sense as a scientific activity itself" (Cross 2001a). Referring Gregory and Hubka and Eder, Cross (2001a) remarks the fundamental premises of "design science" as "design method" that is coherent and rationalized and "appropriate information" that is derived from applied knowledge of natural sciences, in a form suitable for the designer's use.

After this introduction about general design state in 1960s, following part examines implications of scientific approaches to design process and user related knowledge and their effects on the formation of *user concept* in this period.

Knowledge Context, Design Context and User Concept

In this period, the main origin of user related knowledge was seen as positivist[9] conception of knowledge, which assumed "scientific knowledge as the only

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[9] "Positivism" is defined as a "philosophical doctrine that denies any validity to speculation or metaphysics. Sometimes associated with empiricism, positivism maintains that metaphysical questions are unanswerable and that the only knowledge is scientific knowledge. The basic tenets of positivism are contained in an implicit form in the works of Francis Bacon, George Berkeley, and David Hume…" in *The Columbia Encyclopedia,* 6th ed. New York: Columbia University Press, 2001–04, retrieved, May, 2006, from www.bartleby.com/65/. And in Britannica online for "positivism" it is stated that "the name positivism is the creation of Auguste Comte, a French thinker of a mathematical cast of mind who in 1824 began to supply a philosophy of the natural sciences opposed to all metaphysics. Science, according to Comte,

reliable knowledge, which is defined as theories or constructs supported by measurable facts, obtained by objective observer" (Sancar 1996). This approach in research assumed that relations between man and environment could be understood on the basis of scientific investigation of social, physical, and psychological features and needs of man, with the contribution of other disciplines, such as sociology, anthropology and psychology, which was generally called as man-environment studies. The underlying assumption was that human being might promote his/her social life and mental health through the inclusion of social and psychological knowledge in designing his environment. For a better understanding of user behaviors, also social and behavioral scientist's participation in design was demanded.

Under the influence of social and behavioral science methods, designers' attention turned to developing ways for the prediction of user behavior effectively for design. The common aim was "to explore the intersection of people's psychological needs and the landscapes, communities, neighborhoods, housing, and interior space that increase feelings of pleasantness, arousal, excitement, and relaxation, and decrease feelings of fear and stress (Margolin and Margolin 2002).

To illustrate the direction of the user research and physical, psychological and social dimensions of *user conception* in man-environment studies the themes of the second EDRA conference, 1970, may be helpful; "performance appraisal" that examined for "feedback information on the quality of products" (Canter and Markus 1970); "micro-ecological behavioral systems" that focused on man-environment interaction in micro scales, including interpersonal relationships (Altman 1970); "environmental disposition and preferences" whose goal was "an understanding of the dynamics of human response to the everyday physical environment" (Craik 1970); and "constructs for human

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delivers unshakable truth by limiting itself to the statement of relations among phenomena. It does not explain but describes—and that is all mankind needs to know. From the physical sciences rise the social and mental sciences..." Europe, history of . (2006). *Encyclopædia Britannica*. Retrieved May 19, 2006, from Encyclopædia Britannica Online http://www.search.eb.com/eb/article-58434

adaptation" that included "cultural designs whereby man relates to his physical environment and his fellowmen" (Esser 1970).

With the period of 1960s, as indicated in previous paragraphs, design process was the object of systematic approaches. The basic aims of these methods were described as working out the rational criteria of decision-making and as optimization of decisions (Bayazit 2004). This type of design methods were categorized "glass box" methods by Jones (1970) in his evaluation of design methods of 1960s.

Jones (1970), defined the main aim of these methods as the disclosure of the "private thinking of designers," the externalization of the design process "so that other people can see what is going on and contribute to it information and insights that are outside the individual designer's knowledge and experience."

Prevailing "glass box" design methods comprised sequential and cyclical phases, in which analysis, synthesis, and evaluation phases occurred separately. Analysis phase contained the collection and classification of all relevant information relating to the design problem. Synthesis phase covered the formulation of potential solutions. Evaluation phase provided the attempt to judge the one most satisfactory solution (Luckman 1969). Objective and measurable behavioral knowledge of user took place in data gathering, "analysis," phase of the systematic design process, and it was assumed that collected data was incorporated into "synthesis," or problem solving phase in this approach. It can be observed that, this process of design located knowledge generation and design separately with discrete phases of analysis and synthesis.

The main aim of these studies was to understand the interaction between the human being and his/her environment, and the underlying assumptions of user's behavior in this environment. Designers seemed to assume that the more they observed and understood user behavior, in general, the more acceptable predictions they could make for their design decisions. Therefore, user was perceived as a means of gathering data about human behavior in a general sense. In fact, user was not actually part of the design process, but contributed

to the decisions of the designer as objectively obtained behavioral data. This approach can be defined as passive or inactive participatory.

Educational Implications

Educational implications of man-environment studies were traced also in design methods and man-environment studies conferences and proceedings. In these proceedings, the significant effort was to establish a consciousness for man-environment studies. It was aimed to generalize the integration of user related behavioral knowledge to systematized design process. For example, EDRA 2 (1970) assigned a section to discuss systematic design methods in design education. Some of the questions that were asked in this session by Peter Manning were as follows: In [Environmental Design] education, what is the place of science and research? What organizations and methods of teaching might be considered? What aptitudes and attainments are required of Environmental Design students?

Broadbent (1969) suggested system analysis, operational research, cybernetics, and information theory for environmental design education in order to cope with the flow of information into architectural design and exemplified this approach in undergraduate architectural education program in Portsmouth, England. Another example for the integration of rational research methods to design process was underlined by Schmitz (1970). He pointed Ulm School of Design in Germany, and Architectural Research Center at Texas A&M University as examples of research-oriented programs for utilization of complex environmental problems.

It can be observed from these significant examples that growing complexity of user requirement was underlined and to cope with this complexity, preparation of students with rational systematic research methods and with learning analysis-synthesis model of design were proposed.

Beginning from 1960s, the strong influence of positivist epistemology and systematic model of design on the formation of designer's *user conception* can be observed. It covers quantifiable, objective qualities as generalities about the

user and develops as a separate entity from design learning. This passive, stereotypical, inactive participatory user concept provided designer a frame to guide knowledge search and utilization in design.

Despite its extensive utilization, a significant problem was discussed through the 1970s concerning user related knowledge in design process. This problem can be inferred as the application of the collected data to the design process. The issue was discussed in different papers and in different ways in the tenth annual conference of EDRA (1979), both in the designer-researcher collaboration section and in the workshops. F. Duncan Case's workshop (1979), entitled Converting Research Data to Design Criteria, John Reizenstaein's (1979) "typology of design criteria," and Craig Zimrig's (1979) "case study" were some responses to the problem of how research data could be integrated to design.

Also, the reasons of the problem were discussed with different nuances in academic settings, in 1970s. Some of them remarked the problems of direct application of the borrowed social and behavioral science methods to the design settings, without questioning their validity, reliability, and usability for design problems (Lozar 1975). In relation with this, some researchers emphasized the incompatibility between the goals of the designer and those of the researcher in the design process. Gutman (1965) remarked this problem, stating, "there is often a discrepancy between the questions the architects asks and available evidence the behavioral scientists have to offer in reply. This situation may be in part due to the available techniques for collecting data." As an answer for this problem, Ostrander (1975) indicated the intermediary role (Sommerson 1969) for the designer who was "conversant with or trained in behavioral sciences," like Craik 1968; Sanoff 1968; Davis 1969; Canter 1970; Proshansky 1970; Wheeler 1970; and Ostrander 1972. We can understand from the previous discussions that the integration of collected data that covered social, physical, and psychological dimensions of user was among the main problems of the research in the 1970s.

3.3 Descriptive-Participative Approaches: Active-Participative User Concept

Around 1970s we can observe the need for reexamination of knowledge defined to reflect user qualities, systematic approach to design and *user conception* under the limitations of existing approaches to cover qualities of user and to integrate knowledge to design.

Considering the social and environmental problems, and changing socio-cultural climate and development of new liberal humanism (Cross 2001a), 1960s' systematic, rational design approach was questioned due to its understanding of design as a rational process. In this approach, design and knowledge were separate entities in analysis and synthesis, and required knowledge as objectively obtained and quantifiable (Hillier et al. 1972; Rittel and Weber 1973; Schön 1983). The assumption was that this excluded specific, contextual, non-quantifiable dimensions of user, like spatial experience of the user, from the design process and limited the integration of knowledge to design solutions (Hillier, Musgrove and O'Sullivan 1972). Geoffrey Broadbent (1969), with Anthony Ward, in their edited book, *Design Methods in Architecture*, indicated insufficiency of existing methods for designers' purposes and their move towards user needs in this period. Hillier et al., (1972) criticized prevailing conception of design knowledge whose goal was to eliminate non-quantifiable elements from the design process, stating, "this process would never be complete and non-quantifiable elements would remain."

Considering these criticisms, Tzonis and Lefaivre (1978) stated that "the emphasis past from an ideal, in architectural values, of 'order' and 'expertise' to one of 'freedom' and 'pluralism'... The task became to create new models which represented individual differences, expressed subjective values and reflected diversity of a truly democratic society."

Knowledge Context, Design Context, and User Concept

In parallel with the continuity of the large number of studies that dealt with observation of user-environment interaction and prediction of user behavior, there had been a growing interest in the issue of "participation" in 1960s and 1970s. Participation of the user in the design process revealed another opportunity for design. Thus, the designer could elicit information that was pertinent to the layout and fabric of buildings (Lawrence 1988). The Design Participation conference of DRS by Nigel Cross in Manchester, in 1971, emphasized the issue of "participation" that began to gain attention both from practice and research in the field of design parallel to the prevailing political movements of the era (Bayazit 2004). Cross (1972, 11) expressed the significance of design participation stating "[t]here is certainly a need for new approaches to design if we are to arrest the escalating problems of the man-made world, and citizen participation in decision making could possibly provide a necessary reorientation." We can observe the social discussions related to the user due to increased housing problems and the developing issue of "accessibility" in the fifth annual conference of EDRA (1974), in Milwaukee. In 1979, in the tenth annual conference of EDRA, in New York, besides accessibility and barrier-free approaches related to elderly, children and handicapped (Bunting and Semple; Wallace and Firestone; Cohen and Beer; Palmer and Crystal; Bernstein; Newcomer and Friss; Stephens and Willems) the application and discussion of the issue of "participation" (Giamartino and Ferrell; Sanoff; Hutchinson and Wagenberg) was underlined.

As part of this more inclusive *user conception*, designers tried to integrate data, which contained preferences and values of users about their environments. This user knowledge was obtained with participatory methods and methodologies which necessitated involvement of user in design decision making, information exchange, supplementing designing and planning (Sanof 2000). Strategic planning, envisioning, charrette process and gaming were among the methods of the participatory approach.

In parallel to the continuity in systematic approaches to design that were criticized due to their limits to provide knowledge generation within design process and its translation to design solutions, some new approaches to design process were developed in 1970s. These new approaches were mainly influenced by the developments in philosophy of science, particularly Karl Popper's "conjecture and refutation" model of science. The model proposed that scientific discoveries begin the process with tentative solutions and continues with testing them. In adaptation of this approach to design process, knowledge generation within synthesis of solution was underlined as meaningful (Hillier, Musgrove and O'Sullivan 1972) and problem definition was emphasized as important as synthesis part (Hillier et al. 1972; Rittel and Weber 1973; Schön 1983). In line with these developments, the nature of design problems constituted another problem field. Design problems were seen as "wicked," like social problems (Rittel and Webber 1973).

In response to the shortcomings of the attempts to describe design process based on analysis-synthesis model and positivistic epistemology of design, 1970s was also originator of the some new perspectives to design process in parallel to the continuing developments in the systematic design approaches. Hillier, Musgrove, and O'Sullivan's (1972) analysis-test model of design and Rittel and Weber's (1973) definition of design problem as "wicked," Donald Schön's (1983) notion of "reflective conversation," in which design knowledge was seen as the experience of the designer were some these approaches.

In participatory design approach, the role of the designer was seen as "facilitator" whose aim was to create the necessary conditions for better decision making in planning (Sanchez, Cronick and Wiesenfeld 1988) rather than "problem-solver" (Tzonis and Lefaivre 1978; Hutchinson et.al. 1979). It was assumed that participation could help to increase active motivation, the perception of environmental control, and the satisfaction, which was felt with one's surroundings (Sanchez, Cronick and Wiesenfeld 1988). Participation embraces various kinds of approaches such as design participation, community architecture, advocacy, neighborhood planning, community planning, and community based-development. Although each has its own literature, whether

they intersect or not, the main objective they shared is inclusion of all parties, especially users, into the decision making process in design practice about their environment (Parnell 2002). B. Brolin and J. Zeisel (1970), in their article "Social research and design: Applications to mass housing," stated that with the participatory approaches, the power of the architect on user is limited and user is integrated into the design decision-making process. They derived their approaches primarily from the structural-functionalist school in anthropology and sociology. As the more developed level of this concept, the "advocate" planner or architect, who was "sought only to express the user's views" was stated (Tzonis and Lefaivre 1978).[10]

Participation issue, providing an opportunity for more user control leading to more desirable housing and more user satisfaction, as some researches indicated above, were generally raised against the problems of the housing in 1970s. As the reflections of discussions about participation, design practice provided valuable participation experiences in 1970s. First of all, it can be seen that existing examples were evaluated. Philippe Boudon's study on Pessac Housing of Le Corbusier illustrated "the changes which the users put to the original buildings." Then, considering slums and housing condition of the poor, participatory approaches, which were seen as tools to improve the relations between user, architect, and his/her environment, were developed with their application to the new design opportunities (Tzonis and Lefaivre 1978).

In the end of the 1960s, N. Habraken and the members of Team X saw the solution in the concept of "double scale" architecture. N. Habraken's participatory alternative for mass housing, "support" systems, reflected this idea. He criticized mass housing "as rigid and unchanging; unable to respond

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[10] During these developments, parallel research efforts were seen in academic context of architecture in Turkey. As part of the developing man-environment studies, many researchers including Bozkurt Güvenç, Mustafa Pultar, Erdem Aksoy, Vacit İmamoğlu, Haluk Pamir, Özgönül Aksoy, Şengül [Öymen] Gür, Mehmet Asatekin and many others shared these approaches in their publications and discussed in conferences. Tasarım ve İnsan Bilimleri Semineri that was held in Trabzon, in 1979, offered valuable insight for the user conceptualization of researches approaches, in Turkey in this period. The themes of the seminar mainly included the issue of participation related to design practice and design education, man-environment relations and design and social and behavioral science methods related to design. Among these researchers, Şengül Gür's (1979) study examined the role and the place of the issue of "participation" in architectural education for the diffusion of the idea collective decision making both between designers and between public.

renovation, amenities, new technology, new concepts of living, or chances in appearance." His alternative was based on "satisfying individual requirements through participation in interior design with infill panels, partitions, fixtures, etc." (Bentz 1988). According to this solution, structure and service framework were decided by the architect; on the other hand user was free to create an order all his own within these bounds. As another experience, "self help" design, or "self-help" housing concept was suggested by a British architect John Turner. For him, "housing might be seen as a process which the users themselves must be free to manipulate through the support of institutionalized services" (Tzonis and Lefaivre 1978). It can be stated that these methods have been practiced throughout the 1970s and 1980s. We can observe some participatory housing attempts also in Turkey.[11] These methods and ideas reflect a "bottom-up" approach, contrary to the "top-down" approach of systematic-empirical models of 1960s.

Participatory design, has been discussed at least since the end of 1960s (Cross 2001a). It must be underlined that together with the growing interest, there has been a process of change in the concept itself in terms of *user concept*. In the early models, Sanchez, Cronick and Wiesenfeld (1988) state that "citizens were only given a job of offering their ideas and suggestions to those who were responsible for planning." With the 1970s, it "has taken on connotations of community power in which the public has an increasing influence in decision making."

These important examples of development of user participation approach since 1960s were emphasized in Tzonis and Lefaivre's words "the discontent with

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[11] Despite the limited number of examples, there was some participatory mass housing experiences observed in Turkey beginning from mid-1970s. One of them was Batıkent Mass Housing Project in Ankara, 1974. The traces of participatory approach can be observed from one of the main principles of project that states "ensuring land and housing acquisition of lower and moderate income groups under their own organization and control. With this principle, the idea that "the passive attitude of lower and moderate income groups is hope to be converted to an active attitude" was underlined (Sayın, 1983). In the process, Beler (1983) remarks that the housing for lower income groups was planned to built by the future households, "thorough a self-help housing production." Another example was İzmit New Settlement Project (1974) (planned but not finished). The main approaches of İzmit project were explained as the determination of individual needs by means of participation in relation to social change, the development of a flexible plan for future needs of users, the application of a process planning to evaluate the plans by using feedback mechanisms (Sayın, 1979).

the traditional role of the architect and with the structure of the design process in architecture" as the common characteristic of these approaches. The aim was the transformation of architectural profession towards growing social issues.

In this period, with the development of user-centered approaches in design, designers realized diversity of users as some separate groups in terms of their physical abilities, like elderly people, children, and handicapped.

Educational Implications

Lynda H. Schneekloth and James A. Wise (1979) remarked that research methods, cultural subgroups, housing, participatory design methods, and building evaluation were the main topics of person-environment courses in schools around the end of 1970s. In parallel with this, Hutchinson et.al. (1979) remarked an effort to integrate participatory design to design education, both dealing with teaching "what is participatory design" and the use of participatory methods in teaching.

As one step further towards the user inclusion in the design studio, Raymond Lifchez's and his students' experiences with real users in design studio in 1979, at Berkley, was significant. Richard R. Johnson (1987) underlined the development of interpersonal skills and empathy that needed students to serve their users as the main aim of the project, entitled "Architectural Design with the Physically Disabled User in Mind." Lifchez, concerning the problems of disabled people, stated that;

> the goals of the project were to developed a reasoned critique of the traditional methods of teaching design, to propose and test alternative methods that would place clients at the heart of the design process, and to enable students to develop the skills needed to bridge the gap between able-bodied and disabled people (1987).

One of the important emphases of the project was conception of users as partners in the design process and application of this idea to the design studio.

Developing as the part of "accessibility"[12] movement, Lifchez's project will be accepted among the first examples of "universal design" approach (Welch 1995).

Therefore, it can be said that in response to the limitations of positivist conception of knowledge and systematic approaches to design, we can observe new approaches, which aim to handle the integration problem of user preferences to design effectively and to make design solutions more inclusive. Participatory design approach, bringing user as a main knowledge source to design process, aims to broaden knowledge content towards user's opinions, problems, and experiences and to reduce the effects of designer's dominant role as the decision maker. On the other hand, solution based design approaches, concentrating on limitations of systematized design process, particularly weak relation between design and knowledge, emphasize structuring of design problem and generation of knowledge within the solution generation. These developments in *knowledge context* and *design context* lead to formation of the *user concept* as active participative.

When the developments in the participatory approach are traced, it becomes clear that the definition, purpose, and social context of it, has changed since its origination. In the early phase, participatory approaches were associated mostly with autonomous participation and the role of designer in this context was as "enabling practitioner" (Sancar 1994, 329). Sancar (1994, 330) states that;

> the involvement of interest groups or their representatives generally occurred at the initial stages of prioritizing needs and also at a larger stage to evaluate alternative plans/designs. These experiences have shown that citizen input can be successfully incorporated into the problem formulation and evaluation stages of planning and design, although a rigorous evaluation of the various techniques is still pending. On the other hand, the feasibility and desirability of public involvement during the plan/design generation phase remained a contentious issue among academicians. The design professionals pointed out that both the collectivist and scientific user-needs

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[12] "Accessibility" is defined as "making environments usable primarily by people with disabilities." In *Strategies for Teaching Universal Design*, (ed.) Polly Welch, Adaptive Environments, Boston, 1995, p.1.

approach reduced the designer's role to a "checklist manipulator," stifled creativity, and inevitably lowered the quality of the built environment to the least common denominator.

Consequently, it can be said that despite immature nature of early experiences in definition and implementation, participatory approach, with its aim to involve user in design, continues to improve its understanding about user and methods to elicit qualities of the user by his/her contribution towards 1980s and 1990s.

3.4 Developing Perspectives: Universal Design Perspective and Participatory Design Approaches

On the valuable base of the functionalist-ideal, empirical-stereotypic, and participatory-active developments about the *user concept* of designer, from the end of 1980s, we can trace the broadening of the accessibility movement and continuity of participatory approach with universal design approach, not only with its purposeful emphasis on diversity of people and inclusion of all to the greatest extent possible, but also with its privileged concern about user inclusive design solutions (Welch 1995; Ostroff 1995, 1997).

Towards the end of 1980's and during the1990's, as part of the growing social power of design (Nieusma 2004), "universal design"[13] approach in US, and "inclusive design" [14] in UK, became significant in terms of their concern for the user. Universal design is generally defined as "an approach to creating environments and products that are usable by all people to the greatest extent possible" (Mace, Graeme and Place 1996). In 1960s and 1970s, universal design developed as part of the accessibility movement whose underlying principle was the fact that there were two different kinds of population; normal

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[13]Universal Design is explained by Elaine Ostroff (2001) as an integrated approach to design products, buildings and urban environments for all people rather than creating special design solutions (as being in the past) for people with disabilities, elderly people, children or pregnant women. In) "Preparing and Recruiting Designers for an Inclusive Society," plenary address the Inclusion by Design Canada, 2001, retrieved April 2005, from http://www.adaptenv.org.
[14]Ostroff states that "universal design and inclusive design are terms often used interchangeably in the United States to label a design approach that implies equity and social justice by design" in "Universal design: a new paradigm" in Universal Design Handbook, eds. Wolfgang Preiser and Elaine Ostroff, McGraw-Hill, 2001.

population and the population diverging from normality (in medical sense), (Iwarsson and Stahl 2003). However, in contrast, universal design is based on the principle that there is only one population, comprised of individuals representing diverse characteristics and abilities.

The concept of universal design was first revealed by the architect Michael Bednar in 1977 remarking that "the functional capability of all people is usually enhanced when environmental barriers are removed and suggested that a new concept is needed that is 'much broader and more universal' and 'involves the environmental needs of all users'" (Welch 1995). During the past two decades, the universal design approach successively emerged, indicating a shift from "narrow code compliance to inclusive design for everybody" (Iwarsson and Stahl 2003).

As Nieusma (2004) states, universal design directs our attention to insufficiency in the way designers understand user needs and expectations. He states, "universal design theorists want designers to think systematically about 'inclusion' and to broaden their notion of who users are" against the existing design practices that conceptualize their user as "40-year-old, able-bodied males." For Nieusma, universal design contributes to analyses of social power of design and intensely underlines and contributes implementation of universal design principles and projects. This means, universal design regards development of inclusive solutions for diversity of users.

The role of user in design process has been a significant subject matter among the advocates of the universal design who believe that the methods of the idea of user participation have to be developed within inter-disciplinary studies or researches. In these studies, an emphasis was given to the importance of actual participation of user in the design process rather than their passive representation (Lifches 1974, 1987; Welch 1995; Ostroff 1995, 1997; Iwarsson and Stahl 2003; Nieusma 2004).

Consequently, universal design approach, with its emphasis on the inclusion of diversity of people as much as possible to the design, broadens the boundaries of representation of user in design and engages with participatory approaches'

quest for the effective involvement of the user in design. It can be observed that participatory methods and techniques are highly used for the achievement of universal design objectives. The shared point can be underlined as the search through tacit, experiential knowledge of user. This search gives way to the development of current participatory methods, particularly in user research, towards eliciting experiences of users.

Today, it can be stated that experiential dimension of user is taken a great attention to provide more inclusive design solutions in design field. Margolin (1997) underlines

> expansion of design knowledge from a knowledge of technique, which comes from technical problem solving approach in design process, and which has been the traditional emphasis of design training, to a knowledge of user experience.

Whitney (2004) calls this "total user experience" which includes social, cultural and emotional experiences. In other words, if designers want to increase inclusivity of their designed environments, they need to broaden their understanding of user towards experiential dimension that includes feelings, dreams, personal experiences, and cultural values. This is the tacit knowledge of user. For the acquisition of this type of knowledge, designer's interaction with the actual user can be the relevant source, which will improve his/her ability to empathize with users.

Starting point, as Sanders remarks (2001), is the learning about users' memories, their current experiences, and their dreams for the future. As underlined in recent discussions, the measurement, evaluation, and observation methods of conventional approaches are not enough to provide experiences, feelings, and intrinsic values of user. These recent approaches in participatory approach necessitate new methods to "create language that enables people to express their ideas and dreams," in order to create empathy between designer and user. The innovative contribution of these methods is underlined as the user experience as a source of design inspiration. Generative methods, which

are particularly developed in product and industrial design field, propose designer's participation in the research process. Presenting research outcomes in the form of visual information provides inspiration for designers particularly in the conceptual phase of the design process. Some of these methods are stated as "projective-generative tools," "the lead user method," and "design innovation process" (E. B. Sanders 2000), which search what people "say," "do," and "make" with verbal and visual components, watching real people, observing and listening. These methods are mostly based on understanding user needs in order to create user related knowledge which includes both explicit, observable and tacit, latent knowledge, to design activity (E. B. Sanders 2000).

It can be observed that from these developments in the *knowledge context* and *design context* of *user concept*, there seems to be an experience based and design integrated concept is formed in the field of design research.

Educational Implications

In recent years, due to its critical role for the integration of required skills of the designer, universal design approaches pay significant attention to design studio for fostering principles of universal design one emphasis of which is user inclusion to the design process. From this perspective, Elaine Ostroff (2001) states

> inclusive design requires meaningful participation by the user, and new expectations by designers that users can provide valuable insights on the usability of any design. We must move to a higher consciousness that the process of designing is not something created by "them" for "us", but something that we accomplish together.

Ostroff (1997) remarks that, in fact, the Universal Design Education Project (UDEP), a pilot program involving 22 schools of design, "found that engaging user consultants in the classroom was the single most valuable strategy in teaching universal design."

The Universal Design Education Project, in 1989, conducted by Elaine Ostroff, in the name of *Adaptive Environments*[15] can be underlined as an important contribution to the discussions. Inspiring from Lifchez's studio experience, the project aims to develop integration of universal design into the design education as a response to rapidly changing demographics in society and new regulations about built environment. With this aim, the project suggests gathering of existing experiences and proposals from design schools for the integration of these ideas in the design education. Involving user consultants in design education is one of the important aims of the project (Ostroff and Welch, 1995). For Elaine Ostroff and Polly Welch (1995),

> [d]rawing on the Lifchez project in which consultants played an essential role in challenging students' assumptions about the people who would use the building, UDEP hoped to demonstrate in range of design disciplines that involving user consultants in teaching would increase students' awareness of diversity of people who actually use products and establish the importance of user accommodation.

Results of twenty-one case studies of UDEP project are compiled in a book, entitled *Strategies for Teaching Universal Design*. It is stated that almost all schools underline and involve the issue of user integration in the design education in their proposals. And most of them propose design studio for the achievement of this integration, e.g. the University of South Western Louisiana, University of Michigan, University of Tennessee. In addition, these cases propose various strategies with the involving user consultants. Emphatic exercises are stated as the most used technique on the other hand, gaming, interview, biography, computer model and videotape techniques are other tools that are suggested for use in the studio in these cases (Ostrof and Welch 1995).

The CUDE (Clients and Users in Design Education) project, in 1998, is another example of the efforts for the user involvement to the design education.

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[15] Adaptive Environments is an "educational non-profit organization committed to advancing the role of design in expanding opportunity and enhancing experience for people of all ages and abilities." This definition is retrieved from the website of Adaptive Environments November, 2005from http://www.adaptenv.org/index.php?option=Content&Itemid=1& PHPSESSID=2beaae7c24bd0d4d0167019353bbc8db.

The goal of the project is "to bring a greater understanding of clients, users, and cross-disciplinary working into design education, using the design studio as its primary vehicle" (Nicol 2000). The project provides students an opportunity for learning how to communicate effectively with users, clients and other professions (Henderson 2000). The "live project" of Rachel Sara, whose aim was to "develop positive attitudes towards clients/users, to encourage peer group learning, and to develop skills in communication with these groups" (Sara 2000) and Prue Chiles' diploma case study "The Real Client and the Unreal Project", in 1996, that discusses how the reconnection of architecture students with the profession and building industry and better communication between them be achieved (Chiles 2000), are two of the valuable examples of the CUDE project.

In the end of 1990s and 2000s, an International Conference, Changing Architectural Education: Society's Call for a New Professionalism at De Montfort University, Leicester, UK, in 1999 and the book, entitled *Changing Architectural Education: Towards a New Professionalism*, that is extracted from the conference, are two of the important examples of this interest, in the issue of user involvement in the design education and design studio, due to determination of problems of profession and education that come from changing needs of the society. Although the scope of the conference is wide range, design studio examples for the integration of user participation, team working, and interdisciplinary working issues take an important part. One section of the book is devoted to the developing sensitivity to the needs of users and clients under the title, "Communication." This section includes both discussion of the problems and studio cases. The underlined techniques in these cases are, in general, observation, questionnaire, group working, review, and role-playing (Nicol 2000).

Considering prior examples that focus on the achievement of user-student integration, it can be stated that universal design approach with participatory methods seem to provide relevant ground for the formation of participatory environment for the generation of design student's experience with user and user related experiential knowledge. However, there are few valuable

experiences and the existing ones remain limited in terms of providing a holistic and integrated understanding about user and design in the design studio.

3.5 Evaluation of the Chapter

Critical-historical overview of the conceptual shifts in prevailing understanding about user in design, since 1940s, clarifies the influence of defined, provided, and utilized user related knowledge as *knowledge context* in design and the design model as *design context* on the formation of *user concept*, particularly on its capacity to cover qualities of user and its embeddedness in design activity.

Today, we can trace a considerable advance in conceiving user in design with the contribution of universal/inclusive design perspectives and developments in participatory approaches. Particularly concentrating on the early conceptual stages, the content of *user concept* expands to involve diversity of users and their tacit experiences. Its effectiveness and its relation with design increases. However, this improvement in *user concept* may not be observed in design practice and design education.

As stated previously, despite valuable attempts to provide necessary improvement in conceiving user both in practice and education, we can detect the continuous effects of self-referential mode and stereotype-based, passive *user concept* in these fields. We can also trace the dominant influence of provided *knowledge context*, which is based on personal experience and empirical knowledge, and *design context*, which is formed by systematic model of design, in the embodiment of *user concept* in education.

The following chapter will focus on this issue and problems of *user concept* in the architectural design studio due to its fundamental role, which largely influences development and role of *user concept* in design practice.

CHAPTER 4

THE PROBLEM OF USER CONCEPT IN THE ARCHITECTURAL DESIGN STUDIO

In the previous chapters, the role of the *user concept* of designer in research and design practice is studied in various levels and from multiple perspectives. Referring to the ongoing discussions in scholarly and professional publications of design field, this chapter tries to provide a picture about the current state of the *user concept* in the architectural design studio; the limitations at the face of current needs, mostly through the problems identified in design literature, particularly focusing on the limitations of *knowledge* and *design contexts* and underlying reasons.

With this aim, the chapter starts by a brief overview of prevalent architectural design studio practices in section 4.1. The reasons of underlined limitations are defined in detail with reference to the *knowledge* and *design contexts* in section 4.2.

4.1 User Concept in the Architectural Design Studio

In current discussions in the design field, lack of user satisfaction and confidence that originated from unhealthy, useless, inconvenient environments and products is heavily underlined. Treating user as a passive component of design, which is based on generalities and packaged information, designer's self-referential and technical approach seems to create an important barrier before knowing about users and understanding them in the design context and before the designer's contribution to participative environments, provided in research and design fields.

Recent studies show that most of the weaknesses of professional practice have their roots in contemporary educational practices, particularly in the design studio practices. Since education is the foundation of the profession and since its content and approach determine the attitudes, skills, and knowledge of designers in practice, it is essential to investigate the reasons of the weak *user concept* of designer within the prevalent practices of the design studio education.

The main issue of studio education is to provide students simulations of design problems in design practice. Because design is a highly complex activity, which demands the contribution of different bodies of knowledge from diverse disciplines (Heylighen 2000), designer must organize and communicate this multidimensional body of knowledge with design solutions. Students are expected to develop skills to bring together knowledge from different domains to inform the development of their designs.

Concerning indispensable responsibility of design studio education for the development of established attitudes of designers in design practice, the role of education in the development of *user concept* of design student as part of his/her design learning cannot be disregarded.

As in the formation of any concept, *user concept* of designer is formed through the accumulation of experiences, values, and knowledge about the phenomena with time. Education has an important role for providing relevant base for the formation of this concept. As underlined previously *knowledge context* and *design context* are critical for the formation of *user concept*. In the design studio, design students' and instructors' experiences as user and user related knowledge provided by research and provided design context in which this learning occurs as part of design learning can be stated as the main sources for building *user concept* of design students. To understand and learn about the user, although real users are significant, as stated in Chapter 3, there are limited numbers of examples, which involve real user interaction in the design studio setting.

This continuous tendency to encourage the isolation of studio and the primacy of individual constitute the main problem field of current discussions. Nicol and Philling (2000, 7) emphasize these issues among the main problem groups of architectural education;

> [a]rchitecture in practice is a participative process involving communication with many stakeholders in design: clients, users, other architects, engineers, specialist consultants, construction managers, statutory authorities and so on. However the schools, through both their formal structures and their more informal socialization processes, may not be fully preparing students in the skills needed for participative practice…design studio…still remains primarily geared towards developing individual star architects as unique and gifted designers…

According to Siu's (2003) "many programs still train design students to work in a way that makes them the decision-makers" and "quite a large number of designers still expect and believe that they are able to predict users' ways of operating, predetermine users' likes and dislikes, and then produce appropriate designs."

In the common studio setting, user is generally represented by students and instructors and design student's image about user is developed on these limited experiences and knowledge. Morrow (2000, 43-44) underlines this narrow context as follows;

> [t]hose studying and teaching in architecture schools typically share similar backgrounds, social class, aspirations and political affiliations… it is contended that this homogeneity in their background and culture contributes to the failure of architects to take account of the 'otherness.'

It is observed from the recent discussions that educational settings cannot provide enough support to the development of *user concept* that embraces diversity of users, values, experiences of user and supports integration with

design understanding. Following section aims to reveal the underlying reasons of existing passive user understanding in architectural design studio with regard to the provided knowledge base in the studio.

4.2 Limitations of Knowledge Context and Design Context in the Architectural Design Studio

Based on the issues brought up in the previous chapters, the reasons of the limited formation of *user concept* in the architectural design studio can be grouped in relation to *knowledge context* and *design context*, which are provided in the architectural design studio;

- *Knowledge context* includes two-category of problems. The first category associates with the content of user related knowledge introduced in the design studio, which raises questions concerning the capacity of knowledge sources to reflect required qualities of user. The second category refers how design student learns the issue of user, or design student's way of knowing user, which is about the way design student acquires user related knowledge, and limitations of knowledge sources to conceive user in its wholeness and reality. Two main user related knowledge generators can be observed in the design studio; one is the experiences of student and instructors, as users and the other is user related knowledge provided by behavioral and social sciences research.

- On the other hand, problems of *design context* are related to the model of design, which is observed in the design studio education extensively, and student's understanding about user in this design context. In other words, limitations of the conventional way of doing design in the design studio, which comes from systematic understanding of design, as analysis-synthesis, for integration of user related knowledge to design presents another category of problems (*design context*).

Following part of the study will tackle these problems in a broad sense.

4.2.1 Knowledge Context

Content of User Related Knowledge

With regard to the two main sources of user related knowledge in the design studio; knowledge and experiences of design students and instructors as user, and knowledge provided by research, the problems of the capacity of user related knowledge provided in the design studio could be examined.

Student as user

In design studio pedagogy, it is observed that as a general approach, the instructor provides instruction to the learner in an interactive situation in which design problem situation is essentially defined and provided by the instructor. This pattern, in which tutors and design students are main elements, mainly comes from the "atelier master" and student relation of Ecole des Beaux Arts (Cuff 1991, 28). This process is based largely on personality and experience of both instructor and student.

In this process, which is mainly centered on student-instructor relation, instructor determines the conditions of the design problem, in which design learning will occur. In this prepared situation, user role is defined or acted usually by instructors. Cuff (1991) states that in architectural design studio, generally, the user is described and constructed by the instructor and often as "in the architect's own image."

In this common model, formation of design student's *user concept* is based primarily on the accumulation of user related knowledge provided by design students and instructor's personal knowledge about users and their own experiences as users in each experience with new design problem. These experiences derive mainly from everyday life and learning environment of students and facilitate making predictions about users for design solutions.

Considering that direct experience with the phenomena has great influence for building mental models, these experiences of students and instructors could be seen valuable base to form a rigorous *user concept* in design studio, providing

a chance to reflect complicated features of use experiences, problems, and implicit needs. However, if we look at their capacity to refer needs, problems, and expectations of diverse users, they remain too narrow and insufficient. In other words, these user-related knowledge sources in the design studio are limited with students and instructor's worldview and not enough to predict diverse nature of other users' needs and experiences. As Zeisel (1984, 34) states, "the gap between decision maker and user is too great to be overcome by designers using only a personal perspective."

Research results

Except individual experiences and knowledge of design students and the instructor, another knowledge source for building *user concept* in the architectural design studio is the research data provided in studio setting. Prevalent form of research-based user related knowledge in the design studio is often provided under the influence of positivist conception of knowledge and by empirical methods. In this way, supplied knowledge is defined as;

> … theories or constructs supported by measurable facts obtained by 'objective' observers… The emphasis is on searching for universal laws rather than particulars of each situation and on measurable aspects of the phenomena rather than those less easily quantified (Sancar 1996, 133).

Despite its value for the design process, user related knowledge as empirical research results has limits to represent contextuality of the user, provide specificities of the situation and meet user requirements. It cannot reflect "diversity of human nature, culture" (Hasdoğan 1996; Luck 2001). Another problem of this approach is that user is not really part of this process, but represented by the researcher or designer (E. Sanders 2002).

Considering the capacity of provided user related knowledge in the design studio, existing sources of user related knowledge show limitations. In this context, students' learning about user is based mainly on self-referential

knowledge and experiences and general qualities of users in a retrospective way. It can be stated that, existing *knowledge context* seems to present only a small and narrow part of diverse, complex, and dynamic context of user, which is not enough to the formation of a rigorous *user concept* in the architectural design studio.

The Way of Knowing User

In the formation of design student's *user concept*, another critical factor can be underlined as the way of knowing the user, or the way of approaching the user provided in the design studio. Kolb (1984, 41), in his study on experiential learning, mentions two opposite, but complementary modes of grasping reality; abstract and concrete. The former refers to "conceptual interpretation and symbolic representation," which is called comprehension and, the latter refers "tangible, felt qualities of immediate experience" which is called apprehension. William James (1950) describes this distinction between two ways of knowing as "knowledge of acquaintance" and "knowledge-about." This distinction can be helpful to clarify the nature of design student's way of knowing the user in the design studio.

It is commonly observed that design student's conception of user is sustained on self-models of their own or representative models from immediate environment, such as instructor's or other students', and the theories about user. However, it is clear that student's interaction with few representative users in a defined, prepared, and carefully bounded design problem context cannot provide enough insight and experience about the real user phenomena and cannot include reference to diversity of users. Cuff (1991) defines design school's emphasis on the representation of design activity as purified from its errors, difficulties, problems and as isolated activity. She states that;

> an architect-teacher provides student with guidance on design problems far removed from the untidy, awkward problems… Schools highlight the importance of pure design by removing from its study key aspects of professional practice… Problems are composed for

didactic reasons, so complex problems are simplified, variables are isolated for study.

On the other hand, knowledge provided by prevailing positivist conception brings design studio a theoretical representation of user, which is based largely on symbolic generalizations. Schön (1988, 7) evaluates these theoretical generalizations in terms of their utilization in the design studio as stating;

> When science is presented in a retrospective way, the symbolic generalizations used to describe research results do not convey the feel of the phenomena they describe, and do little help us recognize them when we see them… The modes of experimentation peculiar to scientific inquiry are characterized by errors, anomalies, uncertainties, and confusions- all of which are masked by the neat, self-contained formulas and formal models typical of retrospective presentations of science.

The representation of user as generalities provide design student only a theoretical way of knowing user and this way of knowing user does not involve errors and uncertainties. Therefore, it is not sufficient to reflect essential characteristics of user; it cannot cover needs, problems, and solutions in relation to each other as a holistic way and cannot allow feeling the user phenomena.

Therefore, it can be stated that design student's way of knowing user, through general theories and with little reference to complex nature of real users in a defined, controlled, and distilled learning environment is not sufficient to structure a rigorous, realistic image of user in the design studio. Remembering Kolb's complementary opposite ways of conceiving the world; abstract and concrete knowing, it can be observed that despite the common emphasis on theoretical representation of the user, experiential, concrete way of representing or knowing user is limited in the architectural design studio.

4.2.2 Design Context: Knowing User as Part of Design Knowing

The methodological problems are associated with the *design context* of student's conceiving/learning user in the design studio. Underlying design model of studio pedagogy, the character of the relation between knowledge and design and the nature, representation and integration of user related knowledge in this context are the main issues, which influence the student's understanding about user in relation to his/her design learning/knowing. *Design context* provided in design studio, in which the student's learning of user occurs as part of design learning, includes learning how to position user as a knowledge source in design, how to determine the need for knowledge about user in relation to design problem, and how to translate user related knowledge to design solutions.

The prevalent design model that is mainly underlined and introduced in the design studio is based on systematic understanding of design and called generally analysis-synthesis (Ledewitzs 1985; Cuff 1991; Nicol 2000). In this view of design, as underlined previous chapter, design problem is treated as "well-defined" like natural science problems, which are definable, separable, and have findable solutions (Rittel and Webber 1973). Design process is divided as data gathering, analyzing, and synthesizing design solutions (Jones 1970; Hillier et al. 1972; Ledewitz 1985). Application of this approach to design studio is common and reflects similar characteristics; "students would be taught to analyze problems and to synthesize solutions" (Hillier, Musgrove and O'Sullivan 1972, 70). Ledewitz (1985, 3) explains general application of this approach in design studio as follows;

> The first part, which might take from a few days to many weeks, is the analysis phase, in which site, program, building type, context, and other investigations are carried out. Analytical sketches, diagrams… and reports are produced, but preconceived design concepts are discouraged as premature… The analysis stage of studio project is commonly characterized by well-defined, explicit procedures, while the synthesis stage is relatively unstructured… The general mode of synthesis teaching is individualized board crit, with or without interim group reviews. Students have the primary responsibility for finding

their way through the problem, and the instructor's role is to see that they do not stray too far off-course.

When student's learning about user is placed in this design context, some deficiencies seem to reveal in relation to this divided process and its designated knowledge form.

The main problem seems to come from the divided process as analysis and synthesis. Ledewitz (1985, 3) remarks that the analysis of the problems by students is not incorporated into their synthesis as an important problem, and a consequent lack of first intentions appears in the solutions effectively. Her following statements may clarify this problem;

> Jurors sometimes comment on the discontinuity of thought between early analytic diagrams and the final design proposal… In some cases, major inconsistencies between a problem definition and its solution are not even recognized by the student, much less reconciled. The dichotomy is even more serious when students begin to see form-making as entirely separate and different from problem-solving.

In this process, it is clear that translation of provided user related knowledge, as in the form of experiences or research data, to design solutions is difficult for design student due to the division between phases. Ledewitz (1985, 4) states, "[p]roblem-solving, as we understand it today, is not aggregation of objectively-derived facts, but a dialectic between pre-conceived solutions and observed facts."

Another difficulty is about the relevancy of knowledge provided in analysis activity for use in design. The analysis phase is mostly dedicated to analysis of problem elements and involves mostly descriptive knowledge about them, which conceives user related knowledge as empirical, objective, and generalized. On the other hand, designer's task is closely related to the specificities of the situation, contextual knowledge, and intentions and meanings. Despite the fact that this type of knowledge provides necessary

information about components of the problem, it has limits to provide prescriptive, contextual, and up to date qualities and therefore it is weak to support solution generation.

On the other hand, when students cannot easily transform accumulated knowledge from analysis phase to synthesis, as Ledewitz (1985, 4) states, they try to bridge this gap with quick attempts to generate solution concepts;

> [they] often hope for "the big idea" that will bridge the gap for them. If the big idea or "right" design concept, is seen as an unpredictable inspiration… Students who are conscious of the need for a strong design concept may therefore hold fast to an inconsequential idea or an irrelevant metaphor, no matter how much difficulty they have in working it out.

For this limited utilization of user related knowledge both in analysis and synthesis phases of prevalent design model in design studio, Hillier et al. state that;

> … students are learning two different and largely unrelated strategies: methods of analyzing a problem into its elements; and a knowledge of informal codes and solution typologies, which they pick up almost as by-products of architectural education, and which act as the prestructuring that enables them actually to design buildings.

Heylighen (2000, 12-14) remarks two critical ways of knowing in design as "passive" and "active" and she explains designer's activity in design as "walking on a thin line between two ways of knowing [passive-active] two types of knowledge [component-concept]."[16]

Passive way of knowing can be defined as scientific, which "considers knowledge as a matter of the observed object alone, abstract and academic,"

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[16] Emphasized knowing and knowledge types of Heylighen have been explained previously in Chapter 2; "two ways of knowing" as "passive" and "active" and "two types of knowledge" as "component" and "concept."

and contributes designer to analyse and evaluate (Heylighen 2000, 12). It is used generally for testing of solution approximations (Zeisel 1984). Active way of knowing in design, on the other hand, refers constructive way of knowing for the creation of design solutions. This type of knowing, as Heylighen states (2000, 12), "is embedded in and developed through the action of designing… forces the knower into the role of an active, integrated actor."

Considering provided design context in existing design studio approaches, it can be observed that generated and utilized knowledge in two phases of analysis-synthesis model remain limited and narrow, cannot affect each other, and indicates either passive user related knowledge use or active knowing, but with limited concept knowledge.

On this basis, it is clear that, user related knowledge, provided and used in analysis-synthesis model in design studio, seems to influence formation of design student's *user concept* as a passive component in design, not as part of active knowing in design. With this kind of knowledge-design relation, design student would have a difficulty to grasp operational power, or effects of knowing about user in design.

4.3 Evaluation of the Chapter

This chapter aimed to clarify the problems of the existing *user concept* in the architectural design studio and to reveal underlying reasons, particularly, in relation to the *knowledge context* and *design context*.

Design education, particularly the design studio is the core to provide a relevant knowledge base for the formation of designer's *user concept*. However, it is limited in terms of providing relevant *knowledge context* and *design context* and integrated relation between them. In particular, the content of provided user related knowledge in design studio is limited to narrow experiences and general, retrospective qualities, which are based widely on experiences and knowledge of design students and instructors and research data provided in the design studio. User related knowledge presented by these

sources seems to remain insufficient to cover contextual qualities, particularities, experiences, and diversity of users.

How design student learn/expose user in design studio can be observed as another factor, which has influence on the formation of *user concept*. Existing user related knowledge sources in design studio provide student a general picture about user, which cannot refer to real user phenomena with all its peculiarities and uncertainties combined as a holistic way. Therefore, the content of user related knowledge and the way of knowing user provided in the architectural design studio lead to the building of a limited *knowledge context*.

On the other hand, prevailing effects of analysis-synthesis model in the architectural design studio are observed as the main constituent of *design context* of *user concept*. Its emphasis on separation between analysis and synthesis weakens the contribution of user related knowledge to synthesis and urges utilization of user related knowledge mostly for analysis and evaluation. This seems to undermine the relation between user related knowledge and design. It is reasonable to state that *design context* defines the way in which *knowledge context* can be utilized and in this relation, not only the design process but also the quality of user related knowledge plays significant role. Thus, limitations of *knowledge context* in providing concept knowledge comes up as another factor, which restricts user related knowledge as passive knowing in design, provides little support to contribute active knowing in design, and strengthens the detachment between analysis and synthesis.

It can be observed that provided *design context* leads to the formation of *user concept* as a passive component of design in the architectural design studio. Its indicated knowledge form seems to fall short for supporting design concept generation. These limitations of *knowledge* and *design contexts* at the end lead to the formation of user context of design problem as insufficient and concurrently weaken the formation of design student's *user concept*. Figure 2 summarizes the main reasons of this limitation in *knowledge* and *design contexts*.

level	category	sources	problem
knowledge context	1. content of knowledge	students and instructors as user	emphasis is on subjective, intangible qualities but limited to individual experience and narrow context, cannot provide diversity, specifities of situation
		Research data	emphasis is on retrospective general qualities of user/user needs, may not involve contextual, up-to-date knowledge about user, and diversity of users
	2. way of knowing	students and instructors as user	by experience, but limited to individual experience
		Research	user is represented with only theories and generalities
		DETACHMENT	
design context	3. underlined model of design		user related knowledge (*knowledge context*) remains detached from design (separation between analysis and synthesis parts) and is part of only passive knowing in design/separated from active knowing

Figure 2 The possible reasons of limited *user concept* in the architectural design studio.

PART II: TOWARDS AN UNDERSTANDING OF EXPERIENCE-BASED AND DESIGN-INTEGRATED USER CONCEPT IN ARCHITECTURAL DESIGN STUDIO

CHAPTER 5

REFRAMING USER CONCEPT IN THE ARCHITECTURAL DESIGN STUDIO: REQUIRED DIMENSIONS

As pointed out in Part I, prevailing *user concept* fails to satisfy the need for comprehensive representation of user and formation of *user concept* in the architectural design studio. Underlined problems indicate a need for a shift in student's understanding about user in the design studio. It is clear that underlined problems not only refer to limited capacity of *knowledge context*, but also indicate separation between *knowledge* and *design contexts*. Reframing of user understanding in the design studio requires broadening of *knowledge context* and integration of *knowledge context to design context*.

This chapter aims to bring the key issues of this broadening and integration into a sharper focus and provide a conceptual framework for the formation of required *user concept* in the architectural design studio. With this aim, Section 5.1 concentrates on "universal design" perspective, particularly on its right-based approach and diversity-included user conception and required broadening of knowledge context in the architectural design studio is defined through the contribution of its core notions "diversity," "user experience," and "knowing user by experience." Moreover, for this broadening, the value of actual user experience in the design studio is underlined in this section. In section 5.2, integration of *knowledge context* to *design context*, particularly to active knowing in problem structuring, is framed through the defining required

constructive relation with Cross' notion of "designerly ways of knowing" in the light of descriptive approaches to design. With this way, student's user understanding as part of his/her design knowing/learning is reconceptualized as "designerly way of knowing user." This section underlines two constituents of this integrated understanding; user related knowledge generation within design activity, particularly within problem structuring and generation of design strategies/concepts through the context of user, in other words generation of user embedded design knowledge.

5.1 Broadening of Knowledge Context: Universal Design as a Unifying Perspective

As underlined previously (see Chapter 3), the principle aim of universal design approach can be summarized as creating "an open, accessible, and integrated world for the future: a supportive environment of buildings, products, and services that make it possible for everyone to live independent and fulfilling lives, for as long as possible" (Coleman 2001).

With this perspective, universal design helps to frame user providing a unifying understanding in two interrelated levels; by considering user with its diversity, regardless of age, gender, culture, and physical ability, and by conceiving design with this diversity of users included.

For setting the dimensions of required shift in understanding about user in the design studio, particularly for defining *knowledge context*, universal design may provide a sufficient ground to cover user more broadly. Its emphasis on "inclusion of all" necessitates defining user in a broader sense, regarding diversity and experiences of them, and bringing knowledge about them as much as possible.

On this basis, extension of content of user related knowledge towards diversity and experiences of users and knowing user by experience can be underlined as required dimensions. Following part aims to provide a relevant base for defining these dimensions of *knowledge context* of *user concept* in the architectural design studio.

5.1.1 Extending the Content towards Experiences of Diverse Users

One of the most fundamental problems underlined in the previous chapter is the narrow content of user related knowledge. What is needed is the broadening the content beyond generalities, explicit quantitative qualities and needs, and individual experiences as user, to the richness of everyday life of diverse users. Considering recent discussions, it can be stated that underlined narrow content of user related knowledge provided in the design studio, necessitates an embracing perspective that involves characteristics, abilities, and experiences of diverse users.

From the end of 1980s, we can trace the development of universal design approach involving participatory methods. Despite different connotations of the notion in different design domains, universal design, rather than being a method or recipe, is conceived as an all-encompassing perspective, which calls for a sensitive attitude for the needs of all people. It provides an embracing perspective about user, with its purposeful emphasis on human diversity and inclusion of all people to the greatest extent possible (Welch 1995; Ostroff 1995, 2001). As it is stated by Ostroff, universal design marks a shift in understanding about user from "narrow code compliance to meet the specialized needs of a few to a more inclusive design process for everyone."

This broad notion contains the diversity of users first. To respond to these increasingly diverse users and their needs and to gain knowledge about them, the necessity of grasping their everyday experiences deeply in their wholeness is underlined with the contribution of contemporary participatory design practices. Considering limitations of the content of user related knowledge provided in the design studio, required extension should be to involve experiences of diverse users. The following section focuses on this necessary extension of content of user related knowledge in the design studio.

Diversity of Users

As underlined previously, one of the key emphases of universal design approach is its insistence to include diversity of people, rather than forcing people into one general size assuming that it fits all approaches.

Universal design's right-based roots mainly take part in the development of the concept of "diversity." Weisman (2001) underlines evolvement of universal design as one aspect of a larger trend in the design fields, and states that;

> [s]lowly, the world is moving towards a politics of greater inclusion, connection, and regeneration that will restore healing and wholeness within the art of living in the twenty-first century. This paradigm shift represents, at the very least, a rightful and timely expression of "universal civility," and at the very most, an essential ethos for sustaining life in the coming decades.

The significant role of design in eliminating problems and advancing "human dignity" are underlined strongly. Weisman (2001) states that;

> Universal design is particularly relevant to the environmental design fields… because in its making, use, and design, the built environment shapes human experience, identity, and consciousness, and reinforces assumptions about culture and politics. Any serious effort to establish equitable and sustainable communities must involve redefining and restructuring both how people inhabit physical space and how designers teach and practice "place making."

Within this developing understanding, as politics of inclusion and wholeness, the initial influences of universal design can be observed on "the nondiscriminatory accommodations for people with disabilities and the attention to the aging demographics" Ostroff (2001b). The originating idea of diversity in universal design concept refers a major shift in understanding disability. Welch and Jones state that (2001) "universal design evolves as a concept for a more equitable world and as a value in designing places that meet

the needs of a variety of people." The concept of "diversity" seems to be the principle element of unifying conception of user from universal design perspective, while responding to the idea of "more equitable world" (Welch and Jones 2001).

The implication of this diversity-based understanding about user for design is seeking solutions, which may respond these diverse needs as much as possible. Kenning and Ryhl (2002) state that;

> ... our physical environment and articles for everyday use should be designed in such a way that all people can, to the largest extent possible, participate and use same design, and as a minimum the possibility of adjusting or changing existing design should exist thereby including all persons in a potential user group.

Anthony (2001) underlines that in the face of diversifying users; designers should cover knowledge and understanding about values of users instead of basing their own values and perspectives. Bitterman and Tauke (2004) remark that this kind of *user conception* requires;

> recognizing and celebrating diversity, recognizing wide array of possible values, ways of thinking and being (which lead complexity of needs), developing ways to connect these qualities with design solutions, and recognizing and valuing experiences of users (as an inspiring source to cope with their complex needs and to generate more inclusive design ideas/solutions).

On this basis, considering existing limitations in the capacity of provided user related knowledge in the architectural design studio, broadening the *knowledge context* beyond narrow context of personal experiences and towards awareness about diversity of users is required (*knowledge context*). This expansion in *knowledge context* contributes formation of *user concept*'s capacity to reflect user qualities and sufficient representation of user in the design studio. Developing a diversity-focused understanding in design studio may guide

design student to seek, recognize, and value differences and to respond and manage this diversity with design solutions.

Experiences of User

The value of experiences of users is strongly underlined in universal design approach to grasp diversity and to broaden and deepen understanding about user. Understanding how users relate to environments is essential to development of an awareness about diversity of users. This understanding requires experiential knowledge of user that based on user's interactions with his/her environment (Margolin 1997).

Ostroff (1997) remarks the potentials of considering experiences of users as "an extraordinary and often overlooked natural resource" in design process and states that designers can learn great deal from these experiences. According to Ostroff,

> [t]hese diverse users have developed strategies for coping with the barriers and hazards they encounter everyday. The experience of the user/expert is usually in strong contrast to the life experience of the most designers... These experiences offer unique and expanded insights to universal designers... offer the perspective of life experience and firsthand qualitative information.

She calls them user/experts, as anyone "who has developed natural experiences in dealing with the challenges of our built environment" and those which include "parents managing with toddlers, older people with changing vision or stamina, people of short stature, limited grasp or who use wheelchairs."

Also Whitney (2004) underlines that in addition to the physical and cognitive human factors, today, understanding and eliciting the total user experience, which certainly includes social, cultural and emotional experiences, are necessary for developing an embracing understanding about user. Luck (2001) calls this "giving users a voice" as a way to include user's view in design process.

With the recent developments particularly in industrial design and product design fields, the growth of new approaches like "experience design," related to conceiving "experience" in design can be observed. Sanders (2002) defines "experience design" as designing users' experiences of things, events and places and states that

> [i]n fact, if we can learn to access people's experiences (past, current and potential), then we can make user experience the source of inspiration and ideation for design. And by making user experience the source of inspiration, we are better able to design for experiencing.

This approach extends the content of experience from basic experiences to sensorial, intellectual, emotional, and cultural experiences. Sanders (2002) mentions the main routes for accessing various levels of experiences of users;

> Discovering what people think and know provides us with their perceptions of experience. Understanding how people feel gives us the ability to empathize with them. This way of knowing provides tacit knowledge, i.e., knowledge that can't readily be expressed in words (Polanyi, 1983). Seeing and appreciating what people dream shows us how their future could change for the better. It is another form of tacit knowledge that can reveal latent needs, i.e., needs not recognizable until the future. For example, the Internet has been revealing many previously latent communication needs.

She also remarks that empathizing with the user requires accessing the deepest levels of user experiences and "[w]hen all three level perspectives (what people do, what people say, and what people make) are explored simultaneously, one can more readily understand and establish empathy" (Sanders 2002).

As Moore (2001) states that "while it is not usually possible for one individual to fully experience and comprehend the life circumstance of another person, every person can consider others in making choices and determinations that affect all people equally." The fundamental objective can be the awareness and openness to learn.

Considering that experiences of users are critical to understand real needs and expectations, and to understand diversity of user, it is important to extend *knowledge context* towards experiences of users for moving beyond the self-referential understanding about user and for developing an awareness about the richness and value of experiences of diverse users in design studio.

5.1.2 Knowing User by Experience

It is underlined that prevailing *user concept* in design studio is largely based on theoretical understanding of user, which remains insufficient to reflect a holistic, actual image and dynamic nature of users. Despite the value of learning user through theoretical knowledge about user, it is clear that making theoretical sources the only source for the formation of *user concept* in design studio creates limitations. It is strongly underlined that students learn better through a combination of hearing, seeing, and hands-on experience. Lawson (1997) also underlines that "human understanding of concepts may be built up from very basic bodily experiences accumulated over time through physical interactions with the external world."

Kolb (1984) emphasizes that the student must physically interact with the material in order to understand it completely. This interaction gives rise to learning in a continuous cycle, in which student forms abstract concepts and generalizations, tests the implications of these concepts in new situations with concrete experience and then reflects on what was observed. It is this experience that leads the student to feel acquainted with the material rather than simply having knowledge about it.

Knowing user by experience, including their needs, desires, problems and expertise in spatial, environmental solutions as part of their environment leads to an empathy-oriented understanding about user, which is most critical to internalize knowledge of user into learning and provides opportunity carry these experiences to other situations effectively.

Yardly (1999) underlines these two critical results of empathic understanding stating that;

empathy seems to involve two components: ability to understand another person's feelings of "social insight" and the ability to experience and effective response based on that information… the ability to empathize involves seeing alternative perspectives, being "in touch" with emotional states, and thinking and responding quickly as information is provided through both verbal and nonverbal channels.

It is also underlined that development in the empathic understanding, providing an opportunity to view from another perspective, seems to have great effects on the change in attitude, feeling, and behavior (Yardly 1999).

Therefore, it is reasonable to state that experience based knowing/learning about user is critical for student to build an actual image of user, to internalize existing user related knowledge and to reflect on the design problem from the perspective of users (or potential users) with the awareness about diversity of users.

Formation of *user concept* in the architectural design studio necessitates the contribution of knowing/learning user by experience, in addition to provided theoretical base, in order to develop a sufficient and embracing understanding about user.

Need for Actual User Experience in the Architectural Design Studio

All these dimensions for broadening of *knowledge context* remark the need for placing actual user experience into the architectural design studio education. It is clear that experience with actual users is valuable to conceive users with their complex and dynamic dimensions. Actual user experience has potential to contribute to students' tacit knowledge about users and their relations with built environment, which is difficult to provide with other methods in architectural design studio. Welch (2001) remarks the value of actual user in the design studio;

for many students it is like seeing for the first time a world they think they know and understand. User/consultants can be very effective at shifting the perception of accommodation beyond the technical focus

of codes and at illustrating the variability in how people actually use the environment.

Formation of *knowledge context*, grounding on actual user seems necessary to provide opportunity for students to elicit experiences of diverse users, to grasp actual image of user, to develop empathy based understanding about user in architectural design studio.

On this conceptual base and with regard to the underlined dimensions, *knowledge context* in architectural design studio can be organized grounding on actual user experience and employing methods with reference to this end. This broadening of *knowledge context* from theory-based and narrow position to an experience-based one may contribute formation of experience-based *user concept* in architectural design studio.

Although broadening of knowledge context is valuable for the formation of an embracing understanding about user in studio, it is not enough to integrate this user understanding to design knowing/learning of student. In other words, it is not sufficient to bring knowledge, experiences, needs, problems, expectations of diverse users in design studio (*knowledge context*) for translation these qualities to design solutions effectively. User related knowledge must be part of active/constructive way of knowing in design (*design context*). Through understanding user and user qualities with this "designerly" way, effective integration between user related knowledge and design can be achieved.

5.2 Design Context: Designerly Way of Knowing User

It can be stated that one of the two critical contexts, which have an important impact on the formation of *user concept* in design studio, is *design context*. While *knowledge context* determines the content and the way of student's knowing about user, d*esign context* can be defined as a context that provides the design related conditions of student's knowing about user *(knowledge context)*. It has the capacity to determine the formation of role and functionality of student's *user concept* in design. How user related knowledge is managed in

design activity is more critical and is related to both the design model and the form of knowledge needed in design activity.

Underlined limitations of existing *design context* in the architectural design studio can be summarized as provided design models' division into analysis and synthesis, which leads to the detachment between *knowledge context* and *design context*, and to the deficiency of user related knowledge, provided in the analysis in generating design concepts, preventing its contribution to synthesis of design solutions effectively.

Desired integrated relation between *knowledge* and *design contexts* can be framed by addressing Nigel Cross' (1982, 2006) notion of "designerly ways of knowing." As stated previously (Chapter 3-4), with this notion, Cross draws attention to the actual nature of design activity, which is constructive, as different from typical scientific activity, which is analytic. This process is defined as a design ability which "founded on the resolution of ill-defined problems by adopting a solution-focusing strategy and productive or appositional styles of thinking… relies fundamentally on non-verbal media of thought and communication" (Cross 2006, 19).

In this "designerly" activity, problem structuring reveals as the main activity, which leads to constructive knowing. Although much of the significant aspects of problem structuring are addressed in Chapter 2 to clarify the importance and role of designer's *user concept* in problem structuring activity, it is necessary to underline some critical features again, in order to frame active-constructive knowing about user as part of designerly ways of knowing.

Proposing a conjecture and co-evaluating both the problem and its solution are underlined by Cross (2006) as significant patterns for problem structuring. Referring Hillier and Leman (1974) and Darke (1979), Cross states that;

> it is only in terms of a conjectured solution that the problem can be contained within manageable bounds… What designers tend to do, therefore, is to seek, or impose a "primary generator" which both

defines the limits of the problem and suggests the nature of its possible solution.

Active-constructive mode of knowing centered on this dialectical relation between problem and solution in problem structuring is initiated by an early tentative solution and it leads to knowledge generation.

If we reconsider the problem of *design context* in the design studio, we can say that provided way of knowing user in design is not essentially "designerly," due to the separation between problem analysis and solution synthesis and the lack of relevant primary generators, which behave as knowledge channels between user related knowledge and solutions.

Considering the notion of "designerly ways of knowing" and focusing on "problem structuring," following part concentrates on the formation of dialectical relation between *knowledge* and *design contexts* through user related knowledge generation in problem structuring and acquiring design concepts through acquired user related knowledge base. This constructive process may lead to the formation of students' user understanding as integrated with design knowing/learning of them, in other words, it may lead to the formation of "designerly way of knowing user" in the architectural design studio.

5.2.1 User Related Knowledge Generation in Problem Structuring

Considering integrated problem-solution generation as a fundamental feature of "designerly ways of knowing," it is worth to be addressed in order to provide a base for more design-integrated understanding about user in the design studio.

The ill-defined or wicked character of design problems and difficulty of coping with these problems (Rittel and Webber 1973) are indicated previously (Chapter 2). Lawson (2004) states that "… designing often begins without any clear statement of the problem as a whole. Some fairly general objectives may exist, but there is rarely an unambiguous way of knowing how well one is

doing as one proceeds." Therefore, systematic way of approaching design problems has difficulty to achieve effective solutions (See Chapter 3, 4).

It is clear that tackling design problems necessitates different kind of approaches from conventional systematic ones. Cross (1982, 2006) states, "the solution is not simply lying there among the data, like the dog among the spots in the well known perceptual puzzle; it has to be actively constructed by the designer's own efforts." Cross (2006, 79) refers that "[m]any studies suggest that designers move rapidly to early solution conjectures, and use these conjectures as means of exploring and defining problem-and-solution together." That is to say, problem and solution emerge together as part of constructive mode of knowing in design.

Designer's oscillation between problem and tentative solution provides partially structuring of both problem and solution together. Cross explains this constructive process, referring to the protocol study conducted by Cross and Dorst in 1998, as follows;

> The designers start by exploring the [problem space], and find, discover, or recognize a partial structure. That partial structure is then used to provide them also with partial structuring of the [solution space]. They consider the implications of the partial structure within the [solution space], use it to generate some initial ideas for the form of a design concept, an so extend and develop the partial structuring… They transfer the developed partial structure back into the [problem space], and again consider implications and extend the structuring of the [problem space].

It is clear that generation of knowledge in designerly way of knowing is situated in design activity and provided by bringing or finding a tentative solution first. This early solution concept facilitates generation of knowledge about design problem and urges designer to seek new information to test. Lawson (2004, 28) explains this as "a transformation between problem needs and requirements on the one hand and the solution possibilities on the other."

Grounding on Cross' conceptualization of design knowing, it is reasonable to state that formation of a *user concept* in design studio, as integrated with design knowing, in other words, developing a "designerly way of knowing user" in design studio necessitates utilization of user related knowledge as part of constructive knowing. This active-constructive mode of knowing depends on integration of analysis with synthesis, generation of user related knowledge within design activity and requires placing *knowledge context* into *design context* in the design studio.

Generation of knowledge as part of design activity strongly demands search for knowledge and selection of necessary features under the guidance of design problem. This approach is mainly based on Popper's conception of scientific discoveries that essentially involve problem/theories preceding observations. He suggests that our observations are mainly based on our preliminary theories (and problems), and we observe situations from this problem perspective, then, according to the results of our observations we give up, or support, or develop our theories (Popper 1965).

For the integration of analysis with synthesis, Schön's (1988) formulation of research-design integration in the design studio can be addressed. Grounding on the idea that design is a form of on-the-spot (prospective) inquiry, he underlines introducing research to design studio not in the form of research results but as knowledge of research process (the logic and the way of doing research). He explains this research-practice integration by stating;

> … research is an activity of practitioners. It is triggered by features of the practice situation, undertaken on the spot, and immediately linked to action. There is no question of an "exchange" between research and practice or of the "implementation" of research results, when the frame-or theory- testing experiments of the practitioner at the same time transform the practice situation (1983, 308).

Emphasizing this situated feature of knowledge with the design problem, it can be stated that required generation of user related knowledge within design, can

be formulated as student's user research process as part of problem structuring in architectural design studio.

This kind of formulation of user related knowledge generation both provides students an opportunity to experience diversity, elicit experiences of users, knowing by experience, and to utilize this problem-situated user related knowledge in problem structuring more effectively. In other words, seeing the user situation from the perspective of design problem and selecting required knowledge from this perspective for design use may contribute development of a "designerly understanding" about user in architectural design studio.

The potentials of integration of user search to design investigation and generation of user related knowledge with design problem in mind will be exemplified in Chapter 6.

5.2.2 Acquiring Design Concepts through User

Providing or finding a tentative solution to define and search for design problem is underlined in previous part as a significant feature of "designerly ways of knowing." In this oscillating process, tentative solution or design concept creates "a dialectic between pre-conceived solutions and observed facts" (Ledewitz 1985) and behaves as a "knowledge channel" between knowledge base and solution (Heylighen 2000).

Heylighen (2000, 9) generalizes these underlying ideas as concepts and states that

> [t]hese underlying ideas are known to architects by many names, ranging from "image" [Alexander, 1979] over "primary generator" [Darke, 1978] to "organising principle" [Rowe, 1987], but most often are called the "parti" [Leupen, Grafe, Körnig, Lampe & De Zeeuw, 1997] or "concept [Lawson, 1994]. Such concept does not necessarily require the addition of an extra ingredient. In fact, every aspect already present in the design situation, e.g. a special feature of the site or programme, or a curious trait of the client, may qualify for this focal role.

Rowe (1982, 18) explains this kind of approach as "heuristic reasoning" and defines this reasoning as "involving solution images, analogies, or restricted sets of form-giving rules that partially and provisionally define the "ends" or solution state of the problem, i.e., what it should be like." Heylighen (2000, 16) makes another categorization about the sources of concept knowledge, involving number of mechanism, devices, and strategies, used in particularly in the early stages of design. Some of them are heuristic search, analogy, metaphorization, typology, and case. She states, "they can be seen as instrumental for managing the complexity of architectural design" (2000, 16).

It is underlined that while approaching design problem, designers generate or find these design concepts. Heylighen draws attention to the designer's intense search for concept during particularly early conceptual stage; "architects are said to spend much time thinking about existing designs, reviewing literature, pouring over formal and informal documentation of earlier works."

However, the main source of designer's concept knowledge is his/her concept repertoire or prior knowledge. Schön (1983, 166) states that designer reflects on the phenomena and "construct new problems and models derived, not from application of research-based theories, but from their repertoires of familiar examples and themes." Lawson (2004, 29) proposes that;

> [w]ithout experience as a designer, and in particular knowledge of a wide range of design solutions and their characteristics, it is difficult to understand what knowledge is important when it is needed and why in the design process.

It can be stated that active-constructive knowing in design is highly dependent on designer's application of concept knowledge to design problem, during problem structuring. Therefore, it is clear that the integration of user related knowledge to active-constructive knowing in design activity requires involving concept knowledge, or generation of design concepts through user related knowledge.

For generation of user related concept knowledge, Schön's (1988) discussion about linking "exemplars" of science with "architectural types" as exemplar-like structures in design for integration of knowledge of science to design in architectural design studio may provide a relevant base. In this discussion, Schön remarks the importance of "exemplars" as canonical and shared problems, which bear knowledge of discipline, to learn science. In parallel, he points out similar kind of structures in design, like types, analogies, previous solutions, cases, which bear design knowledge and generators of design ideas. He values providing linkages between "exemplars of design" and "exemplars of science" for students' learning design, and states that:

> [i]t may be interesting, then, to explore how architectural types may be enriched through linkages to exemplars in the applied sciences-how functional types of buildings, for example, may be enriched to include connections to the behavior of structures and their responses to environmental stresses (1988, 9)

On this basis, it can be suggested that in order to learn about the user as part of design knowing, required concept knowledge generation in problem structuring can be achieved by supplying students with opportunities to find linked-exemplars or to provide ways to link exemplars of design domain and user domain. With these linked-exemplars, user related knowledge (*knowledge context*) may be utilized as part of active/constructive knowing (*design context*) in problem structuring and may lead to the formation of "designerly way of knowing user" in architectural design studio. With this proposed conceptual base, for the formation of *user concept* as an active part of design knowing/learning of student, required integration of *knowledge context* to *design context* can be achieved in architectural design studio providing;

- a design setting organized to support problem structuring of students,

- generation of user related knowledge as a part of design activity; by placing on-the-spot user search of students in problem structuring,

- generation of design concept knowledge through acquired user related knowledge base; by providing linked exemplars,

On this conceptual base and underlined dimensions, design setting and methods can be selected and organized in order to develop designerly way of knowing user in architectural design studio and to provide a base for the formation of *user concept* as integrated part of design knowing/learning.

5.3 Evaluation of the Chapter

Underlined problems of *knowledg*e and *design contexts* in the formation of limited *user concept* in the architectural design studio indicate a need for a shift in understanding. This shift necessitates critical changes in *knowledge* and *design contexts* as the main elements, which provide the conditions of formation of *user concept* in the architectural design studio.

While defining necessary changes in *knowledge context*, universal design is addressed as a unifying perspective emphasizing the value of "diversity" and "experience of users," and participatory approaches. From this perspective, the capacity of *user concept* is broadened involving diversity of users, their various levels of experiences, and knowing user by experience. In this broadening of *knowledge context*, actual user experience is underlined as important to provide these qualities in the architectural design studio. On the other hand, the change in *design context* is defined in the light of Cross' notion of "designerly ways of knowing." From this base, the necessity of user related knowledge generation within design activity and the capacity of involvement and generation of concept knowledge are underlined for the formation of *user concept* as an active-constructive part of design knowing and for the development of "designerly way of knowing user."

It is obvious that formation of *user concept* is a long-term task in the architectural design studio education and accumulation of knowledge and experience about diverse users in various levels of design situations are required. With this regard, proposed conceptual base aims to define critical characteristics of *knowledge* and *design contexts* of this formation. Grounding

on this conceptual base, underlined qualities of and required transformations in *knowledge* and *design contexts* strongly indicate a learning environment in architectural design studio, which provides;

1. opportunities to involve user-student interaction to broaden and enrich students' user related knowledge repertoire in terms of experiences of diverse users and knowing user by experience (*knowledge context*),

2. a-) design settings to support students' problem structuring activity and b-) opportunities to investigate actual user and generate user related knowledge as part of design investigation (on the spot inquiry) and situations, in which students have chance to find or generate linked-exemplars in order to integrate user knowing with design knowing (integration of *knowledge context* with *design context*),

With reference to proposed conceptual base, levels of user interaction, research methods, and design learning can be organized in relation to each other with careful selection of methods, user settings, and design settings.

It can be expected that proposed changes in *knowledge* and *design contexts* and in their relations have great potential to contribute to the formation of *user concept* as more embracing and as an integrated part of design knowing in the architectural design studio. Formation of experience-based and design-integrated *user concept* in architectural design studio will equip future practitioners with an embracing stance about user, which involves awareness about diversity of users, value of their experiences and knowing user by experience, and with rich knowledge repertoire in terms of user related knowledge and user related concept knowledge.

CHAPTER 6

USER-CASE: USER-STUDENT INTERACTION AS PART OF PROBLEM STRUCTURING IN THE ARCHITECTURAL DESIGN STUDIO

Previous chapter presents the conceptual framework of the dimensions of required change in existing *user concept* in the architectural design studio. It suggests critical transformations in provided *knowledge context*, *design context* and their relations, which have significant impacts on the formation of student's *user concept*. Proposed transformations emphasize strongly the actual user experience in the design studio to improve student's feeling for the user phenomena and generation of user related knowledge as part of problem structuring of student to improve translation of this knowledge to design solutions and to learn user as "designerly."

With this respect, the main aim of the present chapter is to provide a brief case study- User-Case: Ürünlü- that will serve to illustrate potentials and critical contribution of actual user-student interaction as part of problem structuring.

Present chapter consists of three main sections. Section 6.1 introduces the aim, methodology and the studio process of User-Case: Ürünlü experience. Section 6.2 provides the analysis of the material, design-stories, produced by students as part of their early problem structuring efforts. The analysis has two sub-sections. In the first part, the design-stories of students is examined in terms of their user related knowledge content, aiming to reveal their reference to problems, needs, and expectations of diverse users and students' knowing user by experience. In the second part, design-stories is examined with reference to their design knowledge content and the contribution of acquired user related knowledge to the formation of this content. Section 6.3 provides the evaluation

of this brief experience in terms of its contribution to students' awareness about user and to their "designerly" understanding of user.

6.1 User-Case: Ürünlü Experience

In contrast to the prevailing studio approaches that form user understanding of student as generalities and stereotypes and place user learning separated from design learning, in the present studio experience, *knowledge* and *design contexts* are organized in order to supply students with not only rich user related knowledge and experience but also opportunities to integrate this knowledge into design knowing. Within this approach, grounding on proposed conceptual base, it was expected to provide a rigorous knowledge base for the formation of *user concept*, covering holistic understanding about user and user related knowledge as part of design knowing of student.

On this base, with respect to the formation of required *user concept*, the role of proposed studio experience (User-Case) in the studio education is defined and the main principles and expectations that lie behind the studio organization are presented, in the following part.

6.1.1 Methodology

User-Case

Examining "design cases" are among the most important strategies, in addition to abstract, general principles, for teaching design. They provide worthy solution examples to students and show "what is meant by a design 'solution,' which is not at all obvious to novice designers" (Ledewitz 1985, 6). Breslin and Buchanan (2008, 39) emphasize that "these examples can be powerful, effective way to connect ideas and action." It is clear that cases are valuable knowledge sources for design students and, as Lawson (2004, 96) states, one of the key objectives of design education is to "expose young students to a veritable barrage of images and experiences upon which they can draw later for precedent."

However, it is observed that design cases may not reflect user dimension of design adequately, rather they largely concentrate on formal qualities and design strategies (Cuff 1991). On the other hand, the main intention of user-focused approaches in design studio is to gain user knowledge and to develop communication between user and student (Nicol 2000).

As underlined previously, there is need for user learning that is rich in knowledge content, but more important, such user learning should be integrated with design learning. Therefore, supporting students with user involved design cases can be helpful for the formation of integrated user and design learning in studio. On this basis, proposed experience in the second year design studio is conceived as a "user included design case" and called "User-Case."

Following part presents underlying principles of User-Case experience in two sub-sections: first part covers principles and methodology of User-Case experience and the second part introduces the studio process.

Knowledge Context: User-Student Interaction in the Design Studio

Involving actual user in design studio is not a new issue (see Chapter 3, 5). Since the end of 1970's, although they are small in number, we can observe user involved valuable studio experiences (Lifchez 1974; Welch 1995; Sara 2000; Chiles 2000). They reflect application of several techniques to gain knowledge of real users in design studio, ranging from general knowledge acquisition techniques, like observation, interview, to participation of user consultants in various stages of design activity for evaluation of design decisions.

Sanders (2002) mentions the main routes for accessing various levels of experiences of users;

> [l]istening to what people say tells us what they are able to express in words (i.e., explicit knowledge). But it only gives us what they want to us hear. Watching what people do and seeing what they use

provides us with observable information (or observed experience)…Discovering what people think and know provides us with their perceptions of experience. Understanding how people feel gives us the ability to empathize with them. This way of knowing provides tacit knowledge… Seeing and appreciating what people dream shows us how their future could change for the better. It is another form of tacit knowledge that can reveal latent needs, i.e., needs not recognizable until the future.

She remarks that while knowledge about what user do and use are accessed by observational methods, the knowledge about "what user say" and "think" are provided by focus groups, interviews, and questionnaires (E. Sanders 2002). On the other hand, knowledge of "what user make" requires tools through which users may express their thoughts, feelings, and dreams. Sanders also emphasizes the importance of developing empathy with user and necessity of accessing all levels of user experience, what people do, say, and make, to deeply understand them.

Considering that one of the primary aims of user-student interaction is to provide both tacit and explicit knowledge of user, it is relevant to support this interaction with various research methods. The aim is not an advanced application of methods in the design studio, but providing awareness about them and their use for searching and experiencing user. This variety and complementary nature of methods may reveal different levels of experiences of user and increase student's awareness about user and user related knowledge.

It is clear that, organization of such an experience with real users in design studio requires careful approach, since user is a complex phenomenon, understanding user qualities needs time to be developed, and students' level of education is influential on learning about user.

In proposed User-Case experience, architecture students were novice second year students and after introductory first year courses and studios, this was their first expansive design studio experience. Since, this was their early stage of design learning, before more complex levels of user interaction, which necessitates advanced level of communication skills and experience (Luck

2003), the issue of novice students' experience with users was determined as a simple search process. This search involved observing and sharing everyday life of users, interviewing them about their needs, problems, and future expectations.

Thus, in this experience, user-student interaction is interpreted as students' gaining acquaintance with users, their diversity, and dynamic nature of living patterns, problems, needs, and expectations.

However, as underlined previously it is not enough to provide rich user experience in studio to develop a designerly way of knowing user; it requires generation of user related knowledge as situated with design problem and allowing generation of design concepts. Following part aims to clarify the organization of user search of students in User-Case experience, as integrated to their design knowing/learning.

Design Context as Integrated with Knowledge Context

Design as a cyclical process:

As stated previously in Chapter 5, it was necessary to allow problem structuring of students in order to give way to "designerly way of knowing user," contrary to the prevailing design approaches, which place analysis (user search and experience) as separate from synthesis of the solution. Therefore, in User-Case experience, it was aimed to provide conditions that allow students to see/interpret the problem situation using gained user related knowledge, in other words, structuring the design problem with user in mind.

For encouraging problem structuring in design studio, Ledewitz's (1985, 5) "multiple design cycles" method[17] was benefitted to organize User-Case as the early problem structuring stage in the process of main project. In this method, she proposes a studio project, which is;

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[17] For other pedagogical experiences of Ledewitz, Beginning backwards, Incremental information, Solution type studies, Form experiments, Self-evaluation see (Ledewitz, Models of Design Studio Teaching 1985).

> … subdivided into a series of design encounters with a problem. Each cycle, or stage in the project, concludes with a design proposal for the project as a whole… The cycles are successively longer and the proposals successively more developed as they become closer and closer approximations of an acceptable solution… each cycle represents the designer's best effort to solve the problem in terms of what he or she understands at that point. It is a method that emphasizes the resolution of many issues simultaneously, since it structures a problem holistically rather than by focusing on individual issues.

On this base, the stages of main design project of second year architecture studio was considered as a four-cycle process, each finished with a more developed design proposal. In this four-cycle-process, User-Case experience was planned as the first cycle, in which user-student interaction occurred in relation to design problem and resulted with an early design proposal.

The process of main studio project

1. cycle User-Case	2. cycle	3. cycle	4. cycle

early design proposals   pre-jury 1   pre-jury 2   final project
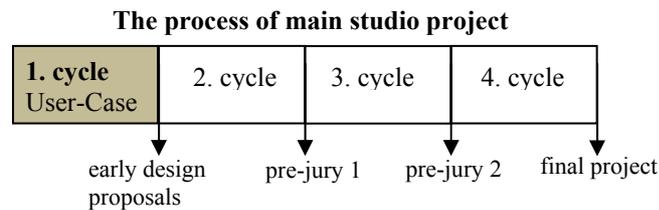
Figure 3 Organization of the main project as multiple cycles.

Therefore, through the placement of students' user search in the early concept development stage, it was expected that acquired user related knowledge might contribute to students' problem structuring with user in mind.

On-the-spot inquiry: User search with problem in mind:

Generation of knowledge as part of design activity strongly demands search for knowledge and selection of necessary features under the guidance of design problem. Schön (1988, 8) underlines the value of on-the-spot inquiry (prospective inquiry), which has similarities with both designers' design activity and scientists' doing science for knowledge and design integration. He

states that research can be relevant, if it is not introduced in the form of results, but as knowledge of research process (the logic and the way of doing research).

With reference to this situated feature of knowledge with design problem, placing and integrating user search of students to their design investigation may provide students an opportunity for both feeling the behavior of user phenomena, seeing the user situation from the perspective of design problem and selecting required knowledge from this perspective to design use.

Therefore, organization of a user-student interaction in User-Case experience as in the form of user search activity in relation to the given design problem will be convenient to generate required user related knowledge as part of design situation and to achieve acquaintance with users.

Linked-exemplars: Building context of user:

Another underlined feature of knowledge integration to constructive knowing in design is the potential to generate design concepts through this knowledge (Chapter 5). Heylighen (2000) calls this type of knowledge use as concept knowledge, which provides linking tentative design ideas/concepts to manage complex requirements of design problems. Concept knowledge may involve heuristic search, analogies, typology, solution images, form-giving rules, etc., and it is mostly supported by designers' "repertoires of familiar examples and themes" (Schön 1983).

Therefore, it is clear that the integration of user related knowledge to active-constructive knowing in design activity requires generation of concept knowledge. To encourage students for conveying concept knowledge, Schön (1988) underlines the value of "learned exemplars" for understanding new problems in any discipline and he proposes constructing linkages between exemplars of design and exemplars of other domains to develop tools for integrating other domains' knowledge to design. On this base, supporting students with opportunities, which involve exemplars of design and user domain, or linked-exemplars, may provide concept knowledge for integration

of user related knowledge to design and at the same time for problem structuring of students.

With this aim, in User-Case experience, students' search of building environment of users in addition to users themselves was planned. With this search, the aim was to provide students not only complementary knowledge about users and their use environment, but also knowledge about building elements that would be supportive for their design learning.

The knowledge about building environment in addition to user knowledge may provide students an opportunity to observe problem and solution together as a whole. In User-Case experience, while they acquire user related knowledge, they could analyze the reflection of this knowledge in built environment concurrently. This learning environment, which involves problem–solution continuity, could bring students, with reference to Schön, "linked-exemplars," which have potential to translate user related knowledge to design solutions. This holistic picture (problem-solution together) may provide students integrated knowledge about user and design and a good source for designerly way of knowing user.

Design-story: Problem structuring with user in mind:

As a final stage, the outcome of the User-Case cycle was demanded to reflect both the gained user related knowledge and students' problem structuring efforts contributing to this knowledge. Since, in this early stage of problem structuring of novice students, it was not fair to expect advanced solution concepts; they were asked their experiences, interpretations, and design ideas in a written form as their "design-stories." Heylighen (2003) underlines the importance of stories for communicating knowledge with reference to knowledge of design, particularly tacit part of it. She states that;

> [i]n everyday life, one of the natural ways in which people share highly complex phenomena is by telling stories. A story is not only direct, easy to understand and entertaining, it respects the intricate relatedness of things in a way that makes them easy to remember

afterwards. As such, the story format provides a dense, compact way to deal with and communicate complex phenomena in a short period of time.

She remarks that the knowledge that the stories have ability to contain is "essentially experience-based" and reflects storyteller's involvement.

With these qualities, design-stories of students can be considered as draft scenarios, which combined knowledge acquired by students, and required design qualities, which will be embraced future expectations. Hasdoğan (1996, 29) remarks that designers usually "based their thoughts on certain set scenarios, each involving an actor or actress." She defines "scenario-based" models of designer as "user models based on formal or informal story lines relating to users, usage, the usage environment and the usage circumstances of the product of interest."

As a brief summary, it can be said that User-Case experience is mainly based on students' interaction with "user," with "building context of user" in relation to given "design problem" and these interactions may provide a base for generation of required user related knowledge as part of design knowing/learning. Final design-stories are expected to help students to integrate knowledge with design and share this constructed knowledge in studio.

In User-Case experience, main tasks of the students were;

1. Searching users, their needs, problems, behaviors, living patterns, future expectations, and gaining experiences with them and about their living,

2. Searching building context of users,

3. Communicating this acquired knowledge with design solutions, which is composed of understanding and interpreting user expectations and generating design ideas, referring architectural spaces that provide opportunity for the achievement of these expectations.

6.1.2 Studio Process

The "User-Case: Ürünlü experience" will be introduced and examined in this part as a preliminary application of these principles to an architectural design studio project at METU, Department of Architecture, Ankara, Turkey. The four-week experience, as the early cycle of the main design project, was carried out in the first semester of the second year architecture studio in 2007/2008 academic year.[18] The second year architecture studio was composed of fifty-two students, all of whom participated in the User-Case experience. There were eight studio staff[19] and guest lecturers.[20]

After the introductory courses and studio experiences of the first year education, in their first comprehensive architectural project, the second year architecture students were given a design of a small scale building (a house). Ürünlü[21] village of Antalya was chosen as project setting, with its significant traditional buildings and living patterns.

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[18] In METU, "second year Architectural Design Education is considered as second part of initial stage of design education… The aim is the development of awareness and understanding of the relationship between basic design concepts and realization process of buildings while encouraging critical imaginative thinking of students in order to evaluate the relationship between architectural design and ideas in relation to social-cultural-scientific/technical aspects of human life in universal and regional sense… Main objectives are as follows; a-research on, and critical evaluation and interpretation of, spatial, environmental, socio-cultural and technical requirements of small and medium size buildings, b-tackling with the technological- structural-constructional problems of buildings: introduction to conventional and unconventional building technologies, architectonic elements and materials etc., c-developing an awareness and sensitivity of geometrical morphological properties of the built environment, sense of scale, spatial quality, aesthetic values and taste in architectural design."

[19] This initial User-Case experince was conducted as part of the first semester project of the second year architectural design studio at METU, which was carried by four studio instructors; Prof.Dr. Vacit İmamoğlu, Assoc.Prof.Dr. Mualla Erkılıç, Inst.Dr. Rana Nergis Öğüt, Inst. Nuri Arıkoğlu, and four assistants, including the author of the present thesis, Duygu Kaçar, İlkay Dinç, Özgecan Canarslan.

[20] Assoc.Prof.Dr. Çetin Göksu (City Planning) and Kemal Kavas (Architecture) were the guest lecturers in the project.

[21] Ürünlü is a village of Antalya, Türkiye, settled at south of west Taurus Mountains. It is 750 m above sea level and 50 km away from Manavgat. Altınbeşik21 (the multi-storied cave) / Düdensuyu Cave - National Park and biodiversity are among the natural values of the region. Ürünlü (formerly named Unulla) is located in the Pisidia of archaic regions and its history goes to 100 B.C. Villagers earn their life by forestry, viticulture and raising livestock. It is famous with its fig, grape, molasses, walnut and almond. Cedrus spp (sedir/katran ağacı), which is the naturally insulated type of timber is peculiar to this region. This regional material (especially used in ship construction in Mediterranean) and stone are the basic elements of construction. Therefore, these materials that can easily be found in nature formed the built environment in Ürünlü. Traditional houses are two storied with stone walls of 60-70 cm thickness. These stones form the wall without mortar, but fixed with timber elements at every 50-60 cm

Figure 4 Examples from traditional building and daily life patterns of Ürünlü Village (images are selected from studio and students' archives).

The User-Case experience took place nearly for four weeks at the beginning of the main design project, as the first cycle of students' design process in a multiple-cycle project. With reference to the underlined qualities in the previous part, it was organized in three stages involving required interactions in relation to design problem;

horizontally. The end points of these timbers are left 20-25 cm outside of the wall and used as scaffolding. (Double timbers at the corners are named as "Pişduvan".) These timbers seen from outside are called "Buttons" and the name of "Houses with Buttons" is originated from this original way of constructing.

1. Generic design problem, given at the beginning of the design process,

2. Experience with user and building context with design problem in mind,

3. Design stories: problem-structuring with user in mind,

Process of main studio project

1. cycle User-Case	2. cycle	3. cycle	4. cycle

early design proposals   pre-jury 1   pre-jury 2   final project

1. cycle: User-Case

Stage 1	Stage 2	Stage 3

Generic design problem and preliminary information (**in studio**)

User experience (Ürünlü) with problem in mind:
-interview
-building analysis
-accomodating with users
-brief group discussions (**on site**)

Design-stories: problem structuring with user in mind (**in studio**)

Figure 5 Organization of the stages in User-Case: Ürünlü experience.

It was expected that, experience of students with rich social, cultural, aspects of the life of villagers and the environmental aspects of the site at the early stage of design process would provide a significant contribution to their structuring of design problem with acquired user related knowledge and experiences in mind. In other words, students' early experience with users from the perspective of design problem would contribute to the development of their designerly way of knowing user. Following part introduces the three stages of the User-Case experience, involving organization of proposed *knowledge context* and its constructive relation with *design context*.

Stage 1: "Generic Design Problem" and Preliminary Information

The first two-week of User-Case can be considered as an introductory part. It was occupied both with students' getting into the second year architecture

studio education and with introductory studies of year project and User-Case. As an introduction, this stage involved delivering the "generic design problem," discussion on basic themes of the project, "tectonic" and "user," and the introductory lectures about Ürünlü village.

At the beginning stage, before any information given to the students, they were asked to express their opinions about user and architect's roles in relation to their Faculty Building. This activity was expected to trigger students to think about the user, architect, and architectural issues. This preliminary activity, despite its limitations, also brought a general picture about how students conceive user.

Although, there was a general awareness about the significance of user for more humane architectural environments in statements of students, the dominance of architect's role over user was apparent in their statements. They thought that architects, having both technical knowledge and experience as users, might better define needs and expectations of users. In this picture, it was observed that users were conceived largely as a passive, unchanged, and predictable group who used buildings. With the contribution of User-Case experience, it was expected that this narrow user understanding could change towards a more embracing one, which covered needs and expectations of diverse users and more integrated with design knowing.

Considering the importance of searching about the user with the perspective of design problem as indicated previously, the critical element of this first stage was assigning the generic architectural problem and its brief discussion, before the user experience began. The problem was designing "a residential unit" for a villager family in Ürünlü. Given generic problem had a workshop component, as a secondary program element, whose content and character were expected to be defined by students, after the Ürünlü experience.

With this preliminary discussion on the generic problem, the aim was to encourage students to develop an early notion about their design problem, designing a residential unit (with a workshop), and to keep their search and

observations in Ürünlü on this specific problem domain, in other words, conducting their search in Ürünlü with this problem in mind.

In addition to the given design problem, aiming to increase students' awareness about the issue of user, after a brief assignment to elicit students' opinions about user in design, they were given basic information about the significance of user in design and about how they would gain knowledge. These introductory studies were supported with the presentations about environmental and living conditions of Ürünlü village. After this intense introductory stage on generic design problem and elements of the problem, User-Case experience progressed with Ürünlü experience.

Stage 2: User Experience with "Design Problem in Mind"

The second four-day part of the User-Case experience was organized to provide students acquaintance with users in relation to the generic design problem, as underlined in the previous section. This stage involved students' investigations and experiences in Ürünlü[22]. The underlying idea was students' participation in users' everyday living as much as possible. This intense interaction/search experience with users was achieved by various activities. These activities were conducted in groups (4-5 students). They accommodated in houses, observing the village life, interviewing with users, analyzing Ürünlü houses. Also, to reflect on the generic problem at hand, small group discussions/evaluations with other students, villagers, village administrators, and consultants took place as part of this stage. The following part elaborates these activities.

A little touch to the life of villagers:

In the limited interaction process, it was important to provide students various levels of experiences with the users, in order to deepen their understanding. Complementary to the interview and building analysis tasks, students'

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[22] In User-Case experience, the tasks of interviewing villagers and observing-participating their daily living activities were conducted by students with the voluntary participation of villagers and with their permission for photographing. These tasks were organized as part of studio education process of students and selected photographs were used in this study with exemplary purposes.

investigation involved observations of daily lives of the users, at an informal level. Student groups were hosted by families and had chance to observe their living patterns closely; they participated in preparation of meals, eating together, sharing their memories, etc., and tried to discover the village life during their stay.

Figure 6 Instances from students' experiences with villagers in Ürünlü (images are selected from students' archives).

Through this limited but close interaction, it was expected that students acquired critical experiential knowledge about users as complementary to the knowledge gained from interviews and building analyses. User related knowledge gathered from various sources was expected to help students to create a more accurate picture of users in Ürünlü. In their stay with the village families, students were asked to take informal notes about their experiences and observations and take photographs.

Interview with users:

In this task, students were asked to obtain information about villagers and their building context. Open ended questions were given and students were asked to add new questions if necessary. Questions aimed to reveal personal information about user(s), information about his/her (their) living patterns and house, about the village and the village life, about needs, wants, problems, and future expectations.

Figure 7 Student groups with the families they interviewed (selected from students' photographs).

For interviews, students selected a family other than the family, which accommodated them during the trip. Through this organization, it was aimed that students interacted with as much user as possible to enrich their experiences and increase their awareness about commonalities and differences.

Interviews with users provided a knowledge base about users and related issues, which could be used by students as basis for their observations and interactions. Presentation of the content of the interview contents by groups in studio reflected the particularities of the villagers and their common characteristics, showing and sharing the obtained knowledge to the whole studio with all of its richness.

Structural analysis of an Ürünlü house:

As stated in the previous part, providing architectural knowledge in addition to the acquired user related knowledge can be helpful to illustrate the problem and its architectural solution continuity as a whole and may help to generate linked exemplars between design and user domain, which are significant for knowledge integration. On this base, in addition to students' life experience of the village and their interview with users, students were asked to analyze organizational and structural system of an Ürünlü house (preferably the house of the interviewed villager).

This study was accomplished in groups (4-5 students). During this analysis, students measured the buildings, aiming to reveal basic dimensions and proportions, and examined spatial, structural, and material qualities. By this analysis, it was aimed to reveal the information knowledge about the physical context, which encloses everyday life of users as a complementary knowledge upon the knowledge about user qualities obtained by students.

Figure 8 Students during their analysis study of traditional Ürünlü houses (images are selected from students' archives); below images represent few examples from produced detail models by students in the studio, after the user-student interaction (images from studio archive).

In this analysis, students were not expected to produce advanced knowledge about buildings; the primary objective was to develop a general understanding about the characteristics of spatial context and a holistic knowledge of user qualities, needs, problems, and their spatial formation.

Knowledge from these activities of Ürünlü experience interview, analysis, and life experience, were reinforced by brief group discussions during the Ürünlü visit, which were made sometimes in groups and sometimes with administration staff of the village and consultants (city planning). The discussions with administrators and specialists increased students' awareness about the problems of the village from a wider perspective in addition to their conversations with villagers on their expectations and problems as a minor perspective.

On the other hand, in-group discussions provided an opportunity to discuss acquired knowledge in relation to the generic design problem, in other words, it allowed students reflecting on generic problem with obtained user related knowledge. In these group discussions, students were encouraged to think on the design problem with the contribution of the user and design related knowledge acquired through their formal and informal search accomplished during the process. It was observed from these brief but highly effective discussions that the problem of "designing a residential unit with a workshop addition" was transformed into the problem of "designing a workshop unit with a residential unit," grounding on students' interpretations of the Ürünlü experience. Students' interpretations about their experience will be discussed in detail in Section 6.2.

With the Ürünlü experience, students were expected to develop not only an understanding about village life, problems, and future expectations of villagers as users of their project, but also knowledge about architectural qualities of their life, logic of spaces, spatial elements and their organization in relation to their living patterns.

On this loaded user research in Ürünlü, User-Case experience was finalized with integration of knowledge acquired and expression of their problem structuring efforts. This is summarized and discussed in the following stage.

Stage 3: Design Stories: Problem Structuring with "User in Mind"

After Ürünlü experience, the last one-week of User-Case experience involved presentation of the material prepared in Ürünlü in the studio and the production of students' early design proposals. In this stage, students were asked to write their design proposals down in relation to the given "generic design problem" and with reference to their experiences and knowledge gained as their "design-stories" of Ürünlü. As stated previously, stories reflect both experiential knowledge acquired and interpretations of the involver.

In our case, design-stories of students not only contained knowledge about living patterns, spatial formation and qualities, experiences, problems, and

future expectations of villagers, but also students' interpretation of this knowledge and their reflection on this knowledge as part of their generic design problem.

These stories with their content, which involved their experiences and investigation of users and their interpretations for design ideas, were considered as a kind of scenario building activity to integrate analysis to synthesis. In other words, design-stories of students provided scenarios about the existing living patterns with their spatial conditions and future expectations and their possible spatial conditions.

In this early problem structuring cycle (User-Case) of the project, design process progressed by evaluation of the early design proposals and advancing the design ideas throughout the later cycles of the design process. Considering the objectives of the present study, this part concentrates on the influence of User-Case experience on students' early problem structuring effort and continued with the examination of "design stories" of students in terms of this content.

Following section aims to illustrate and discuss how User-Case experience may contribute to the broadening of student's user related knowledge repertoire and knowing user as part of design knowing by addressing underlined problems of *knowledge* and *design contexts* provided in the design studio.

6.2 Analysis of Students' Early Design Proposals: Design-Stories from Ürünlü

Problem structuring is a continuous process and it evolves throughout the design process,. However, early conceptual stage, in which problem is named and framed for the first time, is particularly significant due to its indispensible influence on the solution space. With this respect, students' problem structuring in the early stage of the design process seemed to provide necessary information about their references and preferences, which guide their decisions in the design process.

For this purpose, it is important to uncover user related knowledge and design knowledge content in design-stories of students. Restrepo (2004, 27) states that;

> [d]uring the design process, design intent is represented externally in a variety of ways: sketches, technical drawings, technical specifications, etc. but also in the form of verbal explanations and written documents… It is through the external representations of design information that design intent can be displayed and communicated.

He also indicates that a way to make the early design representations explicit is to let designers write down their interpretation of the design assignment (Restrepo and Christiaans 2003). This written material helps to reflect design knowledge content of designer. Oxman (2005) also underlines that;

> [i]n general, the way conceptual knowledge is organized is as important as the amount of knowledge one has. This view emphasizes the notion of structure. One's conceptual structures, or the structure by which one organizes his knowledge of the world, is not something of which we are naturally aware. Language is a case of natural structural organization characteristic of human thinking. It is an important source of evidence in the investigation of conceptual structure. For example, we can explicate conceptual structuring in how people externalize their thought processes in communication with other people through textual material. One of the main resources for the acquisition of knowledge is through written language and textual description, forms in which knowledge is conceptualized and organized.

The knowledge content of students' "design stories" texts seemed relevant to trace user related knowledge gained by students in User-Case experience of Ürünlü and its contribution to generation of design ideas, and problem structuring by the student. Therefore, the method of the analysis is based on the examination of textual material produced by students. In this analysis, 25 design-story texts, which were assigned, were examined. There were twelve interview groups and named with letters in this study as A, B, C, D, E, F, G, H,

J, K, L, M. Students in these interview groups represented with numbers in relation to their interview groups, such as A1, H2, and analyzed design-stories were represented with these letter-number combinations (see Appendix E).

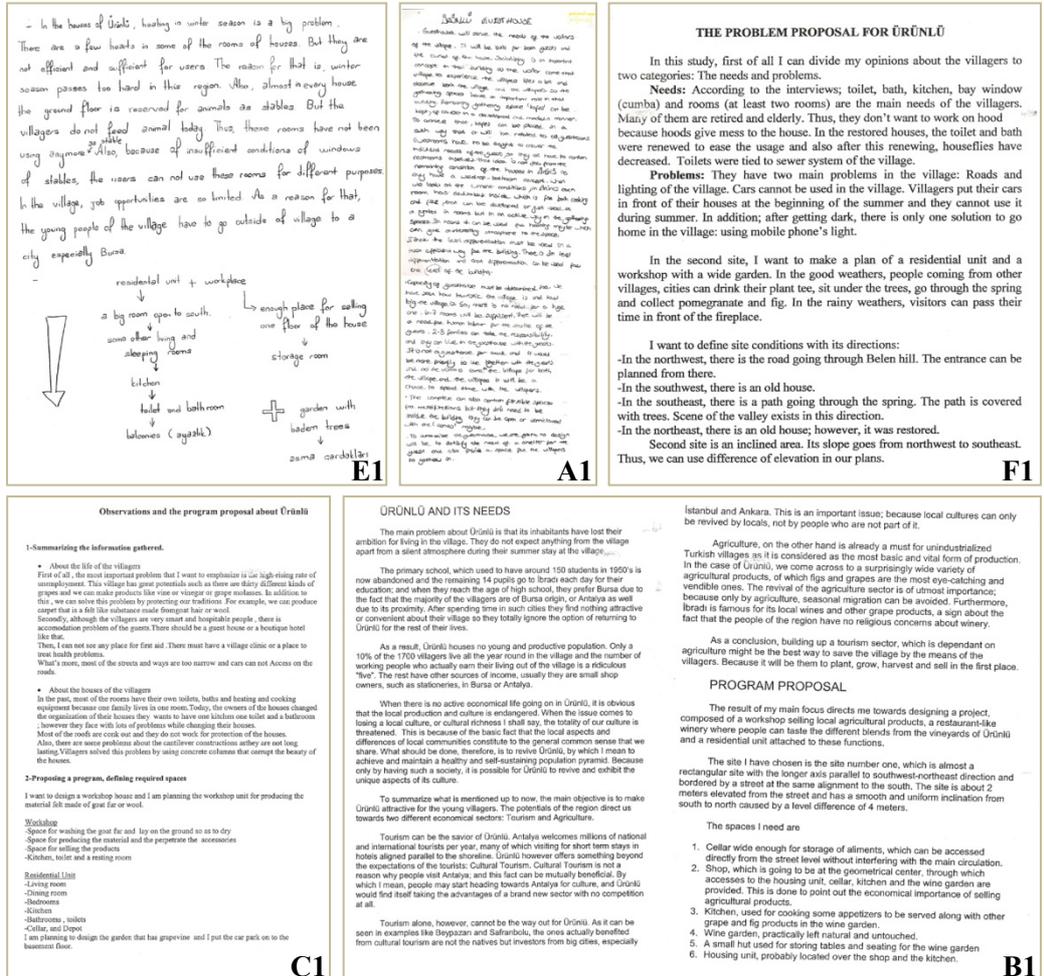

E1

- In the houses of Ürünlü, heating in winter season is a big problem. There are a few hearts in some of the rooms of houses. But they are not efficient and sufficient for users. The reason for that is, winter season passes too hard in this region. Also, almost in every house the ground floor is reserved for animals as stables. But the villagers do not feed animal today. Thus, these rooms have not been using anymore as stable. Also, because of insufficient conditions of windows of stables, the users can not use these rooms for different purposes. In the village, job opportunities are so limited. As a reason for that, the young people of the village have to go outside of village to a city especially Bursa.

-

residental unit + workplace

a big room open to south.

some other living and sleeping rooms

kitchen

toilet and bathroom

balconies (ayazlık)

enough place for selling one floor of the house

storage room

garden with badem trees

asma çardakları

A1

F1

THE PROBLEM PROPOSAL FOR ÜRÜNLÜ

In this study, first of all I can divide my opinions about the villagers to two categories: The needs and problems.

Needs: According to the interviews; toilet, bath, kitchen, bay window (cumba) and rooms (at least two rooms) are the main needs of the villagers. Many of them are retired and elderly. Thus, they don't want to work on hood because hoods give mess to the house. In the restored houses, the toilet and bath were renewed to ease the usage and also after this renewing, houseflies have decreased. Toilets were tied to sewer system of the village.

Problems: They have two main problems in the village: Roads and lighting of the village. Cars cannot be used in the village. Villagers put their cars in front of their houses at the beginning of the summer and they cannot use it during summer. In addition; after getting dark, there is only one solution to go home in the village: using mobile phone's light.

In the second site, I want to make a plan of a residential unit and a workshop with a wide garden. In the good weathers, people coming from other villages, cities can drink their plant tee, sit under the trees, go through the spring and collect pomegranate and fig. In the rainy weathers, visitors can pass their time in front of the fireplace.

I want to define site conditions with its directions:
-In the northwest, there is the road going through Belen hill. The entrance can be planned from there.
-In the southwest, there is an old house.
-In the southeast, there is a path going through the spring. The path is covered with trees. Scene of the valley exists in this direction.
-In the northeast, there is an old house; however, it was restored.

Second site is an inclined area. Its slope goes from northwest to southeast. Thus, we can use difference of elevation in our plans.

C1

Observations and the program proposal about Ürünlü

1-Summarizing the information gathered.

- About the life of the villagers

First of all , the most important problem that I want to emphasize is the high-rising rate of unemployment. This village has great potentials such as there are thirty different kinds of grapes and we can make products like vine or vinegar or grape molasses. In addition to this , we can solve this problem by protecting our traditions .For example, we can produce carpet that is a felt like substance made fromgoat hair or wool.
Secondly, although the villagers are very smart and hospitable people , there is accomodation problem of the guests.There should be a guest house or a boutique hotel like that.
Then, I can not see any place for first aid .There must have a village clinic or a place to treat health problems.
What's more, most of the streets and ways are too narrow and cars can not Access on the roads.

- About the houses of the villagers

In the past, most of the rooms have their own toilets, baths and heating and cooking equipment because one family lives in one room.Today, the owners of the houses changed the organization of their houses they wants to have one kitchen one toilet and a bathroom ; however they face with lots of problems while changing their houses.
Most of the roofs are conk out and they do not work for protection of the houses.
Also, there are some problems about the cantilever constructions asthey are not long lasting.Villagers solved this problem by using concrete columns that corrupt the beauty of the houses.

2-Proposing a program, defining required spaces

I want to design a workshop house and I am planning the workshop unit for producing the material felt made of goat fur or wool.

Workshop
-Space for washing the goat fur and lay on the ground so as to dry
-Space for producing the material and the perpetrate the accessories
-Space for selling the products
-Kitchen, toilet and a resting room

Residential Unit
-Living room
-Dining room
-Bedrooms
-Kitchen
-Bathrooms , toilets
-Cellar, and Depot
I am planning to design the garden that has grapevine and I put the car park on to the basement floor.

B1

ÜRÜNLÜ AND ITS NEEDS

The main problem about Ürünlü is that its inhabitants have lost their ambition for living in the village. They do not expect anything from the village apart from a silent atmosphere during their summer stay at the village.

The primary school, which used to have around 150 students in 1950's is now abandoned and the remaining 14 pupils go to İbradı each day for their education; and when they reach the age of high school, they prefer Bursa due to the fact that the majority of the villagers are of Bursa origin, or Antalya as well due to its proximity. After spending time in such cities they find nothing attractive or convenient about their village so they totally ignore the option of returning to Ürünlü for the rest of their lives.

As a result, Ürünlü houses no young and productive population. Only a 10% of the 1700 villagers live all the year round in the village and the number of working people who actually earn their living out of the village is a ridiculous "five". The rest have other sources of income, usually they are small shop owners, such as stationeries, in Bursa or Antalya.

When there is no active economical life going on in Ürünlü, it is obvious that the local production and culture is endangered. When the issue comes to losing a local culture, or cultural richness I shall say, the totality of our culture is threatened. This is because of the basic fact that the local aspects and differences of local communities constitute to the general common sense that we share. What should be done, therefore, is to revive Ürünlü, by which I mean to achieve and maintain a healthy and self-sustaining population pyramid. Because only by having such a society, it is possible for Ürünlü to revive and exhibit the unique aspects of its culture.

To summarize what is mentioned up to now, the main objective is to make Ürünlü attractive for the young villagers. The potentials of the region direct us towards two different economical sectors: Tourism and Agriculture.

Tourism can be the savior of Ürünlü. Antalya welcomes millions of national and international tourists per year, many of which visiting for short term stays in hotels aligned parallel to the shoreline. Ürünlü however offers something beyond the expectations of the tourists: Cultural Tourism. Cultural Tourism is not a reason why people visit Antalya; and this fact can be mutually beneficial. By which I mean, people may start heading towards Antalya for culture, and Ürünlü would find itself taking the advantages of a brand new sector with no competition at all.

Tourism alone, however, cannot be the way out for Ürünlü. As it can be seen in examples like Beypazarı and Safranbolu, the ones actually benefited from cultural tourism are not the natives but investors from big cities, especially İstanbul and Ankara. This is an important issue; because local cultures can only be revived by locals, not by people who are not part of it.

Agriculture, on the other hand is already a must for unindustrialized Turkish villages as it is considered as the most basic and vital form of production. In the case of Ürünlü, we come across to a surprisingly wide variety of agricultural products, of which figs and grapes are the most eye-catching and vendible ones. The revival of the agriculture sector is of utmost importance; because only by agriculture, seasonal migration can be avoided. Furthermore, İbradı is famous for its local wines and other grape products, a sign about the fact that the people of the region have no religious concerns about winery.

As a conclusion, building up a tourism sector, which is dependant on agriculture might be the best way to save the village by the means of the villagers. Because it will be them to plant, grow, harvest and sell in the first place.

PROGRAM PROPOSAL

The result of my main focus directs me towards designing a project, composed of a workshop selling local agricultural products, a restaurant-like winery where people can taste the different blends from the vineyards of Ürünlü and a residential unit attached to these functions.

The site I have chosen is the site number one, which is almost a rectangular site with the longer axis parallel to southwest-northeast direction and bordered by a street at the same alignment to the south. The site is about 2 meters elevated from the street and has a smooth and uniform inclination from south to north caused by a level difference of 4 meters.

The spaces I need are

1. Cellar wide enough for storage of aliments, which can be accessed directly from the street level without interfering with the main circulation.
2. Shop, which is going to be at the geometrical center, through which accesses to the housing unit, cellar, kitchen and the wine garden are provided. This is done to point out the economical importance of selling agricultural products.
3. Kitchen, used for cooking some appetizers to be served along with other grape and fig products in the wine garden.
4. Wine garden, practically left natural and untouched.
5. A small hut used for storing tables and seating for the wine garden
6. Housing unit, probably located over the shop and the kitchen.

Figure 9 Examples from students' design-stories, which include their user experiences and problem proposals.

The material, produced by students as the reflection of their early problem structuring efforts, was examined in two parts. The first part aims to reveal user related knowledge content and the second part presents design knowledge content in relation to the user related knowledge content.

6.2.1 Knowledge Context: Experiences of Diverse Users and Knowing User by Experience

The design-stories of students reflect intense user-related knowledge acquired through their experiences with the users and their daily life as a part of their building context. This knowledge contains concrete experiences of students, references to user needs, problems, and expectations and interpretations of students. This first part of the present section illustrates the emergence of user related knowledge content of Ürünlü within the stories of students with reference to the experiences of diverse users and knowing user by experience.

On the Awareness about Problems-Expectations of Diverse Users

The importance of awareness about diversity of users and importance of internalizing needs and expectations of these diverse users while structuring the design problem and generating solutions have been underlined as critical for broadening the *knowledge context* of student's *user concept*.

Actually developing awareness about diversity of users is not an easy task to be fulfilled by a single case, but a case may still provide an experience with diverse users, or may help focusing on specific user groups to exemplify the diversity. Although the issue of "diversity" was not one of primary themes of the semester project and it was not emphasized directly throughout the User-Case experience, after observing and sharing everyday living of users, interviewing them about their needs, problems, and future expectations, we could observe the critical emphasis on this issue in students' interpretations about Ürünlü experience. They are not in the form of direct references, but rather instances that imply the problems, needs, and expectations of elderly, young, women, children, and guests/tourists in the village.

The part below illustrates students' references to the problems, needs and expectations of diverse users and their concrete experiences in Ürünlü with some extracts from design-stories of students.

Different age groups: elderly-young-children:

The aging population of Ürünlü, their living in the village, their problems and expectations were underlined nearly by all students in their design-stories. Difficulty of villagers to conduct their work and living without help were particularly emphasized by the students. Following statements from design-stories of students exemplify their experiences and knowledge about the elderly population of Ürünlü;

The departmental trip to the village illustrated that the village is now populated mostly by the older generation, many of whom use their family properties in Ürünlü merely for a few months every year (C2).

Many of them are retired and elderly. Thus, they don't want to work on hood because hoods give mess to the house (F1).

Currently, majority of the houses are occupied by old people, who are retired and/or hardly capable of harvesting the products (G1).

Most of the villagers are so old that they cannot answer even their own needs and they are living with the help of their children (G2).

In our trip, almost every people who live in Ürünlü are over 50 years of age and they are retired people (E3).

Old people grow figs, grapes just for themselves. They want to protect culture of village and want to be together with their children and grandchildren (L1).

People living in Ürünlü village are mostly middle-aged and elderly people who are more likely to be living a "retired" type of life (H1).

Figure 10 Instances from daily living of elderly in Ürünlü (images are selected from students' and studio archives).

One of the important problems of the elderly was indicated as the lack of young population in the village in design-stories of students. The absence of job opportunities was indicated as the primary factor for their leaving the village. Statements of students strongly indicate this issue;

> As a result, Ürünlü houses no young and productive population (B1).
>
> The aging population of the village is also a major problem, they want youth to return to the village and act in the regeneration of life there (C2).
>
> The main objective is to make Ürünlü attractive to the young villagers (B1).

Another set of problems underlined by students was children. Particularly decline in their population due to the younger villagers' migration to big cities

and lack of social services were pointed out as main problems. Some of the students indicated this issue with following statements;

> Ten years ago there were a hundred pupils at the local primary, now there are just 14 (C2).

> The primary school, which used to have around 150 students in 1950's is now abandoned and remaining 14 pupils go to Ibradi each day for their education… (B1).

Figure 11 Children of Ürünlü (images from students' archives).

Women and men in Ürünlü:

The difference between living patterns of women and man villagers of Ürünlü was one of the most underlined issues in students' experiences about Ürünlü. Passive life of women villagers around their houses, their absence in public spaces, and men's dominance in public places were the most observed patterns. Following statements from design-stories reflect this situation;

> The chief social activity of the village women is visiting each others houses and drinking tea together (C2).

> If there was some chance for women too, it would be great for them to spend their time usefully and earn some money, also. Maybe the

tourists who come there also wish to learn their professions with some little money (F2).

According to the owner of the house they do not really have social life in Ürünlü and public places that women can meet (G4).

The men of the village usually spend their time at the local coffee house whereas women either gather at each other's house or stay at home. However, they are quite excited by the visitors (G1).

In the past, especially women weaved shawls with silk, and also weaved silky carpets and wearing and they had sold these work of arts. But now, they weave for just themselves (G2).

Figure 12 Instances from life of women and men of Ürünlü (images are selected from students' and studio archives).

Guests/tourists in Ürünlü:

Tourists/guests reveal as a category of potential users of the prospective developments in Ürünlü. Students largely remarked villagers' opinions about the existing behavior patterns and problems of the guests and their expectations from guests in a culture-based interaction. Following statements reflect this emphasis in design-stories of students;

> When the production is increased and proper advertising is made the tourist flow to the village would eventually increase (G1).
>
> Introduce the village and prepare spaces for tourists can contribute to improve the tourism activities (G2).
>
> The village has also a rich natural source to attract local or foreigner tourists (G2).
>
> Some tourists come Ürünlü for hunting pig in winter (H2).
>
> The village of Ürünlü specifically has the benefit of being adjacent to geologically significant Altınbeşik Caves that receive some interest from tourism. Despite the lack of any tourist facilities, several signs were written in Turkish, English and German. Altınbeşik Caves are a huge asset to Ürünlü, the village being the last stop on the route to the caves. There is however no access whatsoever to the interior of the caves, a simple search on the internet brings stories of tourists visiting the village, reading the sign stating to find the village guide to access the caves, but then not being able to find the guide, and thus not visiting the caves at all (C2).
>
> Antalya welcomes millions of national and international tourists per year, many of which visiting for short-term stays in hotels aligned parallel to the shoreline. Ürünlü however offers something beyond the expectations of tourists: Cultural Tourism. Cultural tourism is not a reason why people visit Antalya; and this fact can be mutually beneficial (B1).
>
> According to villagers, tourism will be a hope for village to survive. They think that they can host tourists in their homes and this will increase their income (D1).

Ürünlü House:

In addition to these statements of students that present their references to diverse users, design-stories reflect users' knowledge and opinions about living environment of users and students' experiences with users in their houses and in the village. Following statements reflect this emphasis in design-stories of students;

> It is no surprise really that the traditional building styles has died out-more it is a surprise that it has lasted this long in the first place. The durability of the buildings means that many still stand that were built over a century ago. It takes 14 days to build a house with the local method. A concrete house of the same size and greater fireproofing can be poured within a matter of a couple days. To the local people, of course it is cheaper to pour concrete as opposed to traditional craftsmen for two weeks. The main factor of course is the conceived safety of concrete building (C2).

> They though building with stone and by traditional techniques so hard for today. They qualified as "troublesome." They said, maybe few designs can be made references to traditional culture, but with modern material with respect to existing side (L1).

> In the past, most of the rooms had their own toilets, baths and heating and cooking equipment because one family lived one room. Today, the owners of the houses changed the organization of their houses they want to have one kitchen, one toilet and a bathroom; however, they face with lots of problems while changing their houses. Most of the roofs are conk out and they do not work for protection of the houses (C1).

> Almost every room has a hearth, they were used before when 20-30 people lived in the house for heating. After occupants of the houses have became to use heaters in one room to warm up in winters (E2).

On knowing user by experience

As stated previously, knowing user by experience is based largely on senses and it provides, in Schön's words, feeling of the user phenomena with its actual image. We can observe traces about this kind of knowing in design-stories of

students, in addition to acquired knowledge directly from users and to descriptive and demographic information about them, given in studio.

They made inferences, criticized the situation, formulated problems on the spot. They enjoyed this experience and had strong feelings about it. It is this experience that led the students to feel acquainted with users and their living environment. Following statements exemplify these;

> Windows are flung open and as you walk down any narrow alleyway or street they call out to you and ask you how you are, where you are from, how you like their village (C2)?

> What made most of an impression on me was the nature of people in Ürünlü. It is an unspoilt society. The people do not even lock their front doors. They share their living space their food, their fruit with each other... The houses were built to accommodate generations of families who could live within the same space while retaining some privacy (C2).

> Ürünlü village near Akseki is far from city center and still natural. Villagers are friendly and hospitable. The struggle of villagers that I admire is tried to preserve their own culture. It is big resistance that can be an example of other villages and warning to the government due to the lack of their interest to the extinct culture, to the global system (G3).

> They also like to chat with other people and be together (L1).

> Ürünlü is a fascinating village with its excellent views (K2).

> It might have "cumba" like balcony for lokingviews, smelling the air of Taurus [Mountains] (L2).

Kolb (1984, 42) articulates the central idea of experiential learning theory as follows; "simple perception of experience alone is not sufficient for learning; something must be done with it. Similarly, transformation alone cannot represent learning, for there must be something to be transformed, some state or experience that is being acted upon." On this base, it can be stated that to internalize concrete experiences of students as learning, it requires to be reflected on and constructed with new knowledge. Students' construction of

acquired user related knowledge and user experiences with design problem will be underlined in the next part (section 6.2.2) as part of examination of design knowledge content in design-stories of students.

Conclusion to the Section

In the first part of this analysis, design-stories of students, as a reflection of early problem structuring efforts of students, were examined with reference to its user related knowledge content. This analysis showed that produced stories provided rich material about the problems, needs, and expectations of diverse users and experiences of students with users.

It was observed that nearly all of the students paid attention to the diversity issue. Not only are they aware of the existence of diverse group of users, but also they referred the lack of some groups, for example children and young generation. Interaction with these diverse users seemed to reveal various problems, needs, and expectations, different from students' experiences and worldview. It was also observed that searching users from various perspectives; interviewing, analyzing their use and building context and observing and interacting with them in their daily routines, provided students complementary knowledge and brought a more holistic image of user.

It was also reasonable to say that User-Case experience might have potential to provide students acquaintance with users, awareness and knowledge about their diversity and dynamic nature of living patterns, problems, needs and expectations.

6.2.2 Integration of Knowledge Context with Design Context: Designerly Way of Knowing User

For the evaluation of the material produced by students during the process, it is important to define its design content. The design knowledge content of design-stories are analyzed employing Oxman's (1994, 141) "issue-concept-

form" formalism, which is based on the method of content analysis[23], which is used to determine the presence of certain words or concepts within sets of texts. Oxman's issue-concept-form (ICF) formalism, which refers to a "design knowledge chunk," can be relevant to uncover the design knowledge embedded in students' early design proposals. Oxman (2005) explains the issue-concept-form (ICF) framework as stating that;

> [I]t proposes that by constructing a conceptual structure that reflects one's thinking in a specific domain, we can make explicit the knowledge of this domain. The representations of concepts and their relationships to other concepts are structured and filled with the content of the specific design domain or design task.

Oxman (1993, 275) indicates that by analyzing textual and critical writings about design, "we can collect textual annotations of ideas which characterize the uniqueness of the design." She proposes a tripartite schema; the *issue*, the design *concept*, and the *form* solution, which consists a knowledge chunk, in the early conceptual design phase. She states, "in a particular design task domain it is this linkage which constitutes a meaningful chunk of knowledge" (1994, 141).

Oxman (1994, 144) clarifies the *design issue* as "a point related to the design task which is deliberated by the designer." For her, "such points may be formulated by the programmatic statement, the intrinsic problems of the domain, or by the designer himself." The *design concept* is defined as "the formulation of a design idea in relation to an *issue*. It is a form of ideation related to design task." On the other hand, she explains the *form* as "the specific design artifacts which materializes the solution principle." Oxman (2005) gives examples for *design issue*, *concept*, and *form* as stating that;

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[23] The method of content analysis is used to determine the presence of certain words or concepts within sets of texts. In the application of the method, textual material is classified by reducing it to relevant, manageable data. Using this method, the presence, meanings and relationships of words and concepts can be analyzed, regarding the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part, inferences can be made (De Sola, 1959; Krippendorff, 1980; Weber, 1990).

orientation is an architectural issue, centrality is an architectural concept to achieve orientation and a central hall may represent the actual physical realization of this set of issues and concepts. A single issue may be addressed by different concepts, just as a single concept may address different issues"

Oxman (1994, 143) also gives an example for an application of ICF in an extract from the text about well known building design, Staatsgalerie in Stuttgart Germany, by James Stirling;

The problem posed by the programme included the relationship between the site and the city. The site sloped down to a motorway that cut the old cultural area of the city in two (issue of *urban continuity*). The new gallery had to complement the demands for… an urban *path-through* the scheme. Stirling found that… the *circular drum*, a public space at the heart of the building organization, could also act as a pivot resolving the varied circulation patterns.

After the design story of Staatsgalerie, Oxman determines *issue-concept-form* in this story, and states that;

[i]n the example the design issue is 'urban continuity'. The design concept which was employed to address the design issue is the principle of 'path-through'. In this case the concept 'path-through', describes the ability to pass through the building without entering it. The ramp within the drum, or central circular courtyard, is the form element which materializes the solution principle of 'path-through'. This illustrates the relationship in a typical design story of a design issue, the concept of a solution principle responding to the issue, and the form element which materializes the principle in the design.

Aiming to detect how user experience, as part of problem structuring, effects students' understanding of the problem and utilization of user related knowledge, Oxman's ICF methodology seems relevant to determine design knowledge embedded in design-stories of students and it is possible to examine this material in terms of its user related knowledge content.

However, while it is easy to trace *issue-concept-form* (ICF) linkage in the descriptions of advanced designs, as in the above examples of Oxman, students' early problem structuring efforts did not involve this linkage so clearly, because they were at the beginning of their design learning. They were inexperienced in designing and in describing their design ideas. Therefore, in the examination of design-stories of students, it was reasonable to search for the existence of the components of ICF (*issue, concept, form*) with less sophisticated linkages between them, like *issue-concept* (IC) or *issue-form* (IF) links, rather looking for the entire chunk of ICF.

In the following part, by the analysis of design-stories of twenty-five students, Oxman's *issue-concept-form* formalism will be traced and the main points underlined by students will be revealed. Before the examination of the whole ICF link, focusing on the main components of this link can be helpful. On this base, following part illustrates *design issues* specified by students grounding on Ürünlü experience, as the basis of generated *concepts* and *forms*.

Main Issues

As stated previously, *issue* element of ICF knowledge chunk is described as programmatic requirements and designer based constraints, which provide a goal structure and base for generation of design ideas. In the User-Case: Ürünlü experience, since the design problem was not defined profoundly, students were given only a generic program as "a residential unit with an additional workshop." Students' interpretation of the given generic problem and definition of the important issues of it was important. This interpretation could be conceived as the early part of problem structuring efforts of students, which would give way to the generation of design ideas (*concept* and *form* elements of ICF in this case).

After the Ürünlü experience, it was observed that students brought some *issues* strongly to their design proposals as rationales. These were not always architectural issues, but also social and economical issues, to which proposed architectural solutions aimed to contribute. The main *design issues* that were identified by students for interpretation of residential unit (with a workshop)

problem and for the desired development of Ürünlü are presented in the following part.

The need for bringing life back to Ürünlü

It was observed that, nearly all students, directly or indirectly, shared that there was need for, in one of the students' words, "**bringing life back to Ürünlü**" both by using potentials of existing elderly population, and attracting young population to turn back to village. This issue seemed as one of the major motivation in seeing the design situation and interpreting the problem by students.

To achieve this, grounding on opinions of locals and consultants, students strongly stressed **the regeneration of traditional values of Ürünlü.** With this regeneration issue, students referred to a kind of continuity of values with the contribution of new ones in a contemporary and sustainable way. One of these values was emphasized as local **agricultural production**, such as grape, fig, pomegranate, etc. and handmade food production by processing them by villagers. The other issue, which was remarked as a potential for the activation of village life, was regeneration of **traditional arts and crafts.** Students listened from the villagers that there was a tradition of producing silk and felt products in the village until recently, and they observed a contemporary example of felt production in the village.

In addition to above issues, in design-stories of students, traditional building pattern of Ürünlü was underlined as another important value for the village. Students underlined the deterioration of building pattern due to difficulty of maintaining and cost of stone and timber construction, careless additions and their incompatibility with the contemporary and changing needs of villagers. All of the students remarked the need for **respecting and developing traditional building pattern of Ürünlü**. **Natural environmental qualities of Ürünlü** was another issue, emphasized by students. In their Ürünlü trip, they experienced natural beauty of Taurus Mountains, observed rich flora and **herbal culture of Ürünlü**, and walked to the near "Altınbeşik Cave." Following quotations from design-stories of students can be helpful to

exemplify strong emphasis on the *issues* about the reactivation of the village and regeneration of traditional values in a sustainable way;

> Therefore, what the village needs is an overall project which would appreciate the potentials and bring life to this place. In order to do that the labor force should be brought back to the village, which can only be done by providing occupation possibilities. For these changes to be permanent, they should be based on the potentials of the village. When the production is increased and proper advertising is made the tourist flow to the village would eventually increase which would help the economical development. However, during this process the cultural values and the uniqueness of the village should be preserved in a way that is open to development (G1).

> Our project and others therefore need to provide incentives for the old crafts and techniques to stay alive (C2).

> Ürünlü is a village that needs to be perpetuated. Having people of the village volunteer for that may be the best solution; surely they need to be supplied with units that offer a variety of activities, revealing their village values (H1).

> What should be done, therefore, is to revive Ürünlü, by which I mean to achieve and maintain a healthy and self-sustaining population pyramid. Because only by having such a society, it is possible for Ürünlü to revive and exhibit the unique aspects of its culture. To summarize what is mentioned up to now, the main objective is to make Ürünlü attractive for young villagers. The potentials of the region direct us towards two different economical sectors: Tourism and Agriculture (B1).

> This is an important issue, because local cultures can only be revived by locals, not by people who are not part of it (B1).

The issue of revival of Ürünlü and the need for sustainable regeneration of traditional values appeared frequently in user interviews. In addition, particularly informal conversations with villagers and administrative staff, and consultation of city planner had a great influence on disclosure of these issues.

In relation to these revealed values of Ürünlü, nearly all proposals indicated that the potentials of tourism, particularly **cultural tourism**, as a means to achieve economical sustainability of the village life, that could be utilized for

the achievement of required revival of Ürünlü. Following quotations from design-stories of students indicate this issue;

> Ürünlü needs basically to develop the production and evaluate the natural sources of the village. The villagers have many professions like weaving, carpenter, shoe making, leather making etc. that will help to producing, marketing, and finding new job opportunities. These products are also examples of different work of arts and these crafts will help not only to protect and sustain the cultural heritage but also to activate the tourism activities. Also, to introduce the village and prepare spaces for tourists can contribute to improve the tourism activities. Because Ürünlü is not only a cultural tourism center with its natural and traditional patterns, but also a town in the region of Akdeniz closed to Antalya and Manavgat (G2).

> There is not enough production to keep village's economy. According to villagers, tourism will be a hope for village to survive. They think that they can host tourists in their homes and this will increase their incomes twice. In this way, they will have opportunities that they deserve, like some technological machines or internet. People expect that tourism will be a chance for the village to return to life and young people will come back (D1).

In addition to highly shared issues by villagers and students, which were brought to proposals, some students remarked issues, which were not referred explicitly neither in interviews nor in informal conversations, but reflected students' interpretations of their experiences and observations. The need for **health facilities** in the village was one of these issues, underlined by some of the students considering elderly population. They also emphasized the opportunity to produce **alternative medicine** products, basing on rich herbal culture of villagers. Following statements exemplify indicated issues;

> Then, I cannot see any place for first aid. There must have a village clinic or place to treat health problems (C1).

> Another issue is that despite the aging population of the village, there is no doctor clinic or even a pharmacy in Ürünlü. The nearest is the town of Ibradi (C2).

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> This village has also a very rich source of herbal culture, because of its nature and position between mountains (B2).

Many of the students observed passive life of women and thought the value of **<u>participation and contribution of women</u>** to proposed regeneration of the village. They all underlined the need for community and production spaces, where villagers, particularly women, could participate actively, as socially and productively. Following extracts from design-stories of students exemplify indicated issues;

> If there was some chance for women too, it would be great for them to spend their time usefully and earn some money, also. Maybe the tourists who come there also wish to learn their professions (F2).

> According to the owner of the house, they do not really have a social life in Ürünlü and public places that women can meet (G4).

> women are interested in crafts such as embroidery and textile. The fig and grape production are very significant as well as other fruits and vegetables. Noodles, bread, "tarhana," jam and pickles are among the things that are produced in the village. However, the production of these has not been considered as a source of income. With development in the production and processing of these, the village can also be develop (G1).

It was observed that all these revealed *issues* by students shaped and transformed the generic problem, given at the beginning of the semester, and facilitated to define its character at the end. Next part addresses the *issues* that reflected students' interpretation of the design problem and defined qualities.

Need for a workshop/guesthouse with a residential part:

At the beginning of the User-Case experience, students were given the generic design problem; "a residential unit with a workshop." This problem was expected to be transformed by students with the influence of acquired experience and knowledge in Ürünlü.

As underlined in the above part, grounding on their experiences and knowledge, students strongly remarked the need for revival of the village life in a sustainable way and emphasized potential of cultural and natural values of the village for cultural tourism and the need for voluntary participation of villagers, particularly women population. These revealed issues seemed to influence the transformation of the early "residential unit with a workshop" problem to a more integrated and structured one.

We could observe two types of transformation with response to the problems and expectations of the villagers. These two approaches based their proposals on the same potential, tourism, particularly cultural tourism potential of the village. However, in their proposals, they took different approaches; while one preferred to propose spaces to support the sustainable regeneration of traditional production, the other proposed spaces to accommodate guests.

It was largely observed that in the former approach, the "workshop unit," which was the secondary element of early problem, was brought to the fore by students as the main architectural problem in their interpretations of early design problem. The "**workshop**" element was underlined, due to its potential to provide spaces to contribute demanded sustainable regeneration of the village. On the other hand, "residential unit" element of the early problem was interpreted as an additional part of the workshop in this transformation. In addition to the superiority of "workshop" idea over early "residential unit," the "**guesthouse**" issue appeared in design-stories of students, instead of workshop unit, as another interpretation of the early problem. Following part concentrates on "workshop" and "guesthouse" issues and their character defined by the students.

The necessity of a "workshop" for Ürünlü was emerged and this was highlighted as a critical issue in most of the design-stories. In these proposals, workshop was defined as a production and community place where villagers could come together, produce their traditional food and craft, and share this process and products with guests. This transformation of acquired user related knowledge to architectural qualities, which would be expected to shelter

underlined needs, problems, and expectations of villagers, could be considered as an instance of the development of designerly way of knowing user, as underlined in Chapter 5.

It was observed that, the workshop issue appeared in design-stories of students in three forms; "arts and crafts workshop," "workshop for grape-fig-pomegranate products and vinery," and "workshop for the production of herbal products, including health facility." Following quotations from students' design stories reflect this strong emphasis on the need for workshops and its character;

> The result of my main focus directs me towards designing a project, composed of a workshop selling local agricultural products, a restaurant-like winery where people can taste the different blends from the vineyards of Ürünlü and a residential unit attached to these functions (B1).

> In my design idea, I decided to create a workshop where herbal products and local foods are made and sold as well as wine, and a residential unit (B3).

> My idea is to develop a work place for processing local herbs, which grow on the mountains around the village. It is not only once mentioned in the presentations conducted to us that the variation of these is huge. An alternative medicine was also developed by the early habitants using this rich flora (K1).

> I am planning the workshop unit for producing the material felt made of goat fur or wool (C1).

> In the light of the problems presented I propose that the site be used to create a multifunctional communal building. The vineyard of the site might be used as a market place for a seasonal touristic market, and also a new location for their annual festival. The building could on the ground floor contain a handicraft workshop for the village people to use as an aid to tourism by utilizing their local produce and materials to create souvenirs etc. (C2).

> I thought to design a complex that has workshops for handcrafts like ceramic and "keçe" works, also has spaces provide places for works and issues of alternative medicine. In addition to these, this complex will have a residential space for family which will handle all these works. In cocnclusion, I think these aspects will bring more tourist to village (B2).

Another interpretation of early design problem was found in design-stories as "guesthouse" with a residential part. Grounding on experiences of villagers with existing guests, who came to visit village, mostly for Altınbeşik Cave, and basing on students' own experiences in Ürünlü as guests, the need for **accommodation facilities** was remarked as a critical issue in relation to the underlined tourism potential of the village, as a means of economical sustainability. Following quotations exemplify this issue;

> Although the villagers are very hospitable people, there is accommodation problem of the guests. There should be a guesthouse or a boutique hotel like that (C1).
>
> There is one of the biggest caves of the world 2 km far from Ürünlü. Visitors of the cave may want to stay Ürünlü. Moreover, the village is very suitable for cultural tourism and also people come for workshops need a place to stay. A guesthouse convenient in four seasons can be solution of this problem (K2).
>
> The village has been a good place to visit by the tourists in recent years. Since it's not a well known village, only some people who are really interested in traditional values and beauties go and see the village, but there is not any space that they can stay and spend time there. A guesthouse would be great in the village (F2).
>
> There is no place for visitors for staying and eating… Guesthouse is an important need for the village and of course a restaurant (L2).
>
> According to interviews, which we did with the villagers, it is certain that the village needs guesthouse (A2).

On the other hand, we could easily trace from above extracts that the residential unit element of early design problem remained as a residential part for the family that managed the workshop or guesthouse and as integrated with main units.

Basing on the knowledge reflected in interviews and students' own observations, many of the students indicated that there was a need for "**public gathering places** in Ürünlü and they pointed out this as an important quality of their "workshop" and "guesthouse" proposals. This social meaning of place

was underlined in relation to both **participation of villagers** to social life, particularly participation of women, and defining/shaping the character of villager-guest relation as part of demanded cultural tourism. Following quotations indicate this underlined character of workshop and guesthouse as a social gathering and interaction place for villagers, women, and guests;

> It is not a guesthouse for trade and it would be more friendly to live together with the guests… Socializing is an important concept in that building as the visitors come that village to experience the villagers' life a bit and observe both the village and the villagers… It will be a chance to spend time with the villagers. (A1).

> To talk about the public areas, Ürünlü villagers really need more public areas to get together. There is only coffee house for men's gathering; also "alternative medicine" is another place for gathering but especially for young generation which is missing in Ürünlü. Therefore, we can say that they lack public places. In our project as we are going to create a workplace besides a residential unit, this "workplace" can be valued by making it a public area (D2).

In relation to the underlined *issues*, the need for participation of the women and need for public gathering, it was observed that many of the students structured their architectural problem with reference to the productivity potential of the women. They aimed to support their productivity by moving their self-sustained craft and food production tradition into workshops and aimed to provide a gathering/interacting space to share their culture with each other and with guests. And they underlined that designing "a workshop unit" as a meeting place for villagers, particularly women population could be a great contribution to regeneration of the village. Following statements of students may help to exemplify this strictly underlined *issue*;

> The required place for this area is a workshop for ladies to produce their crafts and homemade food and a market to sell the goods. A host for this space and her living area is also essential, as this would be a village culture essenced place. So this environment should make the tourists feel being hosted in a house where they can also purchase

local goods. The women of the village should come together in this place as if they are gathering in one's house but for purchasing (G1).

It can be a workshop that women come and do whatever they manage to do and even sell. They can either do handiworks or cook traditional foods (D2).

This place, especially the café house may serve for social gathering of women, since there is no such place in the village today (K1).

Women of the village can come the atelier for both working and meeting. The atelier will be a meeting and production place more than being just a workplace (G2).

I am interested in proposing a workshop, which gives an area to women to produce some jams with their fruits in the village, some oils, their traditional pies, cookies… So they will need a store to keep the jars, which is not procuring much light. And besides these, a café just to spend time sometimes, making herbal teas, and serving their cookies to the local people or to the tourists, and also they can use it to sell their products (F2).

Especially, after interacting with villagers, getting opinions of administrative staff and consultants, it was observed that students began to see their generic design problem from the perspective of users. Underlined *issues* seemed to constitute main components of this perspective. With this perspective, we can find the emergence of the issue of "workshop" and "guesthouse" and related issues about their content and character. It was observed that, all these selected and underlined *issues* do not indicate formal references, but provide a goal structure to design problem of students.

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MAIN ISSUES
Second Year Architectural Design Project in Ürünlü
(Design-Stories of Students)

1. Bringing life back to Ürünlü,
2. Regeneration of traditional values of Ürünlü,
        - agricultural production,
        - traditional arts and crafts,
        - rich herbal culture
        - building pattern,
3. Potential of natural environment,
4. Respecting and developing traditional building pattern of
Ürünlü,
5. Participation and contribution of women,
6. Need for public gathering places
7. Health facilities,
8. Accommodation of guests
9. Cultural tourism,
10. Workshop/Guesthouse to reactivate village life, with a
residential part
        -guesthouse with a residential part,
        -arts and crafts workshop with a residential part,
        -workshop for the production of herbal products,
        including health facility and a residential part,
        -workshop for grape-fig-pomegranate products and
        vinery with a residential part,
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Figure 13 Main *issues*, revealed in design-stories of students.

Main Design Concepts and Forms:

Problem structuring begins with an interpretation of problem situation, as stated previously, this interpretation is fulfilled by proposing possible solution images, which provide designer means to analyze and structure the problem situation. After determining the *issues* of Ürünlü project, which formed the basis of design decisions, the critical part of problem structuring of student comes with the generation of design concepts.

These tentative design concepts, as Darke (1979) remarks, are not only in the form of "images of design solutions," but also in the form of "abstract relations" describing the design situation. Design concepts can be conceived as architectural embodiments of underlined *design issues* in proposals and in our case, *concept* and *form* elements of ICF linkage reflect these proposed abstract relations and concrete formal references.

As stated in the beginning part of the section, in ICF formalism, *concept* is defined briefly as "a particular solution concept" and *form* element, on the other hand, is explained as "a related form description of design, or a part of it" by Oxman (2005). It is important to examine *concept* and *form* content of design-stories of students. In other words, it is important how students transformed defined *issues*, with which *concepts* and *forms*, to architectural design domain.

We can observe the emergence of some critical abstract relations and organizational and formal ideas in relation to the formation of "workshops" and "guesthouses" with their residential part in design-stories of students. Main *concepts* and *forms*, offered in design-stories of students, are presented in the following part.

Main concepts:

The main *design concepts*, which provided abstract relations for the formation of workshop and guesthouse proposals of students, can be listed as "dialogue between old and new," "gathering place," "privacy," and "flexible-adaptable organization."

With regard to the strong emphasis of villagers, administrator, and consultants on the need for sustainable regeneration of traditional values of Ürünlü, the *concept* of building a **<u>dialogue between old and new</u>** appeared in nearly all design-stories for the physical formation of workshop, guesthouse, and their residential units in the traditional context of Ürünlü. We can observe the traces of this strong *concept* in various levels, from contextual to structural and material, and to programmatic dialogue with traditional building context of Ürünlü in the following statements;

> Guesthouse must not be too big. It must be related to the other buildings in the village in terms of size and shape (L2).
>
> The house should not be large as it is a guesthouse serving for a few numbers of people; the capacity should be arranged with reference to a large traditional Turkish house, which is not more than 20 (H1).

My spaces will be constructed by timber and stone mostly to be in harmony with the other ones in the village (B3).

I also thought that this new building or buildings shouldn't be disconnected to the village buildings in an appearance. Therefore, the material that can be used is timber. For the base stone is better and living parts can be full of timber (A3).

Some of the students underlined need for the accommodation of different activities and changing needs of villagers in designing their workshop and guesthouse proposals. In relation to this underlined multi-functionality, they conveyed the *concept* of **flexible/adaptable organization** of spaces as a strategy to respond changing needs of villagers with time. Following statements from design-stories of students may reflect appearance of this *concept*;

The complex can also contain flexible spaces for multi-functions, but they don't need to be inside the building they can be open or semi-closed with the trellis maybe (A1).

The open space on the site can also be used for the annual festivals, perhaps trade markets and other community functions. The proposal is to utilize this space as something flexible and adaptable that can change with time as the needs of the people change (C2).

Eating place (cooking) that can serve much people. even if the guests are not coming, this eating public place can be used in celebrations (A3).

In relation to designing the building, the influence of public gathering places *issue* for villagers, particularly women and for guests was observed on the generation of **gathering/meeting space** *concept* as a part of guesthouse and workshop proposals in design-stories. It could be observed that many of the students indicated, directly or indirectly, a gathering place as a core place, which connected other parts, embraced required multi-functionality and brought villagers and guests together for interacting, producing, and sharing

this culture. This emphasis could be traced for example in the courtyard references, in addition to the following statements;

> Open spaces and common space to gather people. Not only for the visitors, but it should be a gathering place for the villagers too (A3).
>
> According to my observations and interview with villagers, I am planning to design a place that includes residential unit, workshop and a court that can be used as that they can make grape molasses and tomato paste and also can meet and socialize between themselves (G4).

Although direct references to the *concept* of gathering place were limited, many of formal proposals (*form* component of ICF), which were presented later in this part, addressed this *concept* indirectly.

With reference to natural beauty of Ürünlü environment, to outdoor living, and to richness of local flora, some of the students wanted to organize a **garden (landscape)** as part of their workshop and guesthouse design, utilizing these qualities. Following statements provides some examples for this *concept*;

> As the site is large enough to create a big garden, taking the advantage of amazing scene (H1).
>
> I will also have a garden where the grapes and other fruits and vegetables will be grown (B3).
>
> Landscape can be solved with Ürünlü's typical trees ("badem," "asma," "incir") (K2).
>
> I want to make a plan of a residential unit and a workshop with a large garden. In good weathers, people coming from other villages, cities can drink tea, sit under the trees, go through the spring and collect pomegranate and fig. In the rainy weathers, visitors can pass their time in front of the fireplace (F1).

In workshop and guesthouse designs, some of the students emphasized directly or indirectly the *concept* of **privacy**, particularly as required spatial quality of residential part in workshop and guesthouse designs and guestroom part in guesthouse.

> In our project we should create a residential place and a workplace appropriately that they will not interrupt each other (D2).
>
> The residence of the family living there will be next to this building, but as a separate unit, to obtain privacy (K1).
>
> Guests' privacy should be kept when they get into their rooms (H1).

With strong reference to the underlined *issues* in design-stories of students, the development of a number of formative ideas/ *design concepts* for the physical planning of workshops and guesthouses, in this early stage of design process was observed. Although these concepts were revealed partially in design-stories of students and they could not embrace whole issues related to design proposals, it was observed that the main organizational and formal qualities of workshop and guesthouse designs in Ürünlü context could be determined, even in a very early stage of novice student's design process.

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┌─────────────────────────────────────────────────┐
│                 MAIN CONCEPTS                    │
│   Second Year Architectural Design Project in    │
│                    Ürünlü                        │
│            (Design-Stories of Students)          │
│                                                  │
│  1. Dialogue between old and new                 │
│          - in contextual level                   │
│          - in formal/organizational level        │
│          - in programmatic level                 │
│          - in structural/material level          │
│  2. Flexible/Adaptable organization              │
│  3. Gathering/Meeting place                      │
│  4. Landscape organization/Garden                │
│  5. Privacy                                       │
└─────────────────────────────────────────────────┘
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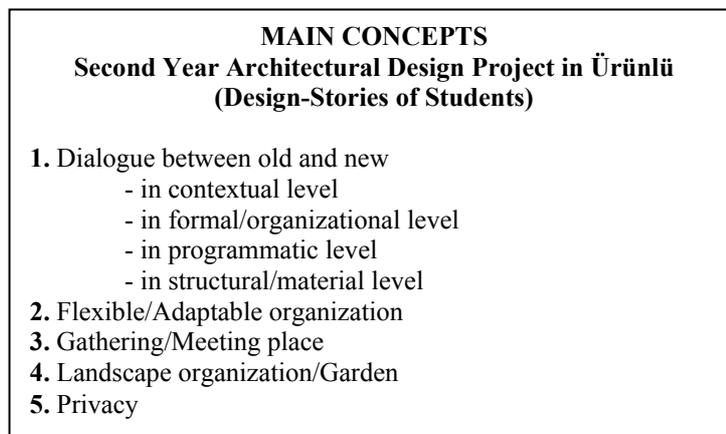
Figure 14 Main *concepts* revealed in design-stories of students.

Main forms:

In relation to the *concepts* that appeared in design-stories, students proposed or referred some specific design artifacts or existing designs, which materialized the proposed abstract solution *concepts* and *design issues*.

It was observed that the *concept* of gathering/meeting place found a strict spatial, formal reference in design-stories of students. It was the court or **courtyard** *form*. Students proposed this *form* both as an organizational strategy to integrate parts of workshop or guesthouse and as spatial counterpart of a programmatic content; gathering/meeting/eating/producing/sharing place.

> The court will be open place and close to the street. There will be also a smaller court that will be located in the back of the house. Both courts will be connected each other and also be connected to the streets passing through both sides of the house (G4).

> Spaces will be connected with short paths and with a courtyard. A space where people can sit/eat something /watch how the work is done etc., is also in my considerance (B3).

> I think the second part as an inner courtyard to differentiate the first and third part. Also this courtyard will provide an eating area in good weathers and a gathering space (maybe for festival time) (A2).

Another issue, underlined by the students in their guesthouse design, was organization of guestroom part. In a strong relation to revealed *concept* of the need for privacy in this kind of spaces, some of the students indicated a kind of **separated organization** of guestrooms part from public parts of guesthouse.

> Rooms should act as a special zone like sleeping (K2).

> Common spaces and guest rooms should be "separate," but when the guest leaves his/her room, he/she should not feel "separated" from those spaces (H1).

Due to the value of traditional building pattern of Ürünlü, the *concept* of dialogue between old and new was underlined, directly or indirectly, by many of the students. We could trace *form* references for this *concept* in various levels. At the building level, **Ürünlü house type** was proposed with its programmatic organization and its adaptation capacity to new programmatic content.

Another formal reference for underlined dialogue *concept* was the **room type of Ürünlü house**. In this proposal, self-fulfilling character of traditional room type was indicated with its integrated cooking, bathing, sleeping, living functions and proposed as organizational model for guestrooms of guesthouse design. Its cultural qualities were underlined as one of the characteristics that was demanded to represent to the guests.

Another spatial element that was selected from traditional building context of Üürünlü was the **traditional structure type** of Ürünlü house. Particularly related with the *concept* of dialogue between old and new at the material-structure level, students directly or indirectly showed a tendency to use traditional structure type in their designs. Although following example proposed a one to one use, without any interpretation, there were some examples, which proposed interpretation of traditional material or structure type with new materials and new structural elements (see additionally B3 and A3 references for the *concept* of dialogue between old and new). Following quotations exemplify underlined *form* references;

> Suppose that the village will be a touristic place and tourists go there to see its culture and nature. In this case, people must keep their lifestyles for themselves and tourists and primarily for the culture of village. Because of that, I think, the classical house type can be used for touristic activities. For example, every house have own guest room even a part for guest's houses. These parts an be used to host tourists. Tourists also prefer this, because they go there to live in the culture. The rooms in the houses, which are not used can be also used for it. In addition, because of the slope of the areas, a part of houses are generally under the ground. This part is covered from soil and here is very cold in summer and foods can be kept here. These parts can be used for shops to sell dry foods, "pekmez," wine and other things like

that, maybe fresh fruits at some time. Shortly, I think, the classic house type is very acceptable for being a workplace because the village have it in its tradition (D1).

Guestrooms have to be thought to answer the individual needs of the guests, so they all have to contain restroom in selves. That idea is not far from the reaining condition of the houses in Ürünlü as they have a wardrobe-bathroom concept. When we look at the current conditions, in Ürünlü each room has "davlumbaz" inside, which is for both cooking and fire that can be developed or just used as a symbol in rooms but in an active way in the gathering spaces. In rooms, it can be used for heating maybe which can give an interesting atmosphere to the space (A1).

My spaces will be constructed by timber and stone mostly to be in harmony with the other ones in the village (B3).

And the tectonic walls might be used for garden wall (L2).

Figure 15 Examples from Ürünlü house type, room type of Ürünlü house, and traditional structure type (images are selected from students' and studio archives).

In addition to the referred building and space type, the concept of dialogue between old and new was materialized with reference to some traditional spatial elements. One of them was **kafes/cumba** element of the Ürünlü house. This formal reference was not only used as interpretation of traditional spatial element of the house with new programmatic content in guesthouse, referring to the gathering space *concept*, but also used as a spatial element of guestroom with similar functional use and formal qualities, which reflected traditional building culture of Ürünlü.

Another *form* reference, which was underlined, was **Ayazlık** spatial element of Ürünlü house. As part of the living space of the house, the semi-open and flexible character of Ayazlık *form* was proposed as a good reference for designing guestrooms. Following quotations exemplify emphasized *form* references;

> So the gathering spaces have an important role in that building. Remaining gathering space "kafes" can be kept, of course in a developed and modern manner. To achieve that, "kafes" can be placed in a such way that it will be related to guestrooms (A1).

> For residential part; a living space that union with a "cumba" maybe (L1).

> All bedrooms will include their own bathrooms and toilets. I organize all rooms with balconies (ayazlık), which are characteristic of the house in village (A2).

Figure 16 Examples from Kafes/Cumba and Ayazlık/Köşke elements of Ürünlü house (images are selected from students' and studio archives).

In the organization of spaces of workshop and guesthouse, particularly related to the open spaces or their connection with semi-open spaces, the reference to **trellis** was observed, as another traditional spatial element, which was used for sheltering outdoor spaces, or village streets, sometimes attached to the house walls. The trellis *form* was brought by students to their designs as an organizing and sheltering element. Following quotations exemplify this *form* reference;

> The trellis is the one used to cover the outdoor space (L2).
>
> The complex can also contain flexible spaces for multifunctions but they do not need to be inside the building. They can be open or semi-closed with the trellis maybe (A1).
>
> Garden with "Badem Trees" and "trellis" (E1).

Figure 17 Examples from use of trellis element in Ürünlü (images are selected from students and studio archives).

In relation to defined *issues* and evolved *concepts*, considerable numbers of *form* references were observed in design-stories of students, despite students' inexperience in design and lack of adequate design concept repertoire. These *form* references not only involved direct transference of formal qualities, but also indicated adaptation of them to new requirements. It was observed that students selected most of the formal references from building context of Ürünlü, such as Ürünlü house type, room type, cumba/kafes, etc., but they proposed these *form* references in relation to living patterns, problems, needs, and expectations of users. In other words, connecting user qualities with architectural/spatial qualities, students formed linked-exemplars instead of merely picking forms in Ürünlü context. These linked-exemplars, have potential to transfer user-related knowledge to synthesis, design solutions of students, as we observed from design-stories.

On the other hand, we could also observe that students brought more general formal strategies to their workshop and guesthouse designs. "Courtyard" *form* was the strongest one of these. There was not any considerable example in Ürünlü building context for courtyard formation, except some partial garden formations, in relation to required multi-functionality *issue* and need for direct-indirect relations and closed, semi-closed, and open spaces. courtyard *form* was found as the answer to these concepts in design-stories.

```
        MAIN FORMS
Second Year Architectural Design Project in Ürünlü
          (Design-Stories of Students)

 1. Courtyard
 2. Separated organization of rooms from public parts
 3. House type of Ürünlü
 4. Room type of Ürünlü House
 5. Kafes/Cumba
 6. Ayazlık
 7. Traditional structure type of Ürünlü
 8. Trellis
```

Figure 18 Main *forms* revealed in design-stories of students.

After separate analysis of *design issues*, *concepts*, and *forms*, which formed ICF design knowledge chunks in design-stories of students, it was important to examine underlined links between them, in order to reveal a conceptual map of design knowledge content of design-stories.

ICF linkages in design-stories

With the help of ICF formalism of Oxman (2005), main individual components of design knowledge in design-stories of students have been identified and represented. Although, their individual existence in design-stories are valuable sources to detect the contribution of User-Case experience to communication of user related knowledge with architectural solutions and to students' designerly way of knowing user, they are not proposed separately in the design-stories. They were proposed in relation to each other and they indicated a meaningful design knowledge chunk. It is important to reveal these proposed linkages between them in order to present an overall contribution.

These links between *design issues, concepts and forms* in design-stories could be observed sometimes in the form of a complete *issue-concept-form* (ICF) linkages, but mostly in the form of *issue-concept* (IC) or *issue-form* (IF). These revealed links in design-stories of students involving interpretation of the *issues* from the perspective of users and with the contribution of design

concepts from user context, strongly indicate students' designerly way of knowing user in the architectural design studio. Following figure shows the appearance of this structure in few examples from design-stories of students (Figure 19).

These examples of links between *issues, concepts,* and *forms* illustrate the richness of design ideas and their user related knowledge content in design-stories of students. It can be traced from the singular examples of students (Figure 19) that not all *issues, concepts*, and *forms* appeared in each proposal. After the presentations and discussions in design studio, this individual variety in design ideas were shared with other students and they became a very part of the studio language. Figure 20 shows the main *issues, concepts, forms* and links between them, which were observed in design-stories as a whole. We can conceive this as an early conceptual map, which reflects design knowledge content and acquired user related knowledge in design-stories of students.

G4

issue
participation and contribution of women,

issue
need for public gathering places (particularly for women)

→ **form**
courtyard

B3

issue
workshop for herbal products, local foods and wine production

→ **concept**
dialogue between old and new

→ **concept**
gathering/meeting space

→ **form**
courtyard

A1

issue
guesthouse

→ **concept**
dialogue between old and new

→ **issue**
room type of Ürünlü house

K2

issue
guesthouse

→ **form**
room type of Ürünlü house

→ **form**
separated organization of rooms from public parts

H1

issue
guesthouse

→ **concept**
dialogue between old and new

→ **concept**
privacy

→ **concept**
landscape organization/garden

→ **form**
separated organization of rooms from public parts

A1

issue
need for public gathering places for interaction between villagers, women, and guests

→ **concept**
flexible/adaptable organization

→ **form**
kafes/cumba

L2

issue
guesthouse

→ **concept**
dialogue between old and new

→ **concept**
landscape organization/garden

→ **form**
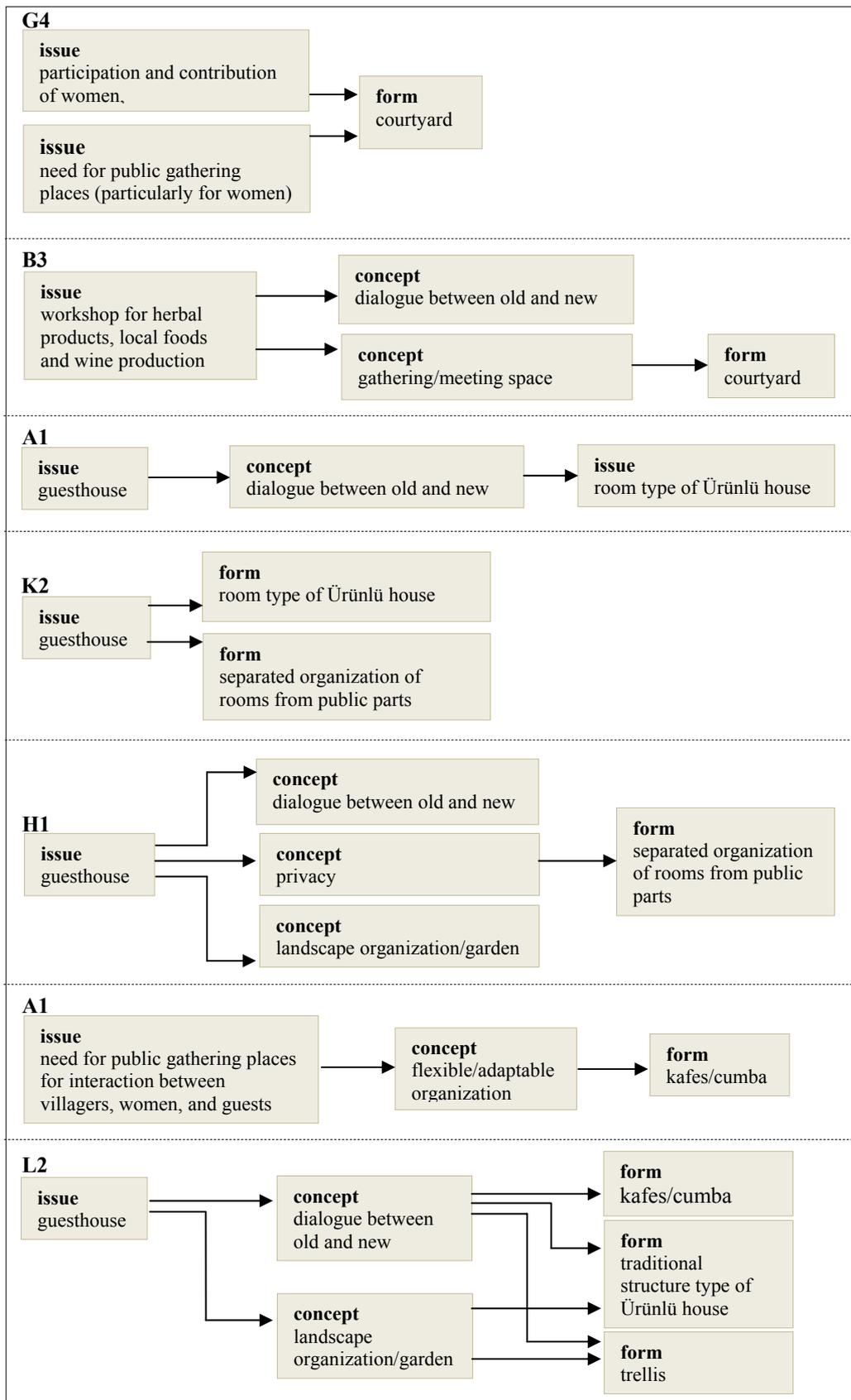kafes/cumba

→ **form**
traditional structure type of Ürünlü house

→ **form**
trellis

Figure 19 Examples from links between *issues*, *forms*, and *concepts* in design-stories of students

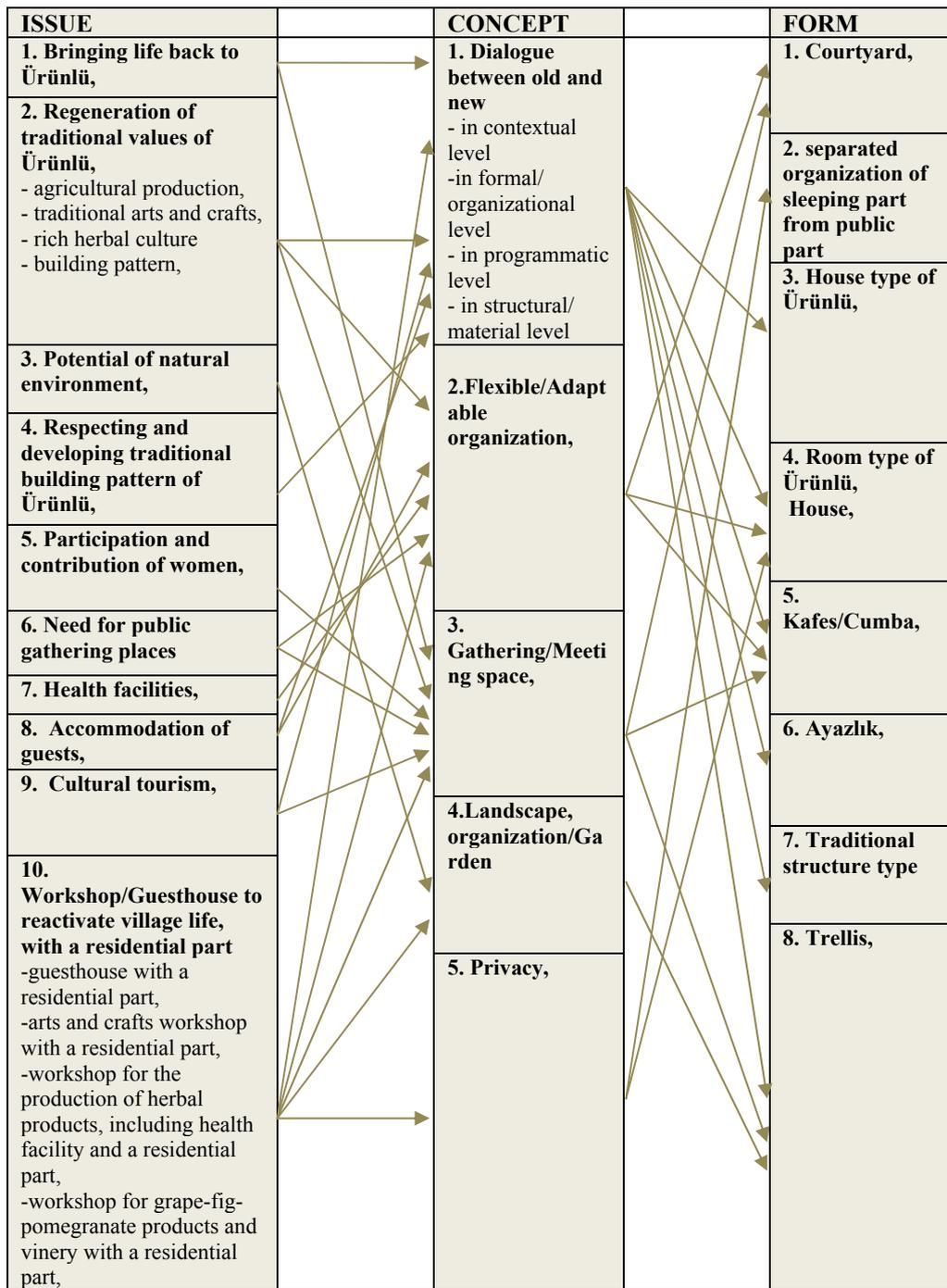| ISSUE		CONCEPT		FORM
1. Bringing life back to Ürünlü,		**1. Dialogue between old and new** - in contextual level -in formal/ organizational level - in programmatic level - in structural/ material level		**1. Courtyard,**
2. Regeneration of traditional values of Ürünlü, - agricultural production, - traditional arts and crafts, - rich herbal culture - building pattern,				**2. separated organization of sleeping part from public part**
				3. House type of Ürünlü,
3. Potential of natural environment,		**2.Flexible/Adaptable organization,**		
4. Respecting and developing traditional building pattern of Ürünlü,				**4. Room type of Ürünlü, House,**
5. Participation and contribution of women,				
6. Need for public gathering places		**3. Gathering/Meeting space,**		**5. Kafes/Cumba,**
7. Health facilities,				
8. Accommodation of guests,				**6. Ayazlık,**
9. Cultural tourism,				
		4.Landscape, organization/Garden		**7. Traditional structure type**
10. Workshop/Guesthouse to reactivate village life, with a residential part -guesthouse with a residential part, -arts and crafts workshop with a residential part, -workshop for the production of herbal products, including health facility and a residential part, -workshop for grape-fig-pomegranate products and vinery with a residential part,		**5. Privacy,**		**8. Trellis,**

Figure 20 the rough conceptual structure, which reflects proposed *issues, concepts*, *forms*, and provided links between them in design-stories of students.

The Influence of User-Case Experience on Final Design Proposals of Students

As stated previously (section 6.1.1), User-Case: Ürünlü experience was organized as the first stage of four-cycled design project (see figure 3). With its rich material produced at the end of the stage provided a valuable base throughout the design project.

This shared and distributed knowledge among students in the studio contributed to the studio in terms of user related knowledge and linked exemplars. This common ground fed students during the design process and contributed to the maturation of early proposals. In this process, with the careful support of instructors, additional material provided by them, and the material provided in the studio discussions, the raw *concepts* and formal references were led to more advanced designs.

We could trace the dissemination and advancement of these early design ideas/concepts in students' final proposals at the end of the semester. These early strong experiences were carried to, whether adapted or modified, the final stages of the studio project. Following figure (Figure 21) illustrates the appearance and advancement of "trellis," as a formal reference, proposed in the early problem structuring stage, in the final products of various students.
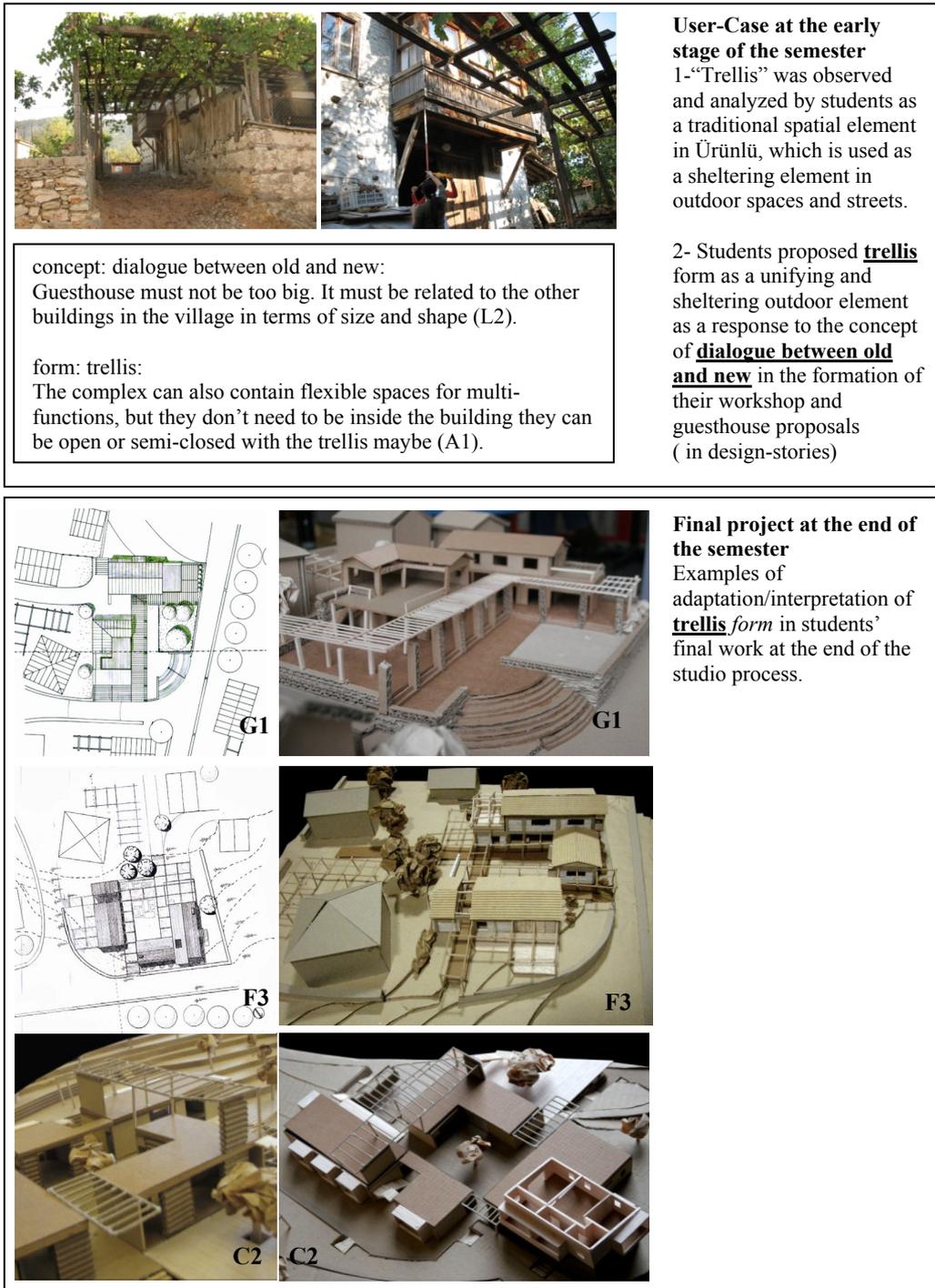
User-Case at the early stage of the semester
1-"Trellis" was observed and analyzed by students as a traditional spatial element in Ürünlü, which is used as a sheltering element in outdoor spaces and streets.

2- Students proposed **trellis** form as a unifying and sheltering outdoor element as a response to the concept of **dialogue between old and new** in the formation of their workshop and guesthouse proposals (in design-stories)

concept: dialogue between old and new:
Guesthouse must not be too big. It must be related to the other buildings in the village in terms of size and shape (L2).

form: trellis:
The complex can also contain flexible spaces for multi-functions, but they don't need to be inside the building they can be open or semi-closed with the trellis maybe (A1).

Final project at the end of the semester
Examples of adaptation/interpretation of **trellis** *form* in students' final work at the end of the studio process.

G1   G1

F3   F3

C2   C2

Figure 21 An example to illustrate the influence of revealed *issues, concepts*, and *forms* with User-Case experience in the early stage of design process on the final design proposals of students in studio (Trellis as a *form* reference) (images are selected from studio archive).

Conclusion to the Section

In the second part of the analysis study, the design knowledge content of design-stories of students were presented with reference to acquired user related knowledge (presented in the first part of this analysis). The aim was to reveal the contribution of actual user search as part of design investigation (User-Case) to students' designerly way of knowing user in design studio. User related knowledge generation in relation to design problem and generation of design concepts with respect to acquired user related knowledge and experience were tried to be identified.

The analysis of design-stories showed that User-Case experience could strongly contribute to effective communication of user related knowledge with architectural solutions. In this study, the important thing was not the success or complexity of design proposals of students, but generation of design concepts by students to conceived design problem in Ürünlü and the influence of acquired user related knowledge on this design knowledge content.

We could observe this by tracing the generation and character of *design issues*, *concepts* and *forms* of ICF formalism, in relation to acquired user related knowledge in problem structuring of students.

Considering that *issues* were underlined with their content and one of the sources of its content was designer-based requirements, revealed *design issues* in design-stories of students showed students' interpretation of design situation primarily from the perspective of user, instead of the dominance of technical or domain specific issues, or individual preferences. On this base, the transformation of generic design problem, given at the beginning of the design process, was observed from designing a "residential unit with a workshop part" to designing a "workshop" and "guesthouse" with a residential part, after students' interaction with villagers, administrative staff, and consultants and after they realized the actual situation of the village.

As underlined previously, problem structuring is generally difficult for novice students, since they do not have enough concept repertoire in their early

periods of design learning. However, we could observe considerable number of *concept* and *form* references proposed for structuring the design problem in design-stories of students. This could be evaluated as an advance over the common design studio experiences of this level. Strong influence of acquired user related knowledge was observed in the generation of these *design concepts* and *forms* in designing demanded workshops and guesthouses. This *concept-form* generation in the very early stage of design process was detected both as adaptation of linked-exemplars and as adaptation of general design strategies in relation to defined *issues*.

In design-stories, it was also observed that students presented design issues, forms, and concepts constructing future scenarios about living patterns of users in proposed spaces, which was based on acquired knowledge from Ürünlü experience.

It could be stated that the existence of design ideas with strong reference to acquired user related knowledge supported the meaningful contribution of User-Case experience on students' problem structuring skills.

These underlined *issues, concept, and forms* did not appear in all design-stories of students. While some of the students indicated one or more *concepts* in relation to several *issues*, others combined some *issues* with one *form* reference, or some provided a complete ICF link. Despite this partial appearance *of issues, concepts,* and *forms* in individual design-stories, after studio presentations of design-stories and discussions, studio environment reflected a complete picture of ICF design knowledge chunks and shared richness, which could be observed particularly from final proposals of student at the end of the semester.

It is observed from students' design stories that with this User-Case experience in the early stage of their design process, they could internalize user related knowledge and transformed it to their early design solutions effectively. With reference to Ledewitz's words (1985, 4), they provided "dialectic between pre-conceived solutions and observed facts" even in this early stage of design process.

6.3 Evaluation of the Chapter

The main purpose of this chapter was to present a second year architectural design studio experience (User-Case: Ürünlü) in order to illustrate potentials and critical contribution of actual user-student interaction as part of problem structuring to expansion of students' knowledge repertoire and awareness about user and to the development of a designerly way of knowing user.

The User-Case: Ürünlü experience, as the first part of four-cycle studio project, aims to form early conceptual stage of novice students' design activity with rich concrete user experience as a simple search process in relation to design problem and aims to provide students ability to structure design problem, with this rich user experience in mind. Students integrate their knowledge and reflect their problem structuring efforts in their design-stories at the end of User-Case experience.

It is detected from the analysis of design-stories of students that the user related knowledge repertoire of students expands towards problems, needs, and expectations of diverse users and design knowledge is formed with the contribution of this user related knowledge content. These traces of change in user understandings of students can be detected throughout the User-Case experience.

1- At the beginning of the User-Case experience, it can be detected from the early exercises in studio and brief survey, which reflects opinions of students about "users," "architects," and "architecture, that user was conceived by students just as a passive, unchanged, and predictable group who use buildings.

2- During the user search process, through the intense experience with diverse users and their building context, and with the acquisition of knowledge about them, we can observe that students perceive users, with their variety of needs, problems, expectations, ideas, values, and differentiate them from general user categories and from their self-referential user understandings.

3- And finally, through students' reflection on this acquired user related knowledge and experience with reference to generic design problem, we can

observe the transformation of given "residential unit" problem to "workshop" and "guesthouse" problem from the perspective of Ürünlü users. This transformation of user related knowledge keeps going with the physical formation of "workshop" and "guesthouse" through generation of abstract relations, design concepts, and tentative solution images. In this process architectural spaces are determined and formed with reference to the acquired user related knowledge; "gathering space for the activities of women villagers," "landscape organization and semi-open eating spaces for guests with the organization of trellis elements," "guestrooms for guests with its bathroom, bedroom, small kitchen, which organized as in the multiple and flexible organization in traditional room type, with its heart, cupboard bathroom, and living space. It is reasonable to define this final development in students' user and design knowing as their designerly way of knowing user.

In the end of the User-Case experience, it is possible to observe from final material that desired development in user understandings of students could be formed by the contribution of proposed conceptual base for *knowledge context* and *design context* in architectural design studio.

CHAPTER 7

CONCLUSION

7.1 Review of the Study

Considering that, there is a great demand for adequate representation of user in design and for more inclusive design solutions, structuring of design problem with a *user concept*, which embraces qualities of user sufficiently and active in problem structuring, is significant in order to guide searching, generating, and utilizing user related knowledge in design effectively.

Setting the problem of user concept in architectural design studio

Part I has aimed to set the problem of *user concept* in design studio. Chapter 2 has explored the role of designer's *user concept* in problem structuring process, tracing its effects on knowledge need and use in design activity. Conceiving design problem and providing solutions strongly depends on designer's prestructuring of the design problem with his/her preconceptions. *User concept* is one of the important constituents of pre-existing cognitive field of designer. With this role, it has a capacity to guide searching and utilizing user related knowledge in problem structuring, which is significant for representation of user related knowledge in design and integration of it design solutions. The characteristics, capacity and effectiveness of *user concept* in problem structuring depends largely on the capacity and characteristics of its knowledge base, which is developed through the accumulation of knowledge, values and personal, educational, and professional experiences.

On this basis, providing critical-historical examination of conceptual shifts in prevailing understandings about user in design, Chapter 3 has revealed the influence of *knowledge context* and *design context*, which are formed by the

dominant knowledge and design models in design fields, on the formation of *user concept*. The significant and prevailing effects of positivist epistemology and post-positivist developments on user related knowledge, and design models, the relation between knowledge and design in design fields and their influence on the formation of *user concept* have been underlined. Introducing a current picture of developing perspectives in parallel to the prevailing understandings in design, Chapter 3 has resulted with an emphasis on the limited user understanding in design practice, particularly education as a main source of the weak *user conception* in design practice, despite valuable developments in user understanding in research and academic circles.

Since the design studio education has a fundamental impact on the development of *user concept* as part of preconceptions and problem structuring skills, Chapter 4 has particularly focused on the limitations of *knowledge context* and *design context* provided in design studio as the main sources, which form knowledge base of design student's limited conception in design studio. This exploration has revealed the following issues. The circumscribed character of *knowledge context*, which is formed by narrow content of self-referential experiences, generalized, prospective character of research knowledge, and theoretical way of knowing user and the separated nature of *design context*, which is grounded on analysis-synthesis model's separated parts, which limit utilization of user related knowledge to analysis, as part of passive knowing in design. These limitations in *knowledge* and *design contexts* and their detachment from each other have been underlined as the possible reasons of the existence of narrow-passive *user concept* in the architectural design studio.

Reframing required dimensions of knowledge and design context in architectural design studio

Underlined problems of *knowledge* and *design contexts* have indicated a need for a shift in understanding about user in the architectural design studio. This shift requires critical changes in both contexts and their relations. Part II has aimed to determine the direction of required shift in user understanding in the

design studio. Chapter 5 has settled the required dimensions of *knowledge context* and *design context* in order to reframe user understanding in design studio. Addressing the unifying perspective of Universal Design, the broadening of *knowledge context* has been defined including experiences of diverse users and experiential way of knowing user. Grounding on the descriptive studies and in the light of Nigel Cross' notion of "designerly ways of knowing," "problem structuring" process has been addressed as *design context* in design studio. Integrated *design context* has provided constructed way of knowing, in which active and passive knowing occur concurrently. Within this integrated context, formation of *user concept* as part of constructive knowing in design, "designerly way of knowing user," has been defined through the generation of user related knowledge within design activity and existence of user related knowledge in the form of concept knowledge.

Considering required dimensions, critical integration of *knowledge context* with *design context* has been discussed with reference to Schön's formulation of integration of science with design studio teaching. Grounding on the notion of on-the-spot (prospective) inquiry, which has similarities both with designer's design activity and scientist's doing science, required generation of user related knowledge within design has been suggested as user research activity, which is embedded in early conceptual phases and conducted by students as part of design learning. Schön's other formulation is based on the importance of learned exemplars, prototypes, canonical examples (concrete problems) of discipline while approaching new problems. Schön proposes linking design exemplars or concepts with exemplars in science in order to integrate research knowledge with design. On this basis, it has been suggested that required user related concept knowledge production could be achieved through the student's actual experiences with users as part of early design process. Integration of *knowledge context* with *design context* in this way*,* which is based on involving user-student interaction as a form of user research as part of problem structuring, provides students an opportunity to experience diversity, elicit experiences of users, knowing by experience, and utilize this

problem-situated user related knowledge and concepts in problem structuring more effectively.

User-Case: Ürünlü experience

A second year architecture studio experience was provided to exemplify potentials and contribution of the proposed conceptual base to user and design learning of students.

A four-week experience (User-Case: Ürünlü), as the early cycle of the main design project, was organized at the Middle East Technical University (METU), Department of Architecture, Ankara, Turkey. User-Case experience provided students experience with actual users fostering their problem structuring skills and helped them to develop user integrated design experience. The experience was organized in three stages involving required interactions in relation to the design problem. In the first stage, students were given a generic design problem, "a residential unit" with an additional workshop in Ürünlü, village of Antalya. Additional introductory information about village and villagers is given. In the first stage, the aim was to provide a preliminary image about the problem before the user experience. In the second stage, students visited Ürünlü and they interviewed users, stayed with them, observed their house and village life, and searched their houses in terms of architectural qualities. In this stage, it was expected that students searched living patterns of user from different perspectives and reflected on them with the generic design problem in their mind. In the third stage, students were asked to write their design-stories about Ürünlü, including their experiences and preliminary design ideas. Design-stories were used as tools to encourage students to structure their knowledge and externalize it. Design-stories were expected to reflect the problem structuring efforts of students supported with the knowledge and experience gained in Ürünlü.

Considering the entire user-student interaction process in Ürünlü, the main problem was the amount of the tasks to be accomplished in a limited time. So, the material produced in stages could not be evaluated effectively with the participation of students. Only brief discussions could be made.

In the first stage of User-Case, generic design problem could be discussed and elaborated with early design schemas of students in order to compare their interpretations after the Ürünlü experience. This can contribute to the awareness of students about the contribution of user experience to the structuring of design problem. Although students gained valuable knowledge and experience during their accommodation with villager families in the second stage of the experience, they could not produce any material for the presentation of this experience, due to the rime limitations. Despite the workload, students were excited with this experience and collaborated effectively all the tasks throughout the stages.

Design-stories of students were examined in terms of their user related knowledge content and design knowledge content. Analysis of design knowledge content of material was based on content analysis and application of *issue-concept-form* (ICF) formalism to textual material. *Issues* were defined as designer-based and program-based constraints, *concepts* on the other hand were abstract relations, or references for architectural planning and formation of issues, *forms* were physical references of architectural embodiment of *issues* or *concepts*.

The findings in relation to students' understanding about user, acquired user related knowledge, and their influence on generation of design solutions can be summarized as follows;

- The analysis study showed that nearly all of the design stories had a rich user related knowledge content in terms of problems, needs, and expectations of diverse users- as different from individual experiences of students. Design-stories also reflected interpretations and experiences of students. This can be conceived as an improvement in students' user related knowledge repertoire in addition to individual experiences, theories and generalities about user.

- There were significant *issues* revealed in design stories had references to the problems, needs, expectations, and experiences of students. Most striking was that appearance of an important shift in interpretations of

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design problem; from "designing a house with a workshop part" to "designing a workshop or a guesthouse with a residential unit," after students' experiences in the village. It was observed that nearly all of the students indicated these issues and interpreted their design problem from this perspective.

- The analysis also showed that considerable number of *concept* and *form* references appeared in design stories and most of them had their roots in the village life and building context. We could also observe that only a small number of them used *form* references as it was, most of them proposed adaptation and interpretation of them with new requirements.

- It can be seen that most of the *form* references were selected from building context of the village in relation to the living patterns, needs, problems, and expectations of villagers. These form references can be considered as linked-exemplars, which contained knowledge about users and knowledge about building context of them

- The linkages between *issues, concepts*, and *forms*, revealed in design stories, indicated complex design knowledge content, despite the early stage of design process of novices.

As a general conclusion, the produced material, as a reflection of early problem structuring of design students, has valuable traces of underlined transformations. We could observe the traces of this improvement throughout the User-Case: Ürünlü experience; from an abstract level, in which users are defined as passive, unchanged, and predictable groups to a more advanced level, in which users are defined with their diversity and various needs, problems, and expectations. And in the final stage, students reflected a more advanced level, which conceived all these diversity and variety of needs, expectations of users as designerly, providing architectural embodiments of them.

Remembering the statement of Mikellides (1980, 24) about conceiving user needs by architects in design activity at the beginning of the thesis; "[k]nowing

about human needs is an important first step, understanding these needs is a vital second, but evoking and expressing them through their translation in built form is a culminant third," it can be stated that grounding on the provided conceptual base, broadening of knowledge context to experiences of diverse users and to knowing user by experience may provide "knowing" and "understanding" user as the first two steps presented by Mikellides. In addition, integration of these "knowing" and "understanding" to design knowing of students, in other words, developing a "designerly way of knowing user" in the architectural design studio may provide necessary third step as the translation of these knowing and understanding to built form.

Although it was a preliminary study, the application of the User-Case in design studio provides promising insights. It can be stated that organization of *knowledge* and *design contexts,* within proposed conceptual framework, in the architectural design studio might contribute to the improvement of students' understanding about user. It must be stated that the results need to be validated and methods need to be improved with further research.

7.2 Implications and Possible Future Extensions

Proposed conceptual framework, which identifies critical dimensions of *knowledge* and *design contexts* of required *user concept* in the architectural design studio, has implications for various specific issues, particularly related with design education, which could be summarized as follows:

- Considering great demand for developing a rigorous user understanding in design studio, particularly for the development of universal design approach in design education, proposed conceptual framework, bringing critical dimensions of experience-based and design-integrated *user concept*, can be utilized as a theoretical base for the inclusion of user issue to design curriculum in a holistic way.

- Formation of "*user concept*" is a long-term issue, which requires collection of experiences, values and knowledge throughout the design education and necessitates a holistic approach with respect to design

curriculum in order to be achieved. Proposed conceptual base can be used as a basis for the organization of design learning stages of students in accordance with and as integrated with the user learning stages with regard to underlined critical dimensions of *knowledge* and *design contexts*.

- Proposed framework and underlined critical dimensions can be used as a basis to discuss how design learning and user knowing can be brought together in design studio and to develop methods and tools to this end. For example, according to underlined dimensions of proposed framework, inclusion of participatory-generative user research methods to design education and redefinition of them in this context can be investigated,

- As observed from the exemplary study (User-Case), user-included cases, which involves user-student interaction as part of problem structuring, organized in design studio have potential to provide user-integrated design learning, or from other side design-integrated user learning. Related with the previous issue, proposed conceptual base can be used as a basis for developing particular User-Cases for different stages of user-design learning with respect to inclusive curriculum purposes. These cases can be collected as rich exemplars in digital repositories in order to be accessed and shared by students and instructors.

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APPENDIX A

PROJECT BRIEF

IMMATERIAL ESSENCE VIA TECTONICS OF ARCHITECTURE

Objectives of the study:

1- To develop required skills to cope with design problems of small scale buildings within a local cultural and natural context,

2- To introduce tectonic qualities of architecture, fundamental principles of traditional& contemporary structures and construction methods,

3- To initiate awareness about the complex dimensions of diverse users and the significance of user participation in design process,

4- To encourage the critical, creative and imaginative thinking of the second year architectural students, when tackling with complex problems of architecture,

Brief

Architecture has two inevitable concerns; one is the material essence of a building, which includes structural, constructional qualities; the other is immaterial living experiences, culture of its users, which it embraces, reflects and improves.

Tectonic

The physical existence of a building is essentially related to the structural and constructional formation of it, because both give form to places and dwelling practices. According to Frampton, "building is first an act of construction… a tectonic activity." The Greek origin of the term "**tectonic**" is *tekton* which refers to carpenter or builder[24] and generally it is associated with handcrafting and local materials. "In most of the examples of traditional vernacular architecture, form grows out of the logic of construction. i.e., it is generally the nature of the available building materials and their potential for construction that directs space organization and structure of the resultant form. In other words, the evolution of architectural form, which consists of the spatial scheme, structure and aesthetic image, is directly dependent upon the architectonic potential of the building materials, the way they are assembled

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[24] Kenneth Frampton, "Rappel À L'orde, The Case for the Tectonic", in *Theorizing a New Agenda for Architecture*, ed. Kate Nesbitt, New York: Princeton Architectural Press, 1996, p. 521.

and constructed to form a structural unity." 25 In its contemporary definition, tectonic refers "poetic manifestation of structure… as an act of making and revealing."26 In other words, it can be defined as interrelated arts of structure and construction- encompasses both cultural content and poetic meaning."27 Tectonic qualities of architecture disclose its own making and its relationship to the earth and sky28, so it reflects natural and cultural possibilities and materials of its context. Frampton emphasizes that tectonic element has two modes; one is technological, and the other is representational. Technological mode is directly related to meeting an instrumental need and involves structural function and "constructional element that is shaped so as to emphasize its static role and cultural status."29 On the other hand, representational mode of tectonic "involves the representation of constructional element which is present but hidden"30, or in a more general sense, the tectonic element represents the role it plays in the structural whole.

Related question:

- How can we layer tectonic qualities of architecture? What are the elements of it?

User Participation

User, on the other hand, is the person who actually uses the buildings in his/her everyday working and living activities. Patterns of his/her life give form the qualities of place and in turn these qualities affect his/her life. To design more satisfying environments, we need to know and understand who the users of these environments are. Their experiences, problems with their places and physical, psychological, social contexts of their living provide necessary and valuable information about them as immaterial qualities of architecture.

The main source of this key information is users themselves. The user-designer interaction and the participation of user in design process are significant ways to provide direct information about needs, expectations, experiences and dreams of users to the designers. However, generally we are not expected that users easily adapt to the participation process in different stages of design. It is hard for them to express their needs and problems even in a simple interview process, since, generally they are not conscious about their needs and problems, or they are not comfortable enough, or not have relevant tools to express them. In this interaction and participation processes, designer and user listen, observe, talk to each other. They share thoughts and problems about environment and discuss them. This must be understood as a two way learning

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[25] Kenneth Frampton, The Case For The Tectonic, *Stüdyolar*, METU, 1996,
[26] Kate Nesbitt, 1996, "Introduction" for Frampton's "Rappel À L'orde, The Case for the Tectonic", p.516.
[27] David Leatherbarrow, "Review" for Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture by Kenneth Frampton, in The Journal of the Society of Architectural Historians, Vol.56, No.1, 1997, p. 98.
[28] Nesbitt, 1996, p.517.
[29] Frampton, 1996, p. 521.
[30] Ibid.

process, in which both parts gain awareness about each other that allows emphatic understanding and develop a shared language about design activity and their environments.

Related questions:

- If there is no possibility of user participation in design process, how do you think that architects consider users in their design?

- What is the significance and role of user participation in achieving the "quality of environment" in architectural, urban, or product design?

THE PROJECT:

From this point of view, the main purpose of this semester's project is to emphasize tectonic characteristics of architecture and the significance of its user for the formation of meaningful architectural spaces.

You are asked to design a small scale building which is composed of a residential unit with a work place unit which will be determined and proposed by yourself according to the information gathered from the particular users who settled in Ürünlü village of Antalya.

In this process, as second year students, you are not asked to investigate and utilize participation techniques (like interviews) in a deeper sense. However, you are expected to be aware of significance of user participation in a general sense, investigate the potentials of this participation, while considering the users in the decision making process of design, and think critically about the ways that enable the communication between user and designer. And also you are expected to analyze the tectonic qualities of a particular setting and critically interpret them in your designs, considering contemporary needs of settlers, possibility of new materials, and construction techniques.

Throughout the design process, the following questions need to be answered in relation with your design proposal:

- How can we interpret the tectonic characteristics of a traditional settlement with a new vision, new materials and techniques in our designs?

- How can we define the program of the project and organize functional requirements depending upon the expectations of users?

- How can we construct a proper relationship between residential unit and work place in terms of mass, common areas, unique natural and cultural context?

CONTEXT: Ürünlü

Location, history, cultural and natural values

Ürünlü is a village of Antalya settled at south of west Taurus Mountains. It is 750 m above sea level and 50 km to Manavgat. Altınbeşik[31] (the multi-storied cave) / Düdensuyu Cave - National Park and biodiversity are among the natural values of the region. Ürünlü (formerly named Unulla) is located in the Pisidia of archaic regions and its history goes to 100 B.C. The ruins of Erymna settlement is between the villages Ürünlü and Ormana. Kargı Han, Koca Oluk Han and Tol Han, which were used by Seljuks and Ottomans can also be seen near İbradı, on the way to Beyşehir. Villagers earn their life by forestry, viticulture and raising livestock. It is famous with its fig, grape, molasses, walnut and almond. For this reason, fig festival is celebrated in the first week of September of each year. This event is a cultural ceremony in the history of Ürünlü.

Traditional construction materials and architecture

Cedrus spp (sedir/katran ağacı), which is the naturally insulated type of timber is peculiar to this region. This regional material (especially used in ship construction in Mediterranean) and stone are the basic elements of construction. Therefore, these materials that can easily be found in nature formed the built environment in Ürünlü. Traditional houses are two storied with stone walls of 60-70 cm. These stones form the wall without mortar, but fixed with timber elements at every 50-60 cm horizontally. The end points of these timbers are left 20-25 cm outside of the wall and used as scaffolding. (Double timbers at the corners are named as "Pişduvan".) These timbers seen from outside are called "Buttons" and the name of "**Houses with Buttons**" is originated from this original way of constructing.

Definitions of some concepts:

Construction: The action of framing, devising, or forming, by the putting together of parts; erection, building (Oxford English Dictionary, second edition, 1989).

Structure: a : something (as a building) that is constructed b : something arranged in a definite pattern of organization *a rigid totalitarian structure J. L. Hess* *leaves and other plant structures* (Merriam Webster's Collegiate Dictionary, 2000).

Tectonic: Of or pertaining to building, or construction in general; constructional, constructive: used esp. in reference to architecture and kindred arts (Oxford English Dictionary, second edition, 1989).

Architecton: Greek in origin, the word architecture derived from the combination of two words *archi* (master, person of authority) and *tekton* (a craftsman or builder), the word *architect* meaning *master-builder* (from Kenneth Frampton, The Case For The Tectonic, Stüdyolar, 1996).

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[31] Altınbeşik, was found in 1966. The length of this cave is 1.840m in total and multiple lakes are connected with Beyşehir Lake beneath the surface of the ground.

House: 1 : a building that serves as living quarters for one or a few families : HOME

2 a (1) : a shelter or refuge (as a nest or den) of a wild animal (2) : a natural covering (as a test or shell) that encloses and protects an animal or a colony of zooids   b : a building in which something is housed *a carriage house* (Merriam Webster's Collegiate Dictionary, 2000).

Dwell: 1 : to remain for a time

2 a : to live as a resident (Merriam Webster's Collegiate Dictionary, 2000).

Reading List:

- Frampton, Kenneth. (1996), "Rappel À L'orde, The Case for the Tectonic", in *Theorizing a New Agenda for Architecture*, Kate Nesbitt (ed.), Princeton Architectural Press, New York, pp.518-528.

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*(you can collect the copies of some texts from the photocopy room)

APPENDIX B

INTERVIEW QUESTIONS

While you are interacting with users in Ürünlü, you need to use some techniques and tools to get required information. Asking questions, in an interview, is one of these techniques (you can find a brief information about interview process and questions at the end of this document). Which questions you ask is an important issue in this process. Questions must be prepared or selected according to your goals. In the Ürünlü study, your main purpose is to propose a program in relation to the information about living activities and needs of users.

With this intention, there are some issues which your questions must cover: You will select a particular user group in Ürünlü. In addition to their experiences, activities, problems, expectations with their **house**, you also try to find out their experiences, habits, memories about **the village** as a whole.

Your questions should be organized under two main goals;

A- To describe activities of the household (mother, father, grandfather/mother, children,…) and spatial features and organization of the house. This descriptive study should also include reports of living experiences of users related to Ürünlü village (past and present experiences).

B- To understand **future expectations** of the users about their house and Ürünlü and the **problems** related to their environment.

In addition to the interview process, to provide additional information, you will use supportive tools which the users will be able to contribute:

1- Plan schemas of the house (you will prepare them in your analytical study): You will use and share these schemas with users during your interview. This will enrich your technical drawings with the descriptions of living experiences, stories, memories of users, in addition to the functional aspects of the spaces. You can use written explanations, sketches to record this information, and you can let users to contribute to this material.

2- Plan schema of the village: Organize a walking activity towards the village center with your user(s) and apply the route on your schema with the main spaces, activities, memories, even names of the people, which users express.

During the whole process (in and outside of the house), you can ask users to take photographs of their favorite spaces, corners etc.
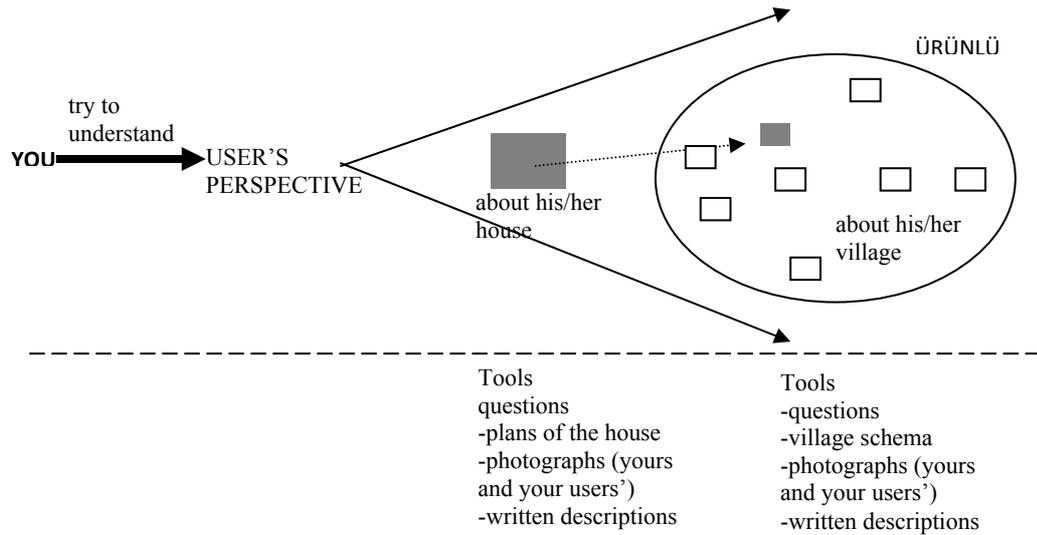
The questions below cover only some general issues about users and their expectations about their house and village environment. During your house visits in Ürünlü, you are also expected to add new questions in order to improve your design proposals (Try to ask questions to all users of the house separately).

QUESTIONNAIRE:

Date:

Starting and finishing time of the interview:

Name(s) of the interviewer(s):

Name(s) of the user(s):

Address:

Questions:

User

(Who is user? What is his/ her job? What are the characteristics of his/her family?

1- What are the names of your family members living in the house?

2- What are their age(s)?

3- What are their occupation(s)?

4- How long have you been living in this house?

Additional questions:

House

How does user define their daily activities? What are the spaces and the characteristics of their house? What are their problems in relation to their house?

1- Please describe the location of your house from the village center (with reference to the other buildings and places)?

2- What are the main parts of the house? Can you explain these parts in detail? What are they used for (living, sleeping, bathroom, cooking, dining…)? How these parts are organized in relation to the other parts?

3- What is the location of main entrance? Which parts of the house is in relation with the entrance?

4- What is the relation of the cooking place with other parts and the entrance of the house?

5- Is there any outdoor space in relation with the indoor spaces of the house?

6- Please describe the outdoor space(s) of your house and explain the characteristics of this space(s)?

7- Do you make seasonal changes in your house? (if yes) Please describe what kind of changes are these?

8- What kind of heating equipment do you utilize in your house?

9- Do you have any animals? (if yes) What kind of animals are they? Where do you keep and feed them? What is the relation of that particular space with the main house?

10- Are there any problems with the spaces of the house, considering utilization of the spaces, physical conditions etc? Please describe what are they? Do you want to make any changes in your house?

11- Which parts of your house do you particularly enjoy? Why?

Additional questions:

Ürünlü

What does his/her opinions about the village? Which characteristics of the Ürünlü Village are emphasized by user? (activities, natural characteristics, topography…)

1- What are the spaces which you usually come together with your friends? What kind of activities do you usually do with them?

2- Are there any particular spaces available for gatherings and ceremonies such as wedding, circumcision, etc? (if yes) Where are they located?

3- Please note the physical locations of public services like coffee house, grocery shop, school, guesthouse etc. in the village.

4- Please tell us about how the village changes in the last ten years (considering life in the village and the physical environment).

5- Are there any new activities in the village, in recent years? What are they? What do you think about these activities?

6- What kind of improvements do you think are suitable for a better future of Ürünlü?

7- Please describe your favorite places in the village? Why?

Additional questions:

Thank you

APPENDIX C

ASSIGNMENT: DESIGN-STORY: PROGRAM PROPOSAL

Producing a program is the beginning stage of the design process. The term "programming" is defined as "a process leading to a statement of an architectural problem and of the requirements to be met in offering a solution" in Merriam Webster's Unabridged Dictionary. It is done by gathering and analyzing information about the context including needs, expectations and problems and by setting the qualities, activities, and functions that the designed work requires to provide. After an intense observation and investigation process in Ürünlü village, you are asked to develop a draft architectural program, which can be integrated to the physical and the social context of the Ürünlü.

1-Summarize the information gathered: In this study, first of all you are expected to summarize your opinions about the needs, problems, and expectations of the villagers considering the results of the interviews, personal observations about the village life and the life in residents, and the future expectations of the villagers.

2- Propose a program, define required spaces: According to this rich information about the life and its physical environment of the village, you are asked to propose a program for an infill project, which includes a residential unit with a workplace. According to your proposal statement, you are asked to specify the activities and functions which are specific to your proposed program. Also you should define the relations and hierarchies between defined spaces, required services, like parking, landscaping, pedestrian, and circulation areas in terms of your proposal's requirements.

3- Define site conditions roughly and develop first design ideas about your proposal with the site.

For the first two articles, please use one or two A4 size white paper(s) to explain your opinions and decisions, and for the third article, please use 1/200 scale site drawing to create proportional diagrams, sketches and written descriptions in order to present your design ideas about the proposal.

APPENDIX D

ASSIGNMENT: STRUCTURAL ANALYSIS OF AN ÜRÜNLÜ HOUSE

You are asked to analyze structural system and constructional characteristics of an Ürünlü house especially with section and detail drawings.

This study will be done in groups (4-5 students)

During your analysis of existing buildings try to understand the relation between the logic of construction, structural system, and form of the building. Note the dimensions of spaces in relation to their structural and constructional formations. Examine the details with their material properties.

This analysis study includes preparation of

- two system sections, scale: 1/20

- plan schemas of the house, scale 1/50

- details from specific points, scale: 1/5

- detail model, scale: 1/5

- photographs, sketches, written descriptions, and video recordings (if possible) to introduce the physical context of the house (selected photographs can be printed in A4 format for detailed information).

Study material will be presented on 50x70 cm size papers. All sheets (drawing, photograph) must have a title line that includes names of the group members, the name of the project, the name of the drawing and the scale.

APPENDIX E

LIST OF INTERVIEW GROUPS AND ANALYZED DESIGN-STORIES

Interview groups	Students according to interview groups		Assigned design-stories	Analyzed design-stories
A	1	A1	+	**A1**
	2	A2	+	**A2**
	3	A3	+	**A3**
	4	A4		
B	5	B1	+	
	6	B2	+	**B1**
	7	B3	+	**B2**
	8	B4		**B3**
	9	B5		
C	10	C1	+	
	11	C2	+	
	12	C3		**C1**
	13	C4		**C2**
	14	C5		
D	15	D1	+	
	16	D2	+	
	17	D3		**D1**
	18	D4		**D2**
	19	D5		
E	20	E1	+	**E1**
	21	E2	+	**E2**
	22	E3	+	**E3**
	23	E4		
F	24	F1	+	
	25	F2	+	**F1**
	26	F3	+	**F2**
	27	F4		**F3**
	28	F5		
G	29	G1	+	**G1**
	30	G2	+	**G2**
	31	G3	+	**G3**
	32	G4	+	**G4**
H	33	H1	+	
	34	H2	+	**H1**
	35	H3		**H2**
	36	H4		
J	37	J1		
	38	J2		--
	39	J3		
	40	J4		
K	41	K1	+	
	42	K2	+	**K1**
	43	K3		**K2**
	44	K4		
L	45	L1	+	
	46	L2	+	**L1**
	47	L3		**L2**
	48	L4		
M	49	M1		
	50	M2		--
	51	M3		
	52	M4		

Figure 22 List of interview groups

VITA

PERSONAL INFORMATION

Surname, Name: Anay, Meltem
Nationality: Turkish (TC)
Date and Place of Birth: 22 March 1971, Eskişehir
Marital Status: Married to Hakan Anay
Sex: Female
email: manay@metu.edu.tr / meltanay@yahoo.com

EDUCATION

Degree	Institution	Year of Graduation
Ph.D.	METU Dep. of Architecture	2010
M.Arch	YTU Dep. of Architecture	2001
B.Arch	AU Dep. of Architecture	1993

PROFESSIONAL EXPERIENCE

Year Place Enrollment
2004 - Present METU Department of Architecture Research Assistant (35. Madde)
2001 - 2004 Anadolu University EEYO (School for the Handicapped) Department of Architecture Instructor
1995 - 2001 Anadolu University EEYO (School for the Handicapped) Department of Architecture Research Assistant

ACADEMIC EXPERIENCE

Year Course
2006 - 2009 (METU) Teaching Assistant in "Arch 201 Architectural Design I" and "Arch 202 Architectural Design II"
2006- (METU) Teaching Assistant in "Arch 190 Summer Practice" (Ankara/Eymir - Bekçi Kulübesi inşaatı)
2005- (METU) Teaching Assistant in "Arch 190 Summer Practice" (Kırıkkale/Hisarköy - Sağlık Ocağı inşaatı)
2004 – 2006 (METU) Teaching Assistant in "Arch 301 Architectural Design III" and "Arch 302 Architectural Design IV"
1995 – 2004 (Anadolu University) EEYO studio critic and jury member in Architectural Design studio.

PUBLICATIONS

Year Publication

2007 Anay, Meltem., "On the Generation and Utilization of User Related Information in Design Studio Setting: Towards a Framework and a Model," in *IASDR (International Association of Societies of Design Research) Conference, Emerging Trends in Design Research*, Hong Kong Polytechnic University, Hong Kong SAR,

2005 Anay, Meltem., "Bir Mesleki Tanıma Doğru: Mimarlık-Mühendislik İlişkisi," *Uluslararası Yapı ve Yaşam 2005 Kongresi*, Bursa, Türkiye,

2004 Anay, Meltem., "Anadolu Kentinde bir Modernleşme Aracı olarak İstasyon Caddesi'nin İncelenmesi: Eskişehir İstasyon Caddesi**,"** *I. Uluslararası Dünden Bugüne Eskişehir sempozyumu,* Eskişehir, Türkiye,