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Proposing a course schedule for architectural basic design studio guided by Bloom's Revised Taxonomy

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ABSTRACT The article moves away from the traditional architectural basic design education methods and approaches it within the framework of the discipline of educational sciences and learning models. The multi-layered education structure transforms into a new learning field under the guidance of Bloom's Revised Taxonomy, which proposes a course schedule for the architectural basic design studio. Taxonomy allowed us to discover the reflections and effectiveness of the interdisciplinary structure of architecture and design in the educational process and to be instrumentalized and used in the context of basic design education. The course schedule proposal presents a flexible schedule outline with the example of an interdisciplinary studio schedule. The trial created within the scope of this study can be appropriately organized for different Ecoles, schools, and values. The paper is significant for its interdisciplinary nature and develops a new discourse using Bloom's Revised Taxonomy. Using Bloom's Revised Taxonomy as a method in the studio has led to a paradigm shift in methodology.

Keywords: *Architectural basic design education, Basic design studio, Bloom's Revised Taxonomy, Interdisciplinary approach*

Yenilenmiş Bloom Taksonomisi rehberliğinde mimari temel tasarım stüdyosu için bir program önerisi

ÖZ Makale, mimari temel tasarım eğitimini geleneksel yöntemlerden uzaklaştırarak eğitim bilimleri disiplini ve öğrenme modelleri çerçevesinde ele alır. Eğitimin çok katmanlı yapısı, Yenilenmiş Bloom Taksonomisi rehberliğinde yeni bir öğrenme alanına dönüşür ve mimari temel tasarım stüdyosu için bir program önerir. Taksonomi, mimarlık ve tasarımın disiplinlerarası yapısının eğitim sürecindeki yansımalarını ve etkinliğini keşfetmeyi ve temel tasarım eğitimi bağlamında araçsallaştırılarak kullanılmasını sağlar. Program önerisi, disiplinlerarası bir stüdyo programı örneği ile esnek bir müfredat taslağı sunar. Bu çalışma kapsamında oluşturulan deneme; farklı ekol, okul ve değerler için uygun şekilde düzenlenebilir. Çalışma, disiplinlerarası niteliği ve Yenilenmiş Bloom Taksonomisi'ni kullanarak yeni bir söylem geliştirmesi açısından önemlidir. Yenilenmiş Bloom Taksonomisi'nin stüdyoda bir yöntem olarak kullanılması, metodolojide bir paradigma değişimine yol açmıştır.

Anahtar Sözcükler: *Disiplinler arası yaklaşım, Mimari temel tasarım eğitimi, Temel tasarım stüdyosu, Yenilenmiş Bloom Taksonomisi*

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INTRODUCTION

In today's communication and media age, with the rapid advancement of technology, changes, and transformations have begun to be observed in all professional disciplines. Keeping up with these inevitably experienced innovations in professional disciplines for a long time can only be possible by reconsidering the education and learning processes of the disciplines. Educational practice can exist by reproducing itself every time in a changing and transforming environment. The focus of this study is to look for the 'new' in the context of architectural education by critically considering traditional and stereotyped educational approaches. The concept mentioned here as 'new'; can be a query, discourse, possibility, perspective, approach, tool, or method. Concerning what Oymen Gur stated at the beginning of the millennium with the words "architecture should reconsider its entire existence from its theoretical structure to its application areas and education, carefully analyze the problems it faces and take the necessary precautions in education" (Oymen Gur, 2000), it is inevitable that architecture and design education needs to be rethought, scrutinized, and discussed in the 21st century educational environment.

The article examines basic design education, which is at the center of architectural education, and opens the traditional tools and methods of education to the discussion. Contrary to the educational tradition, it aims to continue this discussion within the framework of learning theories and models belonging to the discipline of educational sciences and to transform the multi-layered structure of education into a new learning field. It aims to explore the reflections and effectiveness of the interdisciplinary nature of architecture and design in the educational process and to use this discovery in the context of basic design education by instrumentalizing it. As a significant element of the design field, the discipline of architecture has gained an interdisciplinary character with different design stages and cognitive processes towards them, as seen in the engineering discipline (Sharunova et al., 2022). Integrated use of various disciplines as "tools, techniques, and methods" has defined as transdisciplinary in recent studies and transdisciplinary is interpreted as a way of thinking "across, beyond, and through the academic disciplines to encompass all types of knowledge about an idea, issue, or subject" (Ertas et al., 2003). The interdisciplinary character of design, both to interpret the nature of the discipline itself and to discuss the potential effects of different disciplines regarding the education of the discipline will be possible by utilizing a transdisciplinary concept. In order to discover the overlapping nature of different disciplines and to transform these disciplines into learning tools, clues are included in the curricula. These clues are made to define the framework that develops an original curricula proposal in the studio.

Within the scope of this article, Bloom's Taxonomy – Bloom's Revised Taxonomy (BRT), which has the potential to be applicable in all areas of teaching, is aimed to guide the basic design studio course process based on learner-instructor interaction instead of a theoretical course in which the learner is in the role of a passive listener. The BRT can be used in the trial to construct and evaluate the basic design studio course process. By transforming the clue variable of BRT into a teaching field borrowed from different disciplines, a systematic, innovative, and flexible course schedule is proposed for basic design education. At the same time, it becomes possible to open a discussion on behalf of the BRT as different disciplines try to direct the studio process on behalf of basic design education. Can clues, as one of the parameters defining teaching quality, become the teaching area itself? Along with the proposed basic design education schedule, the article also seeks to answer this question.

Basic Design Education

As the first place where students' existing background knowledge and experience collide with design education, the architectural basic design studio has the potential to interface with design education in order to associate their past knowledge with design education. The basic design education that the student encounters at this transitional stage encourages the student to constantly think creatively, question, analyze, establish cause-effect relationships, produce new relationships, and associate, evaluate, and criticize in an unfamiliar way (Schön, 1985). In a sense, basic design education is also a catalyst for the student to discover their environment, to make radical changes and transformations in their own emotion and thought system, and to rediscover and express themselves. Basic design education

is valuable because it offers an education and training environment that allows students to break conventional stereotypes, turn them inside out, cover new perspectives, and make discovery a way of life (Turkun Dostoglu, 2000).

Basic design education is based on discussing the phenomenon of design, basic design principles, elements and approaches and design processes. These discussions are opened through the development of solutions to a design problem in the studio (Mayer, 1992). While providing an educational environment that focuses on the development of visual perception, three-dimensional thinking, inspiration, creativity, and hand-eye-brain coordination, all the ways or equipment that it instrumentalizes for a specific purpose constitute the technical dimension of education; however, basic design education is not just a technical education. Objectives of the architectural basic design studio are pushing the boundaries of concrete definitions and diversifying them, expressing the qualities of objects, events, and phenomena that are far from concrete reality by examining abstract concepts and abstraction, strengthening vision and perception skills, developing visual and graphic thinking skills, using visual forms and means of expression in a versatile way. Studio experience, two and three dimensional thinking, teaching the language of design by developing expression skills, encouraging creativity, developing creative thinking and aesthetic senses.

The statement of Frederick (2007), "the architect knows something about everything," emphasizes that the field of architecture interacts with more than one discipline by its nature. For this reason, the structure of architectural education is enriched by the contributions of different disciplines. In addition to the fact that architecture benefits from both art and aesthetic theories and technical accumulation, disciplines create common production areas in the 21st century; this makes it necessary for the current structuring of education to be structured, interdisciplinary, and experience-oriented. Cakmakli et al. (2023) state Chandler's argument on the flexibility of interdisciplinarity, and they convey their view that an interdisciplinary approach to education inevitably "entails not only a unidirectional introduction of students by the instructors to the knowledge produced in other fields but also, and more importantly, a mutual learning of the predetermined and usually unquestioned structures and methodologies of studio education."

The established education and learning approach of today's basic design education is based on the traditions of Ecole-des Beaux Arts, followed by the Bauhaus School. Ecole-des Beaux Arts, considering architectural education as the continuation of an art teaching, was undoubtedly trying to look at architecture from different fields of art, especially sculpture and painting. In educational approaches that build the atelier system, the concept of atelier represents the interactive environment of different disciplines, unlike the idea of atelier that has evolved today. This approach prepares the ground for observing and learning from each other. The atelier system built by Bauhaus has a structure that centres synthesis in learning. Different branches of arts and crafts, handled through different materials, have been placed on the basis of architectural education. Although the traditional basic design studio focuses on the compositions on basic design principles and elements, different disciplines have turned into elements that support the studio as a result of the individual synthesis of the students. The interdisciplinary identity the Bauhaus School represents, which has spread worldwide, has yet to be recovered. Currently, interdisciplinary studies in basic design education are widely recognised as experiments and maintain their status as proposals. While the architectural basic design studio is where creativity is liberated with multiple methods, approaches, and views, it cannot be considered independent of aesthetic, scientific and technological inputs to reveal its existence structurally. However, this situation forms the basis of learning a multidimensional way of thinking. Architect candidates learn how to learn in the studio (Aydinli, 2015). Discussing the concept of learning to learn through different disciplines creates a potential to expand the tools, methods and possibilities of the studio.

Goldschmidt (2003) talks about two different types of knowledge in the studio: creativity and technical knowledge. According to him, while creativity is a type of knowledge that cannot be taught but can be described and guided, technical skills represent the knowledge that can be taught in the studio. However,

with its interdisciplinary character, the studio, as the first point of acquaintance of design students with the concept of design, defines a space where experience turns into knowledge and, thus, many interdisciplinary experiences can be structured. Creativity, one of the main discussion points of design education from the past to the present, has resulted in the application of fields such as science, philosophy, and art as an element that stimulates creative thinking in interdisciplinary approaches. In Bauhaus's learning approach, which puts the individual at the center, the fact that the individual is at the center is related to the concept of originality and creativity that the individual will reveal. The emphasized relationship between individuality and creativity is included in the Bauhaus manifesto as a Bauhaus principle: "Avoidance of rigidity; prioritizing creativity; freedom of individuality, but strict work discipline" (Conrads, 2019, p. 37). Nowadays, when the idea that creative thinking education within design education can be evaluated as independent courses or within specific architectural curricula is brought to the agenda, the ways of approaching creativity should be evaluated (Hamza & Hassan, 2015).

In the last quarter, it is observed that different disciplines are applied in basic design studios, following the traces of the studio's tradition. Especially in experimental studies, studio processes in which disciplines such as creative drama, music, cinema, photography, and digital media reveal the dominance have been observed. Different disciplines contribute to the studio process regarding studio methods and approaches. For example, in theoretical expression and exemplification methods, examples from different disciplines are used to introduce and explain basic design principles and elements. In the color studies method, the color schemes of the works of different artists are exemplified. The text-form relationship method is expected to make design analyses by referring to literary works. In experimental studies, different disciplines are expected to accompany the studio process as a source of support. In these examples, different disciplines act as companions. It supports students' perception, comprehension, and understanding processes and enriches the studio process. Within the scope of the article, the interdisciplinary situation of the design studio is related as follows (Figure 1):

- In the historical background of basic design education, together with the literature review, it is seen that the discipline itself and the interdisciplinary nature of education have been reconstructed repeatedly in the century approaching today.
- Again, with the literature review, it is observed that fostering creativity is expected in the methods and approaches used in basic design education.
    - Fostering creativity is associated with the concept and possibilities of discovery.
    - The concept of exploration can be discussed with interdisciplinary approaches in the studio process.

Figure 1.
The Relationship Diagram of the Concepts of Interdisciplinarity, Creativity, and Discovery

This study uses the interaction of the design discipline with other disciplines in basic design education, not in the role of accompaniment to the studio process, but in the focus of studio practices directly creating the design problem. Basic design education helps students become aware of their cognitive and affective equipment and processes, and they develop a unique attitude by analyzing the products of various art disciplines and evaluating different art disciplines with a holistic approach. Exploring abstract and conceptual expression techniques from concrete expression techniques, strengthening visual and graphic reading and thinking skills, producing different formal approaches by pursuing common concerns in aesthetic values and cognitive and affective context, bringing together principles or concepts that intersect or affect each other in the context of design, fiction, and composition in a

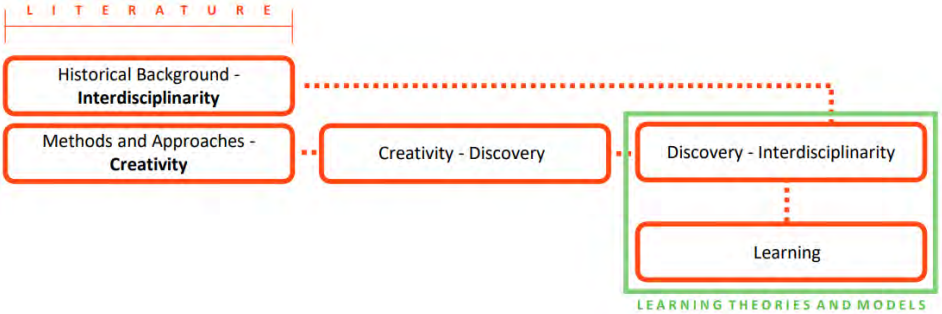
common language in the context of gaining new perspectives on creation and inspiration, the architectural basic design studio is associated with many disciplines. Architectural basic design studio seeks the potentials of learning to learn by transforming many disciplines that it can relate to into its own discovery tool. These borrowed fields emphasise discovery by defining what and how to learn as an open-ended question.

Many branches of art, such as cinema, photography, literature, music, sculpture, painting, and craftsmanship, contain works and design processes that can become the object of study of the architectural basic design studio. In order to exemplify, it is observed that findings for learning through discovery and experience are obtained in the studies with educational course schedule trials structured on an ambiguous interdisciplinary ground with the themes of body and space, body, dance and abstraction (Caner Yuksel & Dinc Uyaroglu, 2021; Hatipoglu et. al., 2023). In basic design education, "as in architecture, the analysis of artistic expression in other arts, painting, sculpture, music, cinema, theatre, literature, photography to discuss what is meant in art and architecture, how the message is tried to be conveyed, and the work takes shape depending on what is meant to be told; within the scope of the basic design studio, in the design process, which is a branch of problem-solving, the creation of an environment where the student can synthesize the views and concepts discussed and criticized in other courses, take risks, think subjectively, and develop creative thinking and aesthetic senses within the whole of the theoretical and applied course is supported" (Onur, 2013; Onur & Zorlu, 2017). In this context, the concept of creativity in the studio is associated with identifying existing constraints, analyzing information, and producing new solutions and relationships. In the meaning of creativity, the focus is on the potential of changing perspectives to allow seeing the same things from different angles.

Interdisciplinary Approach and Learning

Defining learning in relation to discovery and building discovery on different disciplines reveals the original framework of the course schedule proposal. With a course schedule organized in collaboration with different disciplines, the processes of discovery and learning in the studio can gain flexibility. Each object belongs to a different discipline, discussed or examined in the architectural basic design studio, and fosters the student's perception, comprehension, thinking, and learning acts. Different disciplines provide opportunities for the student to infer, explore, and synthesize in the learning process. Basic design education offers the potential to develop a critical view of each other by interacting with other disciplines. In another sense, this interaction is valuable in preparing for a new learning environment. For this reason, theories that focus on providing an exploratory learning environment point to interdisciplinary learning models (Figure 2).

Figure 2.
The Relationship Diagram of the Concepts of Interdisciplinarity, Creativity, Discovery, and Learning



While discussing the contributions of an interdisciplinary course schedule to the architectural basic design studio process, the article deals with the reflections of interdisciplinarity in the student learning process within the framework of learning theories. Learning theories and models deal with different disciplines in creating an environment of discovery or constructing them as a means of discovery. John Dewey (1887), who developed his discourse on learning by doing, argues that a spontaneous learning desire should be aroused in the student. According to him, learning is associated with building a network

of relationships. This situation can guide the architectural basic design studio process, which describes the process phase through making/creating actions by being reinterpreted in the context of creating learning motivation through different disciplines. The discovery stage is one of the stages defined by Jean Piaget in The Learning Cycle (1936, 1950), and his proposal for diversifying discovery-based tools argues for the necessity of establishing an interdisciplinary relationship. In this model based on learning by discovery, the examination and data collection phase is called the exploration phase. It is the stage in which students gain experience with their efforts, reactions, and actions in a new learning environment related to the concept they want to be taught. When the studio is considered in the context of this stage, every phenomenon belonging to different disciplines in the studio can turn into a discovery tool for the discipline itself. Jerome Bruner's Theory of Learning (1966) proposes a concept teaching and discovery teaching approach. Discovery is a motivational teaching approach based on student activity in teaching, which collects and analyzes data related to a particular problem and provides access to abstractions (Ozmen, 2004). In this context, the fact that it points to a process based on the discovery of concepts and is shaped by the focus of teaching-learning can reference the basic architectural design studio process.

In the Carl R. Rogers Freedom to Learn approach (1969), the learning process is defined as creating a learning environment, clarifying the objectives of obtaining information, providing resources, providing a balance between mind and feeling, and sharing ideas and emotions without imposing. As defined by Rogers, freedom refers to a process and accessible space where everyone in the architectural basic design studio discovers their new language. The step described as providing resources can be associated with interdisciplinary resources. In Constructivist Learning by Piaget (1964), Ausubel (1968), and Wittrock(1974), learning concepts are compared within the conventional and constructivist approaches. The learner constructs knowledge; it is not fixed but constantly changing in the constructivist approach. Learning is constructing knowledge, and structured information is open to change. The instructor's role is to create an environment for experience that helps students construct knowledge. Piaget's 'What is taught?' question suggests structuring knowledge in Constructivist Learning theory, which is based on asking the question 'How do we learn?' instead of 'How to teach better?' creating an environment for experiences that help students to construct knowledge points to an interdisciplinary perspective. Diversifying experience and experimentation for students can be achieved by instrumentalizing different disciplines. Robert Gagné's Learning Theory (1985) can reference the architectural basic design studio process with three steps based on discovery area definition, concept learning, rule learning, and problem-solving by creating a starting step based on pointing learning.

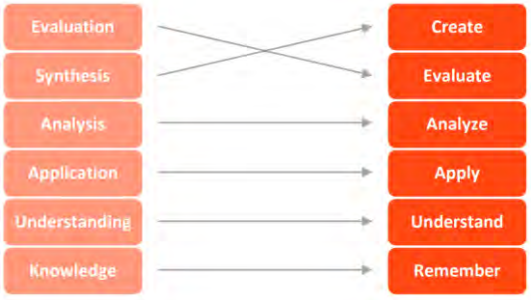
Salama and Burton (2022) argue that architectural pedagogy, shaped by the legacy of Beaux-Arts from France, Bauhaus from Germany and Vkhutemas from Russia, was influenced by alternative pedagogies, critical inquiry process-based digital technologies, community-based design projects as of the 1960s. In the context of alternative pedagogies, which assumed a guiding role between the 1970s and 1990s, the diversity of learning experience in studio education approaches (Social Learning, Albert Bandura, 1977), learning processes defined by the interaction of different disciplinary fields (Theory of Multiple Intelligences, Howard Gardner, 1983), While the relationship of multidimensional and complex learning processes with experience and individuality (Experiential Learning, David Kolb, 1984) stands out, the hidden curriculum model, which is considered as an alternative pedagogical model in recent educational approaches, is based on programme development and evaluation, creating group dynamics, creating discussion, reaching consensus, and developing design schemes. For example, when the exploratory model is examined, problem discovery, generating verbal and formal ideas, testing ideas and concepts, and developing determined program components are important.

METHODOLOGY

The multidimensional and complex structure of learning in the studio is associated with cognitive, affective and psychomotor processes. While the process of design problem solving is associated with

many actions in the cognitive process, creativity and aesthetic concerns in the studio are mainly processed through affective processes, while technical skills can be defined by psychomotor processes. In the basic design studio, these three different areas bring Bloom's Taxonomy to the fore while referring to a learning environment formed by the experience patterns created by the intertwining of these processes. Based on the mastery learning model, the most common taxonomy that identifies the knowledge and skills that students want to acquire and facilitates the cognitive learning process is the Original Bloom Taxonomy (OBT). Mastery learning, put forward by Bloom (1956), is an approach that provides a planned teaching service based on the view that all students can learn all the new behaviors that schools aim to teach (Bloom, 1971; 1976). The concept of 'learning information effectively and efficiently' using higher-order thinking skills rather than transferring information has become critical. It should not be overlooked that the primary goal of Bloom's theory, which is presented under a taxonomy, is not related to subject areas or curricula but directly to learning processes. After 1956, various approaches to learning in which students were responsible for learning and cognition began to become widespread in psychological and educational research. Bloom's Revised Taxonomy (BRT) was created by updating the taxonomy to incorporate student-centered learning into its structure (Guskey, 2007). It is possible to specify that the diversity of concepts, words, and actions that can be used in the steps with BRT proves that taxonomy has evolved into a more inclusive mastery learning model. The highlighting change made in the cognitive domain dimension is updating one of the taxonomy cognitive domain steps under the name of 'create' (Figure 3) (Anderson & Krathwohl, 2001, p. 31). The student's step is creating a product or structure that did not exist before, and the result is expected to be original. Within the framework of the amendment, BRT has been the main subject of study on whether architectural education can answer the search for a method within the scope of basic design education.

Figure 3.
Representation of The Changes Made in The Cognitive Learning Steps of the Original Bloom Taxonomy in The Cognitive Learning Steps of Bloom's Revised Taxonomy (Adapted from Anderson & Krathwohl, 2001, p. 31)



The most important reason for the guidance of Bloom's taxonomy in this study is the clues variable defined in Bloom's mastery learning theory. Bloom explains the variable under the quality of instruction, given as clues, with the following statements: "There are some elements to be learned in every learning situation. It is a matter of communicating to the student with certain pointers that these items will be learned and what is expected to be done regarding these items. The signs that can be used here can be as simple as a sound or word related to a certain object, event, or activity, or it can be in the form of a certain movement dealing with a stimulus, exemplifying a physical activity sequence, or presenting instructions about a complex set of cognitive processes" (Bloom, 1976, p. 116). In Bloom's taxonomy, there is no obligation to give the clues verbally. Some of the clues may be in the form of a "visual stimulus or stimulus pattern" that needs to be remembered or responded to appropriately (Bloom, 1976, p. 116). Since the clues presented to a dormant student cannot be expected to lead to significant learning, the student is expected to do something in line with the clues provided.

The educational approach in which the concept of learning is structured with discovery and creativity and supported by interdisciplinarity is directly related to the individuality of the student. The reflection of each clue referred from different disciplines on each student differs from each other. The student-oriented education approach, which has gained importance in recent years as a new approach by going beyond traditional educational approaches, is valuable in terms of enriching the studio process with this

differentiation. Indeed, architectural education, in which originality is accepted as a fundamental value, is based on the creation of the original design language in the student. In this context, while the learning process of students through their individual journey of discovery and creation is neglected in the ongoing educational approaches, each student is expected to experience the same learning process. By opening this situation up for discussion, an approach in the studio process in which the student and the instructor are equally involved in the studio process and structuring the process together can eliminate the limitations on discovery and creation.

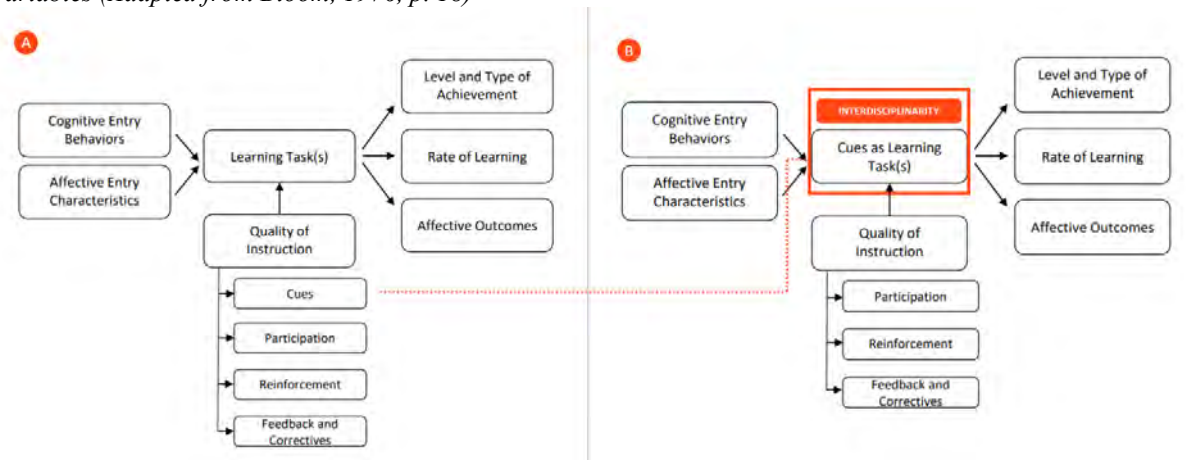
Developing an Interdisciplinary Course Schedule for Architectural Basic Design Studio

The concept of equality in learning put forward by Bloom's taxonomy has the potential to be an approach tool in basic design education, with the inclusion of 'ability as a feature that can be developed' and the inclusion of the creation step in the cognitive field in BRT (Anderson & Krathwohl, 2001, p. 31). In the architectural basic design studio, students are encouraged to produce designs that will reveal their creativity by eliminating all kinds of prejudices while solving basic design problems. Students' anxiety to exhibit an egalitarian approach in learning and creating action overlaps with the taxonomy argument, making it possible to try taxonomy in the architectural basic design studio process. It should be underlined that there is creativity like designers to develop their creativity, but the method applied is as important as the individual's effort in revealing this.

Students address the design problem by solving a concept within or together with another concept. This analysis takes place through discoveries within and outside the discipline. The approach of learning theories to explore and diversify interdisciplinary exploration-based tools can be associated with the concept of clues as a variable in the quality of the teaching step of BRT. The clue variable the taxonomy defines can be used to explore, learn, and create in the studio. Here, the potential of the clue variable to be discussed as an interdisciplinary concept makes it possible to test a 14-week studio course schedule during the studio process and to evaluate the studio process. The studio process was designed in the architectural basic design studio under the guidance of the learning model proposed by BRT. The designed course schedule of architectural basic design studio is included in the scope of the first-year basic design education of Gazi University Department of Architecture (Ankara, Turkey). The course schedule developed here as a proposal was carried out in the first semester of the 2022-23 Academic Year (Fall Semester) with 113 students and 8 instructors in Turkish language. It was created with a face-to-face education structure of 6 hours once a week. In the 6-hour studio process, there is a theoretical part consisting mainly of the instructors' critiques and a practical part consisting of the production of the students' designs.

The article removes the clue variable revealed by the taxonomy from the parameters that affect the learning quality and transforms it into an element that directly defines the learning unit (Figure 4). In this context, the clue, borrowed from a different discipline each time, defines the design problem. The design problem that students need to solve is a work of different disciplines. In this context, it becomes a question of subjecting the clue variable defined by Bloom to a paradigm shift. With this paradigm shift, it is observed that different disciplines have become a step that defines the learning field, leaving its accompanying and supporting role as a variable affecting the teaching quality in studio processes (Figure 4). Each applied discipline defines a new area of discovery, learning, and creation.

Figure 4.
Mastery Learning Model Variables and Studio Process Diagram over Bloom Taxonomy Mastery Learning Model Variables (Adapted from Bloom, 1976, p. 18)



While developing the course schedule for architectural basic design studio, the learning outcomes of the undergraduate program of architecture and the matrix expressed with a rating revealing the relationship between these learning outcomes and the architectural basic design studio course were included. In the matrix, the learning outcomes expected to be affected by the new course schedule to be created are marked in grey (Table 1). Accordingly, it is intended to observe the effect of BRT on program learning outcomes 1, 2, 3, 10, 14, 15.

Table 1.
Program Learning Outcomes Matrix

Program Learning Outcomes (PLO)	Program Learning Outcomes' Contents	Degrees of Course Learning Outcomes (0-5)	Revised Degrees Course Learning Outcomes (0-5)
PLO 1	Prevails over intellectual, discursive, theoretical, factual, scientific, technological and aesthetic knowledge concerning architectural design within the national and global context, and reflects this knowledge in academic interactions.	3	4
PLO 2	Develops the human and society-oriented, natural and built environment sensitive thinking by creating the necessary concepts. Uses this idea to achieve the design process in the stages of discourse - theory and practice.	3	4
PLO 3	Prevails over research methods and techniques, and uses these techniques to define the research extent and generate solutions on challenges concerning architectural design, while evaluating problems, values and potentials.	3	4
PLO 4	Estimates the fact that architectural design process requires critical and dialectical approach. Follows contemporary developments and transformations in structural, architectural, and urban environment. Can renew, adapt, and develop himself/herself according to the current situation.	2	2
PLO 5	Carries out the design process independently. Synthesises the data obtained, plans collaborative work and takes the responsibility of teamwork. Does capable of establishing, coordinating, managing the aforementioned team.	2	2
PLO 6	Holds the necessary motivation and learning skills to plan the future. Determines the necessary learning requirements, plans and executes accordingly.	4	4

Table 1. (Continued)
Program Learning Outcomes Matrix

Program Learning Outcomes (PLO)	Program Learning Outcomes' Contents	Degrees of Course Learning Outcomes (0-5)	Revised Degrees Course Learning Outcomes (0-5)
PLO 7	Holds the necessary multi-dimensional information regarding principles and standards of economical, environmental and social sustainability; disaster management, institutional and ethical values and cognitions in architectural design practices concerning a sensitivity towards historical, geographical, cultural and social context.	2	2
PLO 8	Uses the knowledge on architectural design together with structural knowledge. Prevails over the knowledge on construction systems, its constituting elements and materials together with areas of use and property information. Monitors changes in the transforming and developing techniques and materials while also executing them. Develops appropriate technical and material solutions according to the retrieved data.	2	2
PLO 9	Organizes projects, collaborations and events with a societal sense of responsibility concerning surrounding social sphere, informs interested agents and institutions in related issues regarding the discipline, is capable of transferring relevant thoughts and proposed solutions verbally, visually and textually, and shares information with both experts and non-experts by supporting the knowledge with quantitative and qualitative data.	4	4
PLO 10	Holds information and awareness concerning local, regional, national and disciplinary subjects.	3	4
PLO 11	Respects basic human, social and cultural rights. Shows sensitivity regarding the preservation of natural environment and cultural heritage, while acting on a sense of justice.	3	3
PLO 12	Recognizes the value of the profession regarding its services towards human rights and societal benefits.	4	4
PLO 13	Shows sensitivity in the context of social justice, culture of quality, conservation of natural and cultural values, environmental protection, occupational health and safety, disaster safety, rights of disabled, legal frameworks special to providing professional service and ethical principles.	3	3
PLO 14	Uses the knowledge, understanding and skills for evaluation of the given context, in the definition of problems, for the development of proper solutions requiring alternating architectural design decisions.	3	4
PLO 15	Has enough basis related with computers, technological innovation, and has capacity for updating this basis. Makes use of possibilities offered by the technology for the collection of the data required for the solution and the presentation of the resulting design.	3	4

**Degree of Course Learning Outcomes: (0) Does not applicable; (1) Does not meet at all; (2) Partially meets; (3) Meets; (4) Completely meets; (5) Exceeds expectations*

A syllabus is a comprehensive plan that determines when, how and in what content a course will be taught. This document involves planning and organizing all stages of the teaching process. It includes the general description and objectives of the course, course learning outcomes, learning materials and resources, course schedule and its content, assessment and grading criteria. For this study, which includes the development of the course schedule, weekly activities and their contents, weekly clues and weekly themes and concepts to be discussed, the main framework of the course was created under the syllabus (Appendix 1), student work was excluded from the scope and the content of evaluation and grading was not included in the syllabus.

The main object of discussion in this study is the use of the interdisciplinary design approach for the development of course schedule and the definition of a new learning area by getting rid of this interdisciplinary situation as a mere clue described by Bloom. For this reason, the learning unit, one of the steps of BRT, and the variable of the quality of instruction affecting this step are emphasized. Clues constitute the most essential variable of the interdisciplinary course schedule proposal. Therefore, the proposed schedule has been prepared within the framework of the clues. The clues are evaluated as tools borrowed from different disciplines. Clues are selected through books- publications, films- short films- cinema, painting, photography, music, dance, other visual arts (exhibitions, installations, video content), graphic design, fashion design, games, living, or inanimate objects (Table 2).

Table 2.
Clues and Contents

Type of Clue	Content
Literature (book, publication etc.)	Printed or digital publications such as books and articles can be given to students as clues. Unlike traditional education approaches, supportive and guiding readings are recommended to students instead of those directly to the correct information. In some cases, the read object is not the source of different knowledge production in the design process but a tool.
Cinema (film, short film etc.)	The relationship of cinema with space, cinematography, original cinema concepts (montage, editing, etc.), and visual, artistic, and design fiction of films and short films can be clues for students.
Painting	When the art of painting, its approaches, and its techniques are discussed through various examples, it can be a clue.
Photography	Photography, its approaches, and techniques can be a clue when discussed through various examples.
Music	Music can be a clue when discussing its types, approaches and techniques, design processes, musical instruments, and examples. Sound and rhythm concepts belonging to the discipline of music can form an intersection set with basic design concepts.
Dance	Dance, its types, approaches and techniques, design processes, accessories, and environment can be a clue when discussed through examples. The concepts of rhythm, movement, body, choreography, music, and the relations of the concepts belonging to the dance discipline can form an intersection set with the basic design concepts.
Visual arts (exhibitions, installations, digital artworks etc.)	Video contents of visual arts, which are not included in any stereotyped classification, can serve as clues for students.
Graphic design	Graphic design, a discipline that can be encountered in many different forms such as newspapers, advertising posters, websites, packaging, and mobile application interfaces, is included in the design discipline and can be a clue for students in this context.
Fashion design	Fashion design can be a clue for students through design processes, end products, and display styles.
Game	Games developed in many ways can provide students clues through design processes, graphic designs, fiction, and rules.
Living or inanimate objects of daily life	Objects and their abstractions can serve as clues for students.

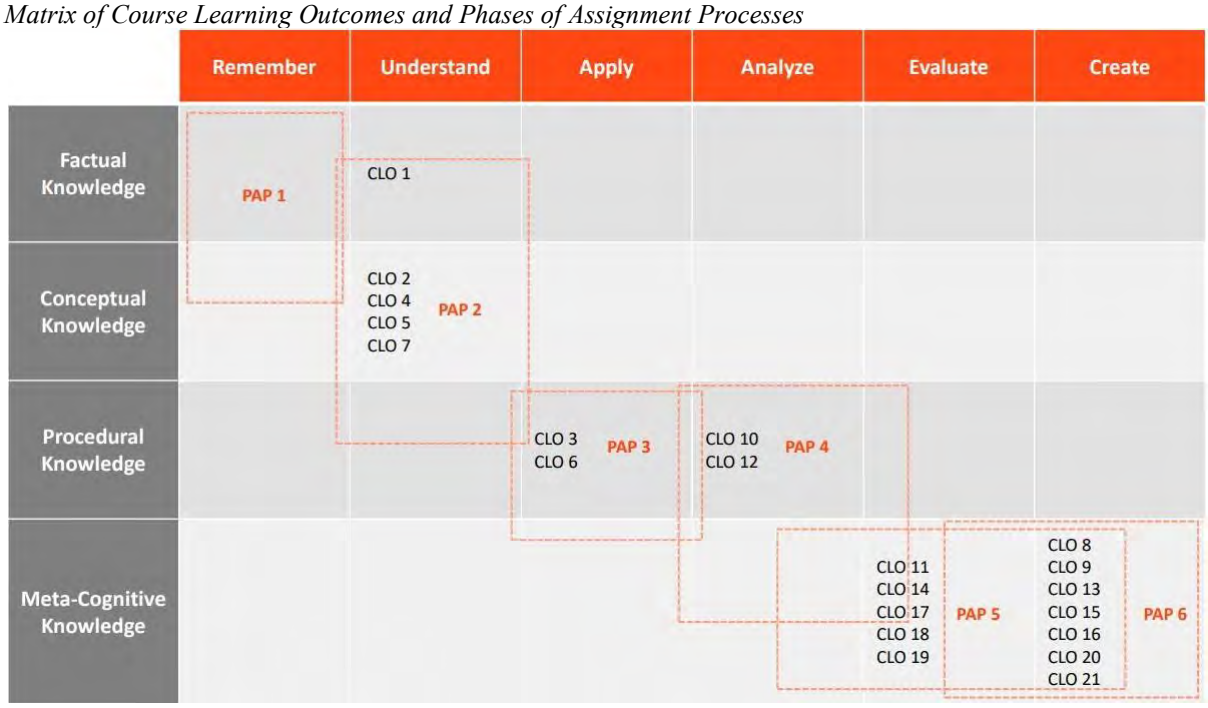
In the course schedule designed by accepting different disciplines as clues, the process of the assignments in each week is designed under the cognitive learning steps of remember, understand, apply, analyze, evaluate and create referring to BRT (Table 3). While structuring the processes of the assignments, the categories defined as cognitive process dimensions were taken into consideration. The clues are designed to foster the 'analyze' and 'evaluate' in these steps.

Table 3.
Structure of Weekly Assignment Process Developed under the Guidance of BRT

BRT's Cognitive Process Dimensions	Phases of Assignment Process (PAP)	Description of Assignment Process Dimensions
Remember	PAP 1	During the studio process, the instructors do not give theoretical lectures to the students, but guide the students with clues and criticisms. For this reason, students begin each weekly assignment by remembering, recognizing or recalling their own teachings. It involves retrieving relevant knowledge from long term memory.
Understand	PAP 2	Discussion themes and concepts are determined weekly for basic design principles and elements and their organizational relationships. The determined themes and concepts may show similarities and differences weekly. In order to understand the basic design principles and elements, students may be expected to interpret, exemplify, classify, summarize, infer, compare, explain in the discussion and critique sections in the studio process.
Apply	PAP 3	Each week is based on the student making an exercise in the given time, within the framework of the defined design elements, depending on the clue of the week. Every week, a procedure is implemented or executed within the framework of this given situation.
Analyze	PAP 4	Clues from different disciplines are given weekly during the studio process. Students are required to analyze the clue before creating their own original design. The clues are analyzed, differentiated, organized, attributed within the framework of basic design principles and elements.
Evaluate	PAP 5	An evaluation process is defined by analyzing the clues and discussing the basic design principles and elements. Students are expected to pass his/her ideas through a filter, check or critique them and proceed to the creation process.
Create	PAP 6	Each week includes the original design of each student. Original design is created, produced or constructed.

Although each assignment in the course schedule includes BRT's cognitive processes, it may contain a dominant process and may be related to the categories that BRT defines as categories of knowledge dimensions. Accordingly, the course learning outcomes (CLOs) (Appendix 1) and the phases of assignment processes (Table 3) were placed in the matrix of BRT's knowledge dimensions and cognitive process dimensions (Figure 5). On this matrix, the relationship between the course learning outcomes and the phases of assignment processes can be read under BRT guidance. The dominant phase of assignment processes was matched with the knowledge dimensions it overlaps with and associated with the other dimensions within its domain.

Figure 5.
Matrix of Course Learning Outcomes and Phases of Assignment Processes



The semester's interdisciplinary course schedule was created in light of the developed syllabus. The name and content of the exercise, the design elements of the exercise, the clues chosen for the exercise, and the themes and the concepts planned to be discussed within the scope of the exercise are expressed for each week (Appendix 2). In the studio process, which was shaped from simple to complex, the gradual structure of the studio was described by devoting seven weeks to 2-dimensional works, 1-2 weeks to relief and folding works that define the transition from 2-dimensional to 3-dimensional, and six weeks to 3-dimensional works. The created interdisciplinary, interactive course schedule was constantly updated in line with the instructors' observations in the weeks following each other and was finalized. The learning speed and level of the students every week were effective in updating the course schedule.

In the basic design studio, design elements, especially point, line, plane, colour, shape, form, texture, volume; design principles and rules, symmetry-asymmetry, balance, part-whole, integrity, fullness-space, proportion, scale, hierarchy, dominance, diversity, contrast, harmony, repetition, rhythm, movement, and direction; and in addition to this, concepts such as border, cycle, loop, light-shadow are handled. In the schedule, the design elements that the students can use in their composition are limited every week, and the themes and concepts that are expected to be discussed in the students' composition weekly are set (Appendix 2). However, during the studio process, these principles and concepts are given separately from the student as a design problem or explained, explained, or taught theoretically. In addition to the design elements described as limited, the student is given a clue borrowed from a different discipline. During the assignment process, the students are expected to analyze this clue and discover the design principles and rules by conceptualizing their analysis. With this discovery, the students produce their composition. In this case, each student's discovery and the composition they produce accordingly are unique. Students turn their composition into a means of conveying their analysis. The clue then becomes the design problem itself.

All practices with students are discussed with the instructors during the studio process. In this discussion environment, almost all student practices are examined together, without distinguishing between good and bad compositions, and the role of the instructor in this environment is to avoid direct narration about design principles, rules, and compositional concepts and to share only indirectly (Hillier & Leaman, 1972). A single truth is never referenced, and the positive and negative aspects of the examples are discussed together. All of the students' discoveries are revealed, and their perception and comprehension

processes are observed. These discussions also allow the instructor to direct the student's processes. The instructor teaches seeing, understanding, and learning.

In the first week of meeting the students, no clues are given, and the students are only expected to discover the design elements. The student, who is introduced to the design elements, makes a trial to discover the potential of these design elements. In the week-2, which takes complexity to the next level with multiple design elements and forms, visual arts disciplines are used so that the student can focus or analyze only what they see. This week, tips from painting, photography, cinema, short film, or video are generally consulted. For example, in this schedule, the student applies to the cinema to make compositional analyses of a single frame as a design element in Ruben Östlund's film, Square, and Stephen Bayley's video, The Umbrella, to make compositional analyses of multiple circles. Week 3 of the schedule aims to include more than one design element and form in the clue to increase the degree of complexity of the design elements and to discuss the different compositional situations and relationships of more than one element and form. In this context, the interface of the Spotify application is given as a clue. The application interface's multiple screen options (each interface screen can be considered a different composition example) discuss the complex relationships of elements and forms in the context of design principles and compositional concepts. In this week's out-of-studio reinforcement exercise, a billiards game analysis hints at the context of its changing multiple formal relations and compositions. Here, the design principles and rules that students are expected to discover and discuss have begun to diversify, and a reference is provided for movement and direction as compositional concepts. In order to increase this diversity in the week-4 practices, works belonging to the musical discipline can be applied because the discipline of music allows for the exploration of many concepts, especially rhythm, in the context of design principles. For example, in this schedule, analyzing Billie Eilish's Bad Guy song is expected to explore design principles through concepts such as repetitive and non-repeating, regular and irregular sounds, rhythm, and harmony of sounds. In this week's reinforcement practices, a clue is given from photography as a different discipline, and students are asked to do color and collage studies on the photographs they took. In this week and the following weeks, the concept of color is included in design problems as a design element for students. In the assignment of the week-5, a song and a video clip of a song are given to the students as a clue to take their musical discipline discoveries one step further. Along with both visual and performing arts and music, students are expected to explore the compositional concepts and design principles of Adele's music and visual arts in the Rollin in the Deep video clip. Here, the shooting techniques of the visual arts, the compositional analysis of each frame, the way the compositions are put together, and their interaction with music define an area for students to explore. Thom Yorke's ANIMA short film, which allows us to explore the interaction of visual arts and music disciplines, is chosen as a clue in this week's reinforcement exercise. Here, new concepts emerge that students are expected to explore in the context of design principles: light and shadow. It has been observed that this stage plays an active role in creating concepts and discovering design principles and rules in students. Contrary to the stereotyped principles and rules in design education, students diversify concepts flexibly. In addition, this stage formed the basis for the visual and cultural accumulation expected from design students. The contents that the students encountered for the first time, with their expressions, made them curious about discovering more.

A new exploration area is defined for the students while choosing the clue for the week 6 assignment. The discoveries made by the student until the week-6 arise from the 2-dimensional studies of different disciplines; however, this week, a functional object defined as 3-dimensional is given to the student as a clue. Given that the robot vacuum cleaner in this schedule is a functional object, the student is expected to explore the compositional relationships between the object's interaction with its environment, functions, features, and form. In week 7, an object is given as a clue with similarly based thoughts as in week 6; however, a living object is preferred here, with the expectation of discussing its existential characteristics, not the functional properties of the object. In this schedule, it is seen that a stork or a caterpillar is given as a clue. The reinforcement exercise of week 7 is designed as a preliminary assignment for students. This preliminary preparation defines the transition process for students to move their 2-dimensional- to 3-dimensional compositions. Students are expected to resize the 2-dimensional

composition by folding trials. Students are given short videos on folding, such as ArchiPaper, as a clue. Students are expected to convey the design principles and concepts they discovered through dimensioning tryings. In the week-8, a pedestrian crossing phenomenon is given as a clue on behalf of the transition stages from the 2-dimensional to the 3-dimensional. It is expected that the multifaceted, layered, and multi-scale (such as pedestrian and vehicle) structure of the pedestrian crossing concept will be analyzed, and its relations in the scope of design principles and concepts will be produced by dimensioning (with folds). It has been observed that the clues given play an active role in the first steps of the perception and comprehension of the concepts expected from the students and their ways of doing; it was observed that students exemplified the clues they discovered while explaining their designs orally.

The end-of-term exercise, planned for six weeks, is given to the students in week 9. In the end-of-term practice, it is seen that the student's design elements are diversified with 2-dimensional and 3-dimensional elements. Clues are given in the end-of-term exercises, as in all exercises. Children's Street Games form the clue for the end-of-term exercise in this schedule. Students are expected to select and analyze a children's street game in groups (each group consists of approximately six students). Here, it is aimed that the students analyze the game in all aspects, such as the rules of the games, the roles of the players, the environment in which the game is played, the accessories related to the game, the body and movement relations in the game, and reproduce their analysis by constructing compositional relations. At this stage, it was observed that the students were not only limited to the game qualities they offered but also developed new concepts on body and movement, music, and sound based on the games. They started to take these concepts as references for their designs. At the same time, while the students were not expected to discuss the concept of space in the final stage of this studio, the clue given allowed the formation of question marks about the concept of space and to form an introductory ground for it for future projects, because the students discovered that the games discussed should establish a relationship with a place and space.

DISCUSSION AND CONCLUSION

The article opened the architectural basic design studio process to the discussion within the framework of learning theories and models that do not have a place in the tradition of design education, and in this direction, proposed an essay on the constructability of a studio process that puts the act of discovery at its center. The studio has been handled many times in the historical process of basic design education with its multi-layered structure and interdisciplinarity. This article tries to theorize interdisciplinarity through a taxonomy, which occurs in its historical process. In this context, the interdisciplinarity of the studio schedule, which is the proposition of the article, is revealed by the methodological adaptation of different disciplines that do not belong to the field of architectural education. Different disciplines do not play the role of accompaniment that supports the studio environment as it is currently used in basic design education; they are considered design problems of studio assignments waiting to be explored. Every new perspective that does not belong to the disciplines has made it possible to bring a critical view to the discipline. In this context, each discipline becomes an object for more than one action in the studio process. These actions are discovering, analyzing, evaluating and creating. The student discovers design principles, rules, and concepts through objects from different disciplines, analyzes the object with this discovery, and reproduces/creates the information he/she has analyzed and evaluated. The process of these actions is defined in their entirety as learning. During the studio process, the interdisciplinary nature of basic design education was transformed into a systematic learning space.

The architectural basic design studio was structured with learning steps borrowed from Bloom Taxonomy – Bloom's Revised Taxonomy. The restructured course schedule proposal within the framework of BRT was created with course learning outcomes that are consistent with the learning outcomes of the architecture programme. Course learning outcomes are associated with cognitive, affective and psychomotor domains within the framework of BRT. The relationship between the learning outcomes and BRT is described by associating them with BRT's cognitive process dimensions

through weekly assignments in the course schedule. The course schedule is based on the concept of 'clue' as the teaching quality variable put forward by taxonomy and its interdisciplinary structure, which takes place in the historical background of basic design education. In all of the assignments, a clue from a different discipline was given to the students as a design problem, and an environment was provided for them to learn and create by exploring. This approach to education can be described as guided discovery. Each clue belonging to different disciplines in the architectural basic design studio catalyzes the student's perception, comprehension, thinking, discovery, learning, and creation.

While it remains common today to identify traditional discipline-based problem-solving processes with the design experience space, Bryant (2021) argues for the emergence of "a new type of studio, led by group work and interdisciplinary collaborations and framed by the complexity of a seemingly intractable problematic". While emphasizing the need for further research into the pedagogical structures, teaching techniques and learning activities of this new type of studio, his experimentation with interdisciplinary studios suggests that "teaching techniques in such studios need to be developed through conceptual diagramming and more accessible communication techniques in the language domain, striking a balance between trusting relationships and immersive experiences" (Bryant, 2021). In Bryant's study, the 'experience of gaining different perspectives' is closely related to the concepts of interdisciplinarity and collaboration. In this context, the field of experience of looking and thinking differently, which gained dominance in students, gained a meaning by overlapping with Bryant's experiment. There is a pedagogical basis that interdisciplinary practices help students to learn different thinking and critiquing techniques in the design process and in connection with this, interdisciplinary design studios should be structured. Different disciplines have provided opportunities for the student to make inferences and discover and synthesize in the learning process. It was visible that the students learned and assimilated by discovering the basic design principles and concepts. In this context, principles and concepts, as found in the tradition of basic design education, do not proceed through a linear chronology from simple to complex; on the contrary, it can be said that principles and concepts organize a network of relations from simple to complex. For this reason, in this process, students discovered more than one principle, concept, and their relations. This discovery also enabled the students to show a multi-relational attitude in their creative actions.Also it was observed that students' potential to be original and creative develops with different disciplines. The students realized that they had to produce a different discourse by avoiding imitation of objects from different disciplines that were presented as clues during the studio process. The learning area, unit, subject and concepts have been created by taking into consideration contemporary scientific knowledge with reference to the historical process. The contents of the course schedule prepared with clues contribute to the students' learning to learn process and establish a direct relationship with real life. It was observed that the clues intensively affect student attitudes within the course learning outcomes.

Exploring the nature of "signature pedagogies" in education, McLain (2022) examines the teaching and learning roles common to many different disciplines. McLain (2022) proposes a discursive framework in which design and technology education structures are interconnected by the three key experience domains of ideation, realization and critique, and more commonly by the experience domains of designing, making and evaluating. The design thinking experience domain is supported by the implicit values and attitudes with which it is associated, such as collaboration, creativity, empathy, iteration and problem solving. McLain (2022) argues that design and technology education offers a unique potential to offer a broad and balanced course schedule "through its unique pedagogies and the way knowledge is experienced by students". Basic design education is a threshold with the potential for student self-discovery. From this point of view, it has been observed that the interdisciplinary studio schedule is effective not only in the student's comprehension of basic design elements, principles, rules, or concepts but also in forming visual and artistic cultural accumulation throughout the studio process. The studio schedule lays the groundwork to gain the sensitivities of different disciplines that are indirectly targeted in design studios. This allows them to explore the design environment that architectural education needs, apart from her scientific thinking and problem-solving abilities. It was observed that the students were open to the clues presented, and they multiplied the examples of different disciplines that they envisaged to discuss with the clues given during the studio. In this context, it becomes possible to talk about how

students develop the ability to interact with different disciplines independently. This situation becomes a habit in the first year of architectural education. It can be mentioned that students question themselves, their environment, and everything they interact with since the interventions made by the instructor to the student's perception, discovery, comprehension, and comprehension processes during the studio show an approach that multiplies the questions instead of seeking a single correct answer. It has been observed that this questioning attitude gained by the students has gained continuity on behalf of the different disciplines they interact with, both inside and outside the studio. In recent studies that can relate to self-discovery, it is observed that the relationships between students' individual identities, motivations and emotions and their learning processes are mainly addressed. For example; Ketizmen (2024), in her research in which she revealed that "architecture students are more skilled in problem solving, idea generation, association, visualization and recall than synthesis-analysis, fact retention methods", stated that "students gain the ability to generate unique ideas and are open to all kinds of learning methodologies" and showed that openness has the highest value among personality traits. When interdisciplinarity is used in relation to students' personal interests and feelings, it has the potential to open up a new field of discussion. Tuncok Sariberberoglu (2022) mentioned that "design learning transforms the student" because in the first year, learners develop an awareness of the context of knowledge, enabling them to think critically about the validity of their assumptions. This is in line with the relationship of the learning process to individuality. Cakmakli et al. (2023) exemplify that they adopted a diagonal interdisciplinary approach to revitalize the working method of basic design, "considering the potential of interdisciplinarity to overcome some of the shortcomings of experiential learning". According to Acar et al. (2021), "The first year of architectural design education includes an intensive effort to create an internal/intellectual knowledge and representation of space as well as its external representation and expression through visual-spatial tools." Supporting the course schedule with a hidden curriculum creates the potential to open up a space for critical reflection on many elements, including learners' personalities, habits, values and judgments (Stead et. al, 2022). As Salama and Burton explain (2022), the hidden curriculum model, which has recently been considered as an alternative pedagogical model, is based on "developing and evaluating the course schedule, establishing group dynamics, generating discussions, consensus reaching, developing design schematics." Within the scope of this research, problem exploration, generating verbal and formal ideas, testing ideas and concepts, and developing specified schedule components are important when the exploratory model is examined (Salama & Burton, 2022). An interdisciplinary course schedule can become a tool for building a course schedule disguised as interdisciplinarity Orbey and Sarioglu Erdogdu (2021), in their research aiming to reveal the relationship between intuition and reasoning among learner experiences, found that "a rule-based design approach requires both logic and intuition management" and defined the essence of these two areas of experience in the process. When evaluated from this perspective, the relationship established with abstraction and abstract concepts in different fields of art can be opened to discussion as it can assume a guiding role in activating intuition. In terms of educational methodologies, Samaniego et al. (2024) emphasize hands-on learning, project-based learning, STEAM and interdisciplinary approaches. In their words, these approaches "foster a dynamic and participatory environment that encourages creative thinking through continuous practice and collaboration" and "by fostering hands-on experiences, active collaboration and a dynamic environment, these methodologies not only challenge students to apply knowledge in a concrete way, but also develop essential 21st century skills such as critical thinking and problem solving." When evaluated in this way, it can be seen that interdisciplinarity is re-associated with creativity through the course schedule. Radical Pedagogies, edited by Colomina and others, published in 2022, is a catalog: "a multifaceted catalogue of pedagogical experiences and educational experiments that explore known and unknown territories in the teaching of architecture and the conception of academic curricula between 1933 and 1987" (Vilaplana, 2022) . The book demonstrates that active and discovery-based learning methods formed the backbone of 20th century approaches to learning. In this context, with the discovery environment offered through disciplines in the course schedule can be considered as a quest for question "How does one learn architecture?" that Colomina et. al. (2022) encouraged to think about through the book.

The studio schedule proposal was developed under the guidance of Bloom's Revised Taxonomy, and in this process, a new discourse was produced in the name of taxonomy. In the studio process setup, which proceeds by using the learning steps defined by Bloom, clue, which is one of the variables that affect

the teaching quality by instrumentalization of different disciplines defined by Bloom, has turned into the teaching quality itself and has become the step that defines the learning area. Here, it can be said that the clue variable has ceased to be a variable and evolved into the learning phenomenon on which Bloom's theory is based. The clue takes on a new role as the enabler of learning by discovery rather than merely guiding and supporting. This paradigm shift evolves the clue to the central position in Bloom's taxonomy and defines new relationships with all other steps.

The course schedule for the basic design studio is a preliminary study. It proposes a studio schedule in a systematic and fictional framework involving interactions between different disciplines for the studio process. The studio schedule has developed a way of looking at different disciplines, and exercises have been selected accordingly. This essay and the theoretical framework on which it is based can be diversified with different perspectives because different disciplines have endless options. The use of interdisciplinarity in studio schedules has shown an attitude contrary to the stereotyped structure of studio schedules. Interdisciplinarity has allowed the course schedule flexibility and ability to update in the ever-changing and transforming educational opportunities environment of the 21st century. Thus, it is possible to translate the conventional instructions of basic design into learning spaces where students can create their exploration environments. It can be reconstructed over and over by changing and transforming within the framework of the unique values, Ecoles, and approaches of each university/architecture school. This article develops a systematic yet free and flexible course schedule proposal. The types of clues exemplified here can vary, and examples of the types of clues create an endless universe in today's media age.

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APPENDICES

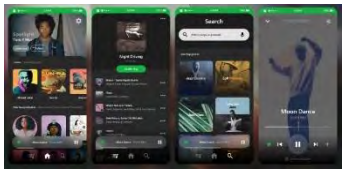
Appendix 1: Architectural Basic Design Studio Course Syllabus

Course Information	
Course Title	Architectural Basic Design Studio
Class Schedule	6 hours per week, face to face
Course Description	
Overview	The course involves presenting the methods and tools for developing rational and original design approaches so as to improve students' creative and multi-faceted thinking skills, to remove the visual and intellectual constraints of students by conveying the differences between the basic concepts of design and general principles and the differences between concrete and abstract thinking. The main objective of the course is to create an infrastructure for developing the creative thinking and design strategy skills required by the design process and to establish a background for understanding how design principles and elements can be used as a creative method in the context of space creation.
Prerequisites and co-requisities	None
Course Learning Outcomes (CLO)	
By the end of the course, the student will be able to: Knowledge: CLO 1. Have basic knowledge of design discipline, introduce design language and have awareness of design strategies. CLO 2. Have awareness of the concept of design, have knowledge of basic design elements and principles, develop and interpret an understanding of design elements and principles and their organisational relationships. Skills: CLO 3. Learn the use of design principles and elements in the context of composition production and make activities that will increase creative ability. CLO 4. Learn the concept of dimension in composition production and makes 2-dimensional and 3-dimensional exercises. CLO 5. Have a basic understanding of solids and voids, and their spatial relations in space. CLO 6. Learn the use of design principles and elements at the basic level in the context of both volumetric arrangement and spatial organisation. CLO 7. Have a basic understanding of the concepts of volume, structure and spatial organization and analyse the relationships between concepts at a basic level. CLO 8. Think and design through physical and digital making. CLO 9. Think 3-dimensionally. CLO 10. Have trials with the use of various materials in 2 and 3 dimensional composition production and have experience with materials. CLO 11. Articulate design ideas expressively in graphical, written and oral form. Learn tools, methods and media for architectural expression and presentation techniques and develops his/her own expression techniques. CLO 12. Engage in research and analysis based on a variety of interdisciplinary resources and clues. CLO 13. Refine physical and digital model making skills. CLO 14. Work fluently between design tools, methods, and media. CLO 15. Take part in team work and carry out collaborative design processes. Attitudes: CLO 16. Develop artistic and architectural sensitivity. CLO 17. Display intellectual curiosity and a critical perspective towards design problems and different disciplines. CLO 18. Be open to learning from different disciplines. CLO 19. Be open to criticism. CLO 20. Demonstrate self-discipline. CLO 21. Improve time management abilities.	

Course Materials	
Textbooks	Berger, J. (1972). Ways of seeing. London: BBC Enterprises. Tanalı, Z. (2000). Sadeleştirmeler. Ankara: Alp Publishing.
Supplementary Resources and/or Clues	• Painting • Photography • Literature • Music • Cinema • Dance • Visual arts (exhibitions, installations, digital artworks) • Graphic design • Fashion design • Game • Living or inanimate objects of daily life
Course Schedule	
Activity Contents	• Composition • Abstraction • Geometry • Color • Texture • Structure • Material

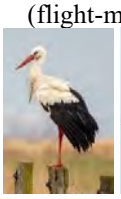
Appendix 2: The Interdisciplinary Course Schedule

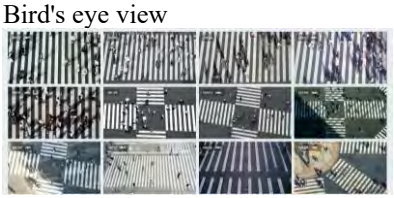
Week	Assignment in-Studio	Assignment out of-Studio
1	**Exercise 1: A3 | Composition designed by subtracting 1 square from A3 or placing 1 square** **Design Elements:** 1 A3 1 Square (The size is free, black color.) Student name and number **Discussion themes & concepts:** part/whole, element identity, design area, solid/void, figure/ground	**Research:** What is a sketch?
2	**Exercise 1: A3 | Multiple squares composition** **Design Elements:** 1 A3 Minimum 2, Maximum 10 Squares (The size is free, black color) Student name and number **Clue:** ▪ Film: Square, Rubend Östlund ▪ Video: April's Savior: The Umbrella, Stephen Bayley  ▪ Video: Murmuration Flower **Discussion themes & concepts:** part/whole, element identity, symmetry, asymmetry, design area, border, boundary area, solid/void, figure/ground	**Exercise 1: A3 | Multiple forms composition – 1 Square, 1 Circle, 1 Triangle** **Design Elements:** 1 A3 1 Square (10x10 cm, black or white.) 1 Triangle (45° angled, h=10 cm, black or white.) 1 Circle (R=10 cm, black or white.) Student name and number **Discussion themes & concepts:** element identity, element diversity, variation, symmetry, asymmetry, design area

3	**Exercise 1: A3 | Multiple form composition** **Design Elements:** 1 A3 Triangle, Square, Circle (Shape selection, number and size are free. More than one shape can be selected together. Black color) Student name and number **Clue:** ▪ Spotify mobile app interface abstraction (home screen, search screen, playlists screen, an artist's screen, a song playing screen, a song with a short video (canvas feature) playing screen, a song and lyrics screen, etc.)   **Discussion themes & concepts:** element identity, element diversity, variation, symmetry, asymmetry, design area, order, scale, proportion, balance, dominance, contrast	**Exercise 1: A3 | Multiple form composition** **Design Elements:** 1 A3 Triangle, Square (Shape selection, number and size are free. More than one shape can be selected together. Circle form cannot be used. Black and/or orange.) Student name and number **Clue:** ▪ Game: Billiard game abstraction with balls, sticks, table, rules, ways of playing  **Research:** What is Abstraction? The difference between the concepts of abstraction and abstract. The relationship between the concepts of abstraction, abstraction, and reduction. **Discussion themes & concepts:** element identity, element diversity, variation, symmetry, asymmetry, design area, order, scale, proportion, balance, dominance, contrast, relation

4	**Exercise 1: A3 | Multiple form composition** **Design Elements:** 1 A3 Triangle, Square, Circle (Shape selection, number and size are free. More than one shape can be selected together. Black and/or orange.) Student name and number **Clue:** ▪ Music: Bad Guy, Billie Eilish song abstraction **Discussion themes & concepts:** order, scale, proportion, rhythm, repetition, balance, loop	**Exercise 1: A3 | Collage-composition designed with color chart and texture collage** Creating a collage with orange or black-gray color chart and samples of living/inanimate texture photographs taken by students themselves **Design Elements:** 1 A3 3 or 4 Texture Samples 2 or 3 Color Swatches Student name and number **Exercise 2: A3 | Creating a new collage-composition with the abstraction of the collage-composition created in Exercise 1** **Design Elements:** 1 A3 1 Collage-Composition A3 Student name and number **Clue:** ▪ Photograph: Living/non-living tissue samples (animal tissue, plant tissue, urban texture, facade texture etc. are exemplified.) **Research:** What is the color chart? What is texture? What is collage? **Discussion themes & concepts:** order, scale, proportion, rhythm, repetition, balance, color, pattern, texture, harmony, collage

5	**Exercise 1: A3 | Multiple form composition** **Design Elements:** 1 A3 Triangle, Square, Circle (Shape selection, number and size are free. More than one shape can be selected together. Black and/or orange.) Student name and number **Clue:** ▪ Music&Video: The abstraction of Rolling in the Deep, together with the video clip of the song Adele (can be considered in the context of singular, dual or multiple relations through the scene of the artist, the scene of the glasses, the scene of the drummer, the scene of the dancer, the scene of the plates, the scene of the city model.)  **Discussion themes & concepts:** order, scale, proportion, rhythm, repetition, balance, motion, loop, movement, relation	**Exercise 1: A3 | Multiple form composition (with geometry subtracting)** **Design Elements:** 1 A3 Triangle, Square, Circle (Shape selection, number, size are free. More than one shape can be selected together. Black and/or orange color and/or sketch paper will be used.) Student name and number **Clue:** ▪ Short film: ANIMA, Thom Yorke  **Research:** What is the object? **Clue:** ▪ Series: Love, Death & Robots **Discussion themes & concepts:** element identity, order, rhythm, repetition, balance, motion, movement, relation, light and shadow
6	**Exercise 1: A3 | Multiple form composition (with geometry subtracting)** **Design Elements:** 1 A3 Triangle, Square, Circle (Shape selection, number, size are free. More than one shape can be selected together. Black and/or orange color and/or sketch paper will be used.) Student name and number **Clue:** ▪ Object: Robot vacuum cleaner abstraction  ▪ Video: Roomba 600 series | iRobot ▪ Video: The Amazing Engineering behind the Cleaning Robots! ▪ Video: Designing objects that tell stories | TED Talk, Yves Behar **Discussion themes & concepts:** order, scale, proportion, rhythm, repetition, balance, motion, loop, movement, relation	

7	**Exercise 1: A3 | Multiple form composition** **Design Elements:** 1 A3 Triangle, Square (Shape selection, number and size are free. More than one shape can be selected together. Circle form cannot be used. Black and/or orange color.) Student name and number **Clue:** ▪ Living object: Stork or caterpillar abstraction - Stork examination (physical characteristics, physical movement potentials, individual and collective (migration-migration) movements, existence on land (nest)-water (hunting)-air (flight-migration))   - Caterpillar examination (physical properties, physical action potentials, metamorphosis, bidirectional existence as caterpillar-butterfly)   **Discussion themes & concepts:** order, scale, rhythm, repetition, balance, motion, loop, movement, relation	**Exercise 1: Folding exercise** Associating folds via stork or caterpillar abstraction **Design Elements:** 3 pieces of 1 mm cardboard in A3 size (1 Orange, 1 black, 1 gray color.) Folds can be squares at multiples of 5 (5x5, 10x10, 15x15), rectangles of multiples of 5 (5x10, 5x15, 10x15), and linear elements of multiples of 5 (2.5x5, 2.5x10, 2.5x15) with a short side of 2.5. Different folding types are used in each layer. After one fold, it can be folded again in another direction. Student name and number **Clue:** ▪ Video: ArchiPaper  ▪ Video: Paper City, Maciek Janicki  ▪ Sculpture: David Umemoto archive (Modern Houses, Cut & Fold paper series)  **Research:** What is the dimension? What is void? What is volumizing, how can it be done? What is structuring? **Discussion themes & concepts:** surface quality, order, rhythm, balance, harmony, hierarchy, folding, depth, element dimension, motion, movement, relation

8	**Exercise 1: A3 | Dimensional multiform composition** **Design Elements:** 1 A3 Student name and number 3 Layers (5x5, 5x10, 5x15 folds will be made. Folds can be made at 90°. Black and/or gray and/or orange will be used.) **Clue:** ▪ Object: Crosswalk abstraction - Sample photo&video: Bird's eye view  Walking level-ground shooting  Body level shooting **Discussion themes & concepts:** surface quality, order, rhythm, balance, harmony, hierarchy, folding, depth, element dimension, motion, movement, relation	
9	**Final Exercise**: **Volume design** Cube (40x40x40 cm) or layer design on 4 different materials **Design elements:** Linear elements (Materials such as sticks, frames, wires can be used.) Surface elements (Opaque, transparent material can be used.) Volume elements (cube, prism, etc.) (Solid, empty, opaque surface, transparent surface, rod element material can be used.) Layers (Solid, empty opaque surface, transparent surface, stick element material can be used.) **Clue:** ▪ Game: Children's street games review -Types of games (hopscotch, blindfold, oil sell honey, handkerchief snatch, dodge ball, stop, high ground, chair grab, leapfrog, camel dwarf, limbo / hula hop, box of pliers, ear to ear, long ass, open the door games such as mercenary head, hide-and-seek, jump rope, corner grab, frost fire, I have your hand, etc. are exemplified. -Game-body-movement-space relations - Game-play tools/accessories	

	Discussion themes & concepts: order, rhythm, balance, harmony, hierarchy, motion, movement, loop, body/space dimension of parts-mass elements-surface elements-linear elements-voids	
10	**Final Exercise**	
11	**Final Exercise**	
12	**Final Exercise**	
13	**Final Exercise**	
14	**Final Exercise**	

TÜRKÇE GENİŞLETİLMİŞ ÖZET

Temelleri 19. yüzyıla dayanan mimarlık ve tasarım eğitiminin, 21. yüzyıl eğitim ortamı içerisinde yeniden düşünülmesi, irdelenmesi ve tartışılması ihtiyacı kaçınılmazdır. Bu makale, mimarlık eğitiminin odağında konumlanan temel tasarım eğitiminin geçmişten bugüne yalnızca mimarlık disiplini çerçevesinde ele alınan gelenekselleşmiş, kalıplaşmış ve bürokratikleşmiş yaklaşım, yöntem ve araçlarını tartışmaya açar. Eğitim geleneğinin aksine eğitim bilimleri disiplinine ait eğitim kuramları ve öğrenme modelleri çerçevesinde temel tasarım eğitimini ele almayı ve eğitimin çok katmanlı yapısının yeni bir öğrenme alanına dönüştürülebilmesini amaçlar. Bu makale kapsamında, öğretimin tüm alanlarında uygulanabilir olma potansiyeli taşıyan Bloom Taksonomisi ve Yenilenmiş Bloom Taksonomisi, öğrenenin pasif dinleyici rolünde var olduğu teorik bir ders yerine öğrenen-eğitmen etkileşimine dayanan uygulamalı mimari temel tasarım stüdyosu dersi sürecine kılavuzluk etmektedir. Taksonomi; mimarlık ve tasarım disiplininin disiplinlerarası yapısının eğitim sürecindeki yansımalarının ve etkinliğinin keşfedilmesi, bu keşfin araçsallaştırılarak temel tasarım eğitimi bağlamında kullanılmasına olanak tanımıştır. Yapılan denemeler, mimari temel tasarım stüdyosunda özgün bir program oluşturulmasının ipuçlarını oluşturmuş, stüdyo sürecinin kendi geleneğinde yer edinmeyen bir öğrenme modeli ile değerlendirilmesini sağlamıştır. Disiplinlerarası stüdyo programı örneği, bir müfredat önerisi için ipuçları sağlamıştır. Bu müfredat önerisiyle birlikte, esnek ve geliştirilmeye açık bir müfredat taslağı sunulmuştur. Bu taslak, farklı okullar, ekoller ve değerler süzgecinden geçirilerek işlenebilir ve yeniden düzenlenebilir. Bu makale hem içeriğinde tartıştığı disiplinlerarasılık hem de bu tartışmayı yaparken kullandığı yöntemlerin disiplinlerarası niteliği nedeniyle değerlidir. Makale, amacı doğrultusunda bir öneri geliştirirken, bunu yaparken kullandığı metodoloji- Bloom'un Gözden Geçirilmiş Taksonomisi- hakkında da yeni bir söylem üretmektedir.

Makale, mimari temel tasarım stüdyosu sürecini, tasarım eğitiminin geleneğinde yer edinmeyen öğrenme kuram ve modelleri çerçevesinde tartışmaya açmış, keşfetme eylemini merkezine oturtan bir stüdyo sürecinin kurgulanabilirliğine dair bir deneme önermiştir. Stüdyo, temel tasarım eğitiminin tarihsel sürecinde de birçok kez çok katmanlı yapısı ve disiplinlerarasılığı ile ele alınmıştır. Bu makale, tarihsel sürecinde yer edinen disiplinlerarasılığı bir taksonomi üzerinden kuramsallaştırmaya çalışır. Bu bağlamda makalenin önermesi olan stüdyo programının disiplinlerarasılığı, mimarlık eğitimi alanına ait olmayan farklı disiplinlerin yöntemsel olarak uyarlamasıyla ortaya konmuştur. Farklı disiplinler, temel tasarım eğitiminde halihazırda kullanıldığı şekliyle stüdyo ortamını besleyen ya da destekleyen eşlikçi rolünde değil; stüdyo uygulamalarının keşfedilmeyi bekleyen tasarım problemleri olarak ele alınmıştır. Disiplinlerin kendisine ait olmayan her yeni perspektif, disipline eleştirel bir bakış getirmeyi olanaklı kılmıştır. Bu bağlamda her farklı disiplinin, birden fazla stüdyo eylemi için nesneleştiği söylenebilir. Bu eylemler keşfetme, çözümleme ve yaratma eylemleridir. Öğrenci, farklı disipline ait nesne üzerinden tasarım ilke, kural ve kavramlarını keşfeder, bu keşfiyle birlikte nesneyi çözümler ve yeniden yaratır. Bu eylemler bütünüyle tanımlanan süreç öğrenmedir.

Mimari temel tasarım stüdyosu, Yenilenmiş Bloom Taksonomisi'nden ödünç alınan öğrenme basamakları ile kurgulanmıştır. Program, taksonominin öne sürdüğü öğretim niteliği değişkeni olarak 'ipucu' kavramı ve temel tasarım eğitiminin tarihsel arka planında yer edinen disiplinlerarası yapısı üzerine temellendirilmiştir. Uygulamaların tamamında öğrencilere farklı bir disiplinden ipucu bir tasarım problemi olarak verilmiş, keşfederek öğrenmeleri ve yaratmaları için ortam sunulmuştur. Mimari temel tasarım stüdyosu içerisinde verilen farklı disipline ait her bir ipucu, öğrencinin algılama, kavrama, düşünme, keşfetme, öğrenme ve yaratma edimlerini tetikleyici nitelik göstermiştir. Farklı disiplinler, öğrencinin öğrenme sürecinde çıkarımda bulunacağı, keşfedeceği, sentezleyebileceği olanakları tanımıştır. İpuçları farklı disiplinlerden ödünç alınan araçlar olarak değerlendirilmiştir. Kitap-yayın, film-kısa film-sinema, resim, fotoğraf, müzik, dans, diğer görsel sanatlar (sergiler, enstalasyonlar, video içerikleri), grafik tasarım, moda tasarımı, oyun, canlı veya cansız nesne ipuçlarını oluşturmuştur.

Temel tasarım stüdyosu müfredatı bir ön çalışma olup, stüdyo süreci için farklı disiplinlerin etkileşiminde sistematik ve kurgusal bir çerçevede stüdyo programı önerilmiştir. Stüdyo programı

içerisinde farklı disiplinlere bir bakış biçimi geliştirilmiş ve egzersizler buna göre seçilmiştir. Bu deneme ve dayandığı kuramsal çerçeve farklı bakış açıları ile çeşitlendirilebilir; çünkü farklı disiplinler sonsuz seçeneklere sahiptir. Stüdyo programlarında disiplinlerarasılığın kullanılması, stüdyo programlarının kalıplaşmış yapısına aykırı bir tutum sergilemiştir. Disiplinlerarasılık, 21. yüzyılın sürekli değişen ve dönüşen eğitim olanakları ortamında programın esnekliğine ve güncellenebilirliğine olanak sağlamıştır. Böylece, temel tasarımın geleneksel talimatlarını, öğrencilerin kendi keşif ortamlarını yaratabilecekleri öğrenme alanlarına dönüştürmek mümkündür. Her üniversitenin/mimarlık okulunun kendine özgü değerleri, ekolleri ve yaklaşımları çerçevesinde değişerek ve dönüşerek tekrar tekrar kurgulanabilir. Bu makale bir anlamda sistematik ancak özgür ve esnek bir müfredat önerisi geliştirmektedir. Burada örneklenen ipucu türleri çeşitlenebilir ve ipucu türlerinin örnekleri günümüz medya çağında sonsuz bir evren yaratır.

Stüdyo programı önerisi Yenilenmiş Bloom Taksonomisi rehberliğinde geliştirilmiş ve bu süreçte taksonomi adına yeni bir söylem üretilmiştir. Bloom'un tanımladığı öğrenme basamaklarını kullanarak ilerleyen stüdyo süreci kurgusunda, Bloom'un tanımladığı farklı disiplinlerin araçsallaştırılmasıyla öğretim niteliğini etkileyen değişkenlerden biri olan ipucu, öğretim niteliğinin kendisine dönüşmüş ve öğrenme alanını tanımlayan basamak haline gelmiştir. Burada ipucu değişkeninin bir değişken olmaktan çıkıp Bloom'un kuramının dayandığı öğrenme olgusuna evrildiği söylenebilir. İpucu, sadece yol gösterici ve destekleyici olmaktan ziyade, keşfederek öğrenmeyi sağlayan yeni bir rol üstlenmiştir. Bu paradigma değişimi, ipucunu Bloom'un taksonomisinde merkezi bir konuma taşımış ve diğer tüm basamaklarla yeni ilişkiler tanımlamıştır.