

The Digital Habitus of Architecture: Praxis of Design-oriented Internet Usage

Hanife Sümeyye Taşdelen ¹, Leman Figen Gül ²

ORCID NO: 0000-0002-3190-5983¹, 0000-0001-9374-4620²

¹Istanbul Technical University, Graduate School, Department of Informatics, Architectural Design Computing, Istanbul, Türkiye

²Istanbul Technical University, Graduate School, Department of Informatics, Architectural Design Computing, Istanbul, Türkiye

This study examines the visual-search and information-gathering behavior of architects in the early architectural design phase in relation to varied media tools. The study proposes the idea that navigation skills in online media help designers discover more creative solution areas during their design process. In continuation of our research, conceptual conclusions are made based on the results obtained from the field study and the literature review. In this context, we discuss the concept constituting the habitus of digital architecture. We re-evaluated our conceptual proposal by applying design experiments to examine the phenomena contained in the habitus of design-oriented research. We have discussed the results from the experiments in this article in detail; focusing on whether correlation exists between the interviewees' expressions and designers' practices. We then adapted field theory, as elaborated by Pierre Bourdieu in 1984, to the digital habitus of architecture. Afterward, by taking the process of design-oriented knowledge production into account, we have identified two fields of design-oriented digital habitus: online and offline. The fields forming the habitus of digital architecture and the possible advantages that may occur based on these fields have been identified. Finally, the meaning of having digital privilege for architects has been evaluated in terms of the future of architecture.

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Corresponding Author:

hsumeyyetasdelen@gmail.com

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Mimarlığın Dijital Habitusu: Tasarım odaklı İnternet Kullanım Pratiği

Hanife Sümeyye Taşdelen ¹, Leman Figen Gül ²

ORCID NO: 0000-0002-3190-5983¹, 0000-0001-9374-4620²

¹İstanbul Teknik Üniversitesi, Lisansüstü Eğitim Enstitüsü, Bilişim Anabilim Dalı, Mimari Tasarımda Bilişim, İstanbul, Türkiye

²İstanbul Teknik Üniversitesi, Lisansüstü Eğitim Enstitüsü, Bilişim Anabilim Dalı, Mimari Tasarımda Bilişim, İstanbul, Türkiye

Bu çalışma, değişen medyalara bağlı olarak erken mimari tasarım aşamasında mimarların görsel arama ve bilgi toplama davranışlarını incelemektedir. Çalışma, çevrimiçi ortamda gezinme becerilerinin, tasarımcıların tasarım sürecinde daha yaratıcı çözüm alanları keşfetmelerine yardımcı olduğu ve tasarımcıların son ürün temsillerine etki ettiği fikrini önermektedir. Araştırmanın devamında alan çalışması ve literatür taramasından elde edilen sonuçlara dayalı olarak kavramsal çıkarımlarda bulunmaktadır. Bu bağlamda mimarlığın dijital habitusunu oluşturan kavramı tartışılmaktadır. Tasarım odaklı araştırma habitusunda yer alan olguları görmek için tasarım deneyleri uygulayarak kavramsal öneri yeniden değerlendirilmiştir. Bu makalede deneylerden elde edilen sonuçlar ayrıntılı olarak tartışılmış; görüşülen kişilerin ifadeleri ile tasarımcıların uygulamaları arasında korelasyon olup olmadığını araştırılmıştır. Daha sonra, Pierre Bourdieu tarafından 1984'te detaylandırıldığı şekliyle alan teorisi mimarinin dijital habitusuna uyarlanmıştır. Ardından, tasarım odaklı bilgi üretimi sürecini dikkate alarak, tasarım odaklı dijital habitusun iki alanı belirlenmiştir: çevrimiçi ve çevrimdışı alanlar (yazılım). Dijital mimarinin habitusunu oluşturan alanlar ve bu alanlara bağlı olarak ortaya çıkabilecek olası avantajlar belirlenmiştir. Son olarak mimarların dijital ayrıcalığa sahip olmasının anlamı, mimarlığın geleceği açısından değerlendirilmiştir.

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Sorumlu Yazar:

hsumeyyetasdelen@gmail.com

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1. INTRODUCTION

Over the past decade, the radical increase in new media tools has led to the transformation of the information and communication technologies, as well as the transformation of the knowledge and practices of architectural design. Today, designers and architects are very much expected to use digital design and visualization tools effectively. This expectation manifests itself in the representation standards set for final products in design competitions and methods of professional presentation, along with the required technical skills from architects as part of job applications. Internet is a significant virtual space allowing designers to search for precedents, discover new ideas, gather information, create a network, and have digital storage during the conceptual design phase.

Therefore, the aim of the research is to examine the ways in which designers generate new design knowledge through design-oriented internet research. This study claims that design-oriented use of the digital media forms its own habitus by distinctly embodying the trends, and exhibiting iterative processes and similar patterns. In this study, we questioning diversity of the online search behavior relate with design media selection of designers (analog or digital). The organization of the research framework is based on the search for interactions among design media, search behavior, the process of inspiration and design representation (**Figure 1**).

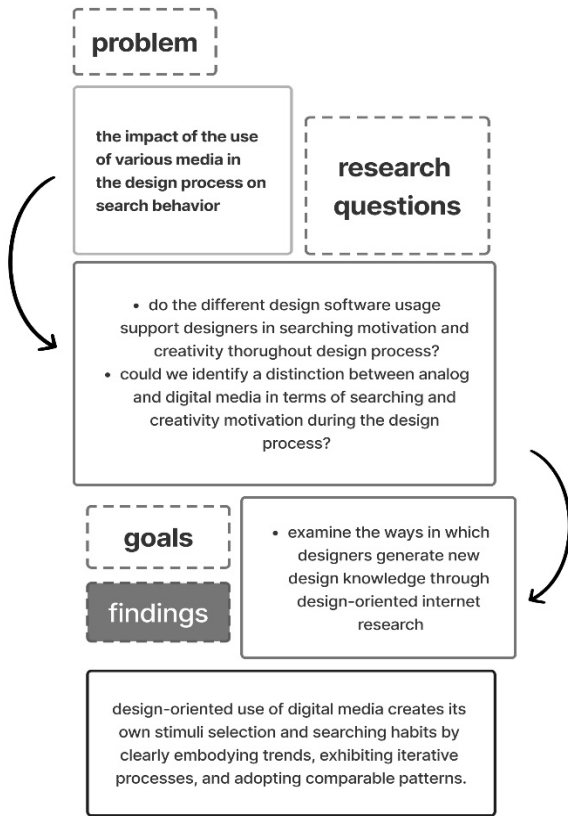


Figure 1. The framework of research

According to Bourdieu’s theory, practices are constructed by structures (that is, the tangible conditions of the existential characteristic of a social class position), as much as they are determined by them (Bourdieu, 1977: 78, as mentioned in Çegin & Meder, 2011). This determination provokes to study the practical nature of agency to establish idea of habitus which combine the actor’s symbolic representations with structural variables. Habitus provides a 'sense of play' or a 'practical understanding' (which allows people to devise a numerous number of strategies for dealing with a numerous number of situations) in Bourdieu’s theory (Çegin & Meder, 2011). The ‘illusio’ that is called by Bourdieu corresponds to the logic, values and capital of field with his words it is “the fact of being caught up in and by the game, of believingthat playing is worth the effort.” (1998d: 76–7, as mentioned in Webb et al, 2002). As a social theorist, Bourdieu’s theory of practice intends to show how relations of privilege and domination are produced through the interaction of habitus– a matrix of dispositions that shape how the individual operates in the social world – capital that is economic, cultural, social, and symbolic and field (i.e., social contexts). We only interested in the intellectual use (praxis) of

digital design media, hypothesizing that these practices influence the digital distinctions that designers gain. Bourdieu asserts that praxis is more than just a singular instance of social activity. Praxis is an activity that allows human beings to create and recreate society in all of its cultural, social, and economic aspect (Öztürk, 2020). The notion of digital habitus has already been introduced, which is produced by digital machines such as machine learning algorithms (Romele & Rodighiero, 2020). Thus, today machine learning algorithms or recommendation and sorting algorithms are part of Internet research and they form the part of the digital habitus. Machine learning algorithms, according to the central hypothesis of authors, generate and replicate habitus. Moreover, researchers claim that nothing justifies the maintenance of old distinctions in the face of the richness of this new [digital] data (Romele & Rodighiero, 2020).

The term 'habitus' is conceptualized in various ways. As stated in Stevens (1998, p. 58), habitus is a filter through which actors interpret the social world, and the mechanism these actors use to regulate their actions in that world and produce their own practices. One of the challenges here is that we need to capture these sets of dispositions and practices in our digital habitus with specific methodological tools. The difficulty and complexity of applying the habitus promotes a critical understanding of the theory-method relationship. Moreover, the process of applying theory "presents a number of challenges for researchers seeking to bridge the theory-method gap via the socio-theoretical vocabulary of concepts such as habitus" (Costa et al., 2018). We use the habitus of architectural design to define and narrow the field; since digital realms can hardly be studied as one research topic, narrowing the field to architectural design becomes useful. Similarly, the field of architecture is also too broad, encompassing many practices and actors that create relationships in the field. It would be impossible to capture all the dispositions and practices in designers' digital design process by applying habitus theory to architecture. The praxis of design-oriented Internet use is distinguished as it defines the actions and practices of informational and visual search in the online environment. The production and communication of knowledge can be carried out more autonomously (Lupton, 2014, cited in Costa et al., 2018) in online environment.

Knowledge production and the acquisition of a taste for design are inherent in the forms of digital dispositions. Technologies like the Internet of Things, 3D printing, and text algorithms in AI are accurately actualizing the digital and are actualizing the world through the digital in recent years (Romele, 2020). Digital technologies are structurally hermeneutic, according to Romele (2020, p. 10), and he'd argue that no hermeneutic is more successful than digital hermeneutics. "Because the writing, signs and symbols in digital hermeneutics do not confine themselves to representing the reality." According to Susen (2017, p. 145), Bourdieu can be described as a "hermeneutic-inspired" thinker insofar as his work is characterized by a deep interest in the nature of interpretation. Also, new media scholars and cultural researchers use the term "habitus of the new" or digital habitus, adapting Bourdieu's terms to explain 'how actors move through online spaces as new and crowded fields of meaning-making' (Papacharissi & Easton, 2013).

The scope of this article is limited to the design-oriented use of digital media in the early design phase. For this study, the qualitative research techniques of the literature review and questionnaire survey were conducted simultaneously with three-stage method (see Figure 2). After analyzing the questionnaire results and the literature review, the identified phenomena were interpreted together within the proposed conceptual framework. By using the grounded theory method, this study did not pose a predetermined hypothesis and did not attempt to prove a specific theory (similar to the methodology stated by Çelik & Ekşi, 2015). Instead, by conducting an in-depth interview study and design experiments, in this study, we interpretively explored and questioned students' design-oriented digital media practices. The aim of the interview 1) to encourage interviewees to explain their previous experiences with the digital design technologies, 2) the origins of the interviewees' interest in the digital design tools (softwares) and 3) the impact of the tools on the interviewees' design activities.

The information given about online and offline practices with design media were interpreted through context coding. In this context, the verbal statements of the interviewees about the seeking/exploring information through digital media, the inspiration and the use of digital design tools were evaluated separately. Then, the experimental study was applied to test and observe our conceptual proposal and coding of the statements. The design experiments were created based on the

prior knowledge of the design experiments which are supported of the Internet and new media tools during the design phase. And these are adapted for our research questions (Figure 2).

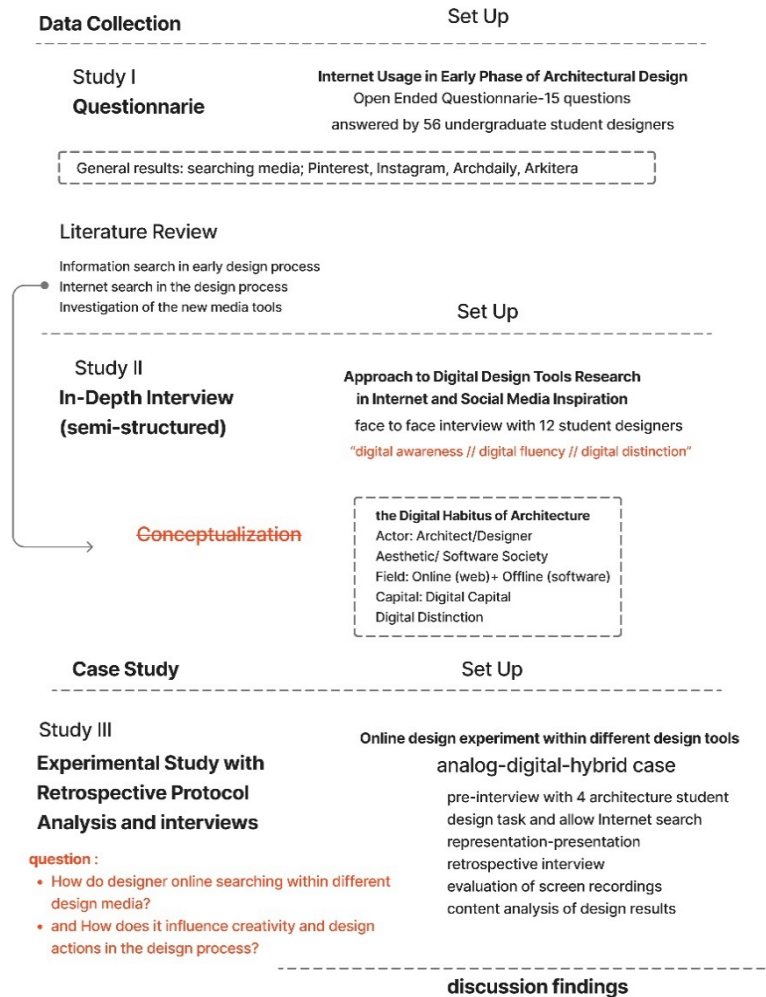


Figure 2. The research process

The consensus on the preference for social media searches became clear compared to websites and other sources of visual exemplars. First, we sought to figure out how architects understand and use the visual objects they find on new media platforms. The coding for the utterances also suggests that the way they use social media and websites might be related to their preferences in design software. In summary, students often indicated by their use of specific terms that they had mastered the more subtle pleasures and knowledge of space and architectural principles.

The participants also showed in the online design experiments that they are aware of the "field-specific rules of the game", and their design

results seem to be consistent with their search history and conceptual statements.

2. RESEARCH DEVELOPMENTS

In recent years, design processes have become more and more subjected to design software, as pointed out, "software not only creates new sites of practice, but actually transforms them, creating new difficulties in the process" (Llach, 2015). New forms of competencies and skills are needed in the abstract and digital domain of software. According to Oxman, the new skills and competencies will emerge as a different corpus of theories associated with digital design practices. Thoughts about design have also changed with the advanced digital and computational environments. Similarly, Oxman stated that algorithmic thinking and scripting culture have become the fundamental components of "designerly ways of knowing" (Oxman, R. & Oxman, 2010; Cross, 2006). Indeed, coding and scripting culture has impacted on architectural design processes, but the extent to which designers effectively use algorithm-based software programs in the design process is debatable.

The current interest in nature and natural design provides an example of how epistemological sources may introduce a new visual taxonomy to an existing design domain." Indeed, it could be defined as a cultural process that produces a new and transformed field of visual sources and precedents (Oxman, 2016). Here, we attempt to draw a general schema of online search processes in the early design phase based on our hypothesis/pre-conception (**Figure 3**). This schema depicts a search process in which, at the start of the design process, a broad search is conducted on a search engine using some conceptual keywords describing the design problem, and then a search is conducted using the search engine's recommended web sites and image-based platforms.

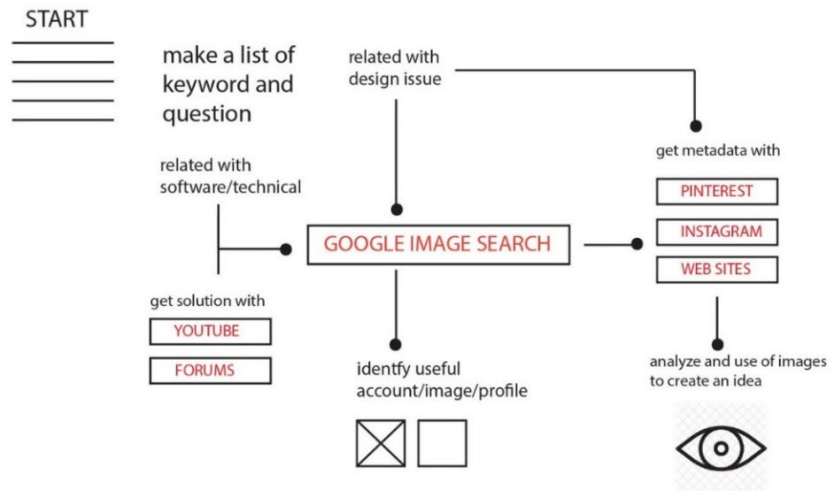


Figure 3. General schema of early design conceptual searches.

2.1 New Media as Image Search Platforms in the Early Design Phase

Various studies suggest that visual stimuli help designers discover design emergence (Gonçalves et al, 2014; Goldschmidt & Smolkov, 2006; Oxman, 2002) in their minds and increase their creativity. In particular, there are some experimental studies in the literature on inspiration in the early stages of architectural design and the analysis of design precedents (Gonçalves et al., 2016; Gonçalves et al., 2013). To date, however, little research has been conducted on design-oriented searches on new media platforms. We have examined several studies on how designers use the search engines for design-oriented visual and informational purposes that were previously conducted in the field of industrial design. In these studies, the Internet and search engines were mostly addressed as supporting platforms for designers' decision-making and search for inspirations. As a result, to analyze the use of digital media in design process became necessary within two main categories, one is working with the online media (internet, websites, social networks, etc.), and the other one is designing with software or computational tools (online or offline). Software is everywhere nowadays (Manovich, 2013). We use many software programs when we share content on social media platforms (e.g., Twitter, Facebook, Instagram, YouTube) or prepare for blogging sites. Software "has become our interface to the world, to others, to our memory and our imagination" (Manovich, 2013, p.2), and the universal language spoken by the world, and the interface of the universal engine with which the world works. Today, software has replaced various physical, mechanical, and electronic technologies that were used to create,

store, distribute and access cultural artifacts prior to the 21st century (Manovich, 2013).

There are various types and subcategories of software that form and support digital media as a whole. These software programs provide different levels of interaction and computational capabilities to their users. Therefore, it is necessary to examine and discuss the Internet and new media used for design-based search as two separate categories by addressing online and offline digital media. This is followed by an explanation of how the employment and practice of digital media can create a specific digital habitus to architects. Such habitus characterizes the practices, behaviors and habits that are developed in the early design and ideation stages. Carpo (2018) stated that we are entering an era where human-related skills are surpassed by the power of electronic computation. The common interests, values and culture of the profession are also inevitably subject to change in this process. For this reason, in this study, we examine the distinctive practices of designers in the digital field. In determining what these distinctive practices are and how they can be interpreted, we followed Bourdieu's relational approach to cultural practices and analyzed student designers' preferences for online and offline uses of digital media when searching for design precedents and the diversity of their research and information gathering strategies. To limit the population of the research, the field study conducted focused on the use of software tools and Internet practices of architecture students in the early design process. Based on the results of this study we conceptualize the fields and forms of capital within the 'digital' habitus.

2.2 Design-Oriented Digital Media Used by Architecture Students

Our study shows that analog media tools were the first choice for forming initial design ideas, while online resources were heavily used to gather information and search for the design precedents in the early design stage. The fact that many students repeated the search on the same online sources (e.g., Archdaily and Arkitera websites) and responded similarly to the questions suggests that they had gone through similar search processes during designing. The preliminary insights from the questionnaire show that most students generally preferred (%65 of 56 students) new media platforms (such as Pinterest and Instagram) suitable for searching visual content (Author/s, 2018). For this reason, a semi-structured in-depth interview was conducted

with 12 students following a survey (**Table 1**). Students were interviewed to get more specifics on their use of digital design tools and the role of the Internet and new media in their early design experiences. Digital fluency was examined based on their use of the online and offline digital design tools.

Interviews	University/grade	Software competency	Early design phase habits	Duration of interview
G1	Diploma Project/ITU	AutoCad, Sketchup, Rhino, Lumion, Photoshop, AI	sketching	15 min
G2	Diploma Project/ITU	Revit, Photoshop	Physical modelling	10 min
G3	Diploma Project/ITU	SketchUp, Photoshop	Digital modelling	10 min
G4	Diploma Project/ITU	Rhino, 3DMax, Photoshop.	Literature review	8 min
G5	7 th project/ITU	SketchUp, Rhino, Revit(beginner), Photoshop	Physical modelling and sketching together	25 min
G6	Diploma Project/ITU	Autocad, Sketchup, Rhino, Photoshop	Physical modelling and sketching together	15 min
G7	Diploma Project/ITU	AutoCad, SketchUp, Lumion, Photoshop	Physical modelling	15 min
G8	7 th project/ITU	Arhacad, AutoCad, Photoshop, SketchUp.	Site visiting/researching	15 min
G9	6 th project/ITU	AutoCad, Sketch Up, Photoshop.	Physical modelling	14 min
G10	Diploma Project/MSGU	AutoCad, SkecthUp, Photoshop, Rhino(beginner)	Physical modelling and sketching together	25 min
G11	Diploma Project/MSGU	AutoCad, SkecthUp, Photoshop, Lumion	Sketching and site visiting/researching	35 min
G12	7 th project/ITU	AutoCad,Skecthup, Photoshop	sketching	18 min

Table 1. Information of the participants who were interviewed in-depth

The use of repetitive and similar statements of students about media use laid the foundation for a presumed conceptualization of digital habitus. We grouped these coding under the categories of research and inspiration from the Internet and social networks and approaches to digital tools. Thus, the goal of the survey is to understand how design students in the early design stage search using design tools and how they get inspiration (i.e., the images left in their memory) to create new knowledge. It was observed that psychological expressions were frequently used during the interview responses, with an emphasis on

the early design process being mentally challenging. Respectively, G1 and G7 mentioned that;

"When I feel very stuck, for example, I look at irrelevant photographs on Instagram. I also look at Pinterest, which I use a lot, but it is a highly spammy program. So, you see something, but because it shows the same images over and over, it can grow dull after a time."

"I have a couple of book series that I review when I'm tired of browsing the internet and I'm stuck. Large tabs and links open."

Therefore, on the one hand, it was generally stated that search on digital media are mentally supportive, on the other hand, it was stated that too much digital (image) media literacy creates a different mental load.

Being influenced too much by images was evaluated negatively by many students. In this sense, concerns about being original and avoiding design fixation create a particularly challenging situation for student designers in the design process. After capturing some actions and dispositions of designers from the interviews and questionnaires, four experiments were conducted with four different students, and certain phenomena were observed.

2.2.1 Four design experiments

After conducting preliminary interviews, four students from the graduation class of the Faculty of Architecture, Department of Architecture participated in a three-hour long architectural design experiment (**Table 2**). First, we wanted to see whether or not the Internet search habits of architecture students would change while working with the software. In Bourdieu's explanation of fields of practice, competition and game are so important that he sometimes uses the terms field and game interchangeably, but this does not necessarily mean that he conceived of games and fields as one and the same (Warde, 2004, p. 9 as mentioned in Rowlands, J & Gale, 2016). The game is an important issue; indeed, we, architects are always playing a game since designing is a type of creative game practice. To win, we need to figure out new rules and expand the game, so design-based research can be seen as a kind of game platform. In addition, we see design practice as a social activity as referenced by Schön (1992:4), design is part of the study of society as nature (Chand, 2018). As social

agents, reshaped within the digital habitus, designers feed off it. Here, one of the parameters we observed was the designer's search behavior and how they transferred the found information (image or textual data) to their design. Our hypothesis for the design experiment was that designers who in a digital modelling environment should be more competitive and more likely to search.

Design cases	DA (Digital and Analog)	D (digital only)	A1 (Analog only)	A2 (Analog only)
Registered design studio level	Project 7	Graduation project	Project 7	Project 7
Software competency	Photoshop, Autocad, Revit, Sketchup; Lumion, 3D Max, Rhino(az) Rhino,	Rhino, Revit, Photoshop, Lumion, SketchUp	Autocad, SketchUp, Photoshop	Autocad, Photoshop, Rhino, SketchUp, Illustrator, Premiere
Design experiences (topics studied)	Museum, Community Center, Mixed Use Housing Project, Opera Hall Competitions: Izocam, Prosteel	Museum, Campground, Fashion School, 24/7 Housing, Future Vision, Wine House	Housing, Cultural Center, Fab.Lab, Residence and Hotel, Flea Market	Vertical campus, Maritime Museum, Reconstruction Functioning, R&D Building, Housing+Office, Competition Projects

Table 2. Information of the study participants' skill and competence and design cases

The study participants (**Table 2**) were evenly distributed between the digital modeling and sketching environments. The balanced distribution of students in terms of demographics and educational background was considered important. In the experiments, a sketching study was conducted with two student and a digital modeling study was conducted with the other students. While one student working with a digital model was allowed to use analog tools during the design process, the other student was not allowed to use them. The central question of this research is as follows: "What influence does the design process in different media have on the behavior of search, gathering information, getting inspirations, finding precedents and conceptualizing design?" The four different design cases (with the participants D, DA, A1, A2) were constructed as shown in **Table 2**. The given design task was designing "a floating house" for a specific location. The participants were given a written design brief and information about the site. After experiments conducted, a schema of how the students evaluated the design product, and what the general

common tendencies would be while the participants working with the digital model and sketch were revealed (Figure 4).

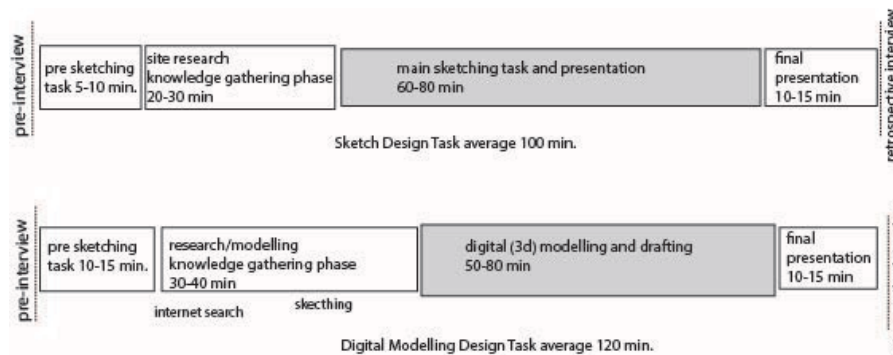
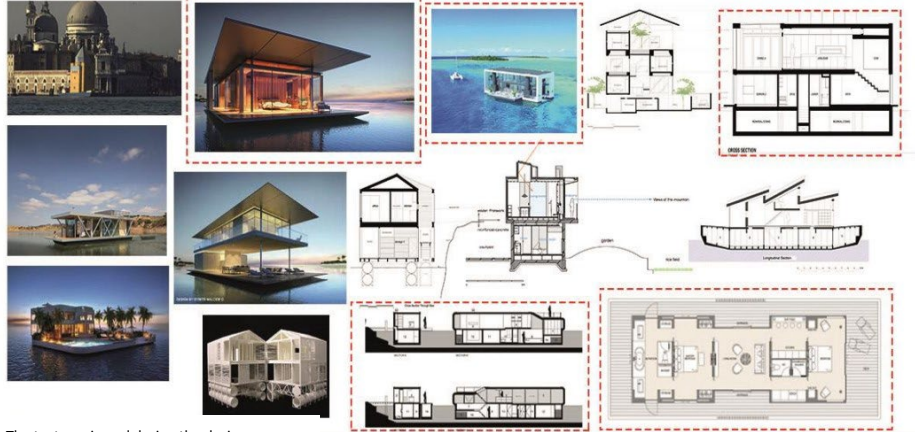


Figure 4: Timeline of design tasks.

Returning to the concept of digital habitus: Competition in architecture is in the nature of the business, and originality makes it an applied discipline focused on gaining power in its field. Therefore, the digital habitus seems to be an appropriate conceptualization to express that designing with this motivation inherently involves elements of competition. The ability to use digital tools effectively and the information obtained during the preliminary stages of the design process are two components of the mechanism that set designers distinct. Students who are aware of this situation face both more support and more various (visual, textual or quantitative) data that could be intimidating in the digital data environment they are exposed to. We have tried to explain the correlation between search process and design representation. The first experiment showed in Figure 5. was a multi-media process that provided a hybrid environment: sketching+ physical model+ digital model.

The visuals reviewed during the design process



The texts reviewed during the design process

The exhibition offers a new reading of Aldo Rossi's famous design for the Teatro del Mondo, a floating building anchored at Punta della Dogana built in 1979 for the exhibition "Venice and the scenic space", used by Settemo Teatro for the first Carnival of Venice in 1980 and transported by sea in the summer of 1980 to the Dubrovnik Theatre Festival.

"The Teatro del Mondo project", explains Aldo Rossi, "is characterised by three particular qualities: it has a usable space which is specific but not specified, it is a volume which suits the way Venetians move around and it is on the water. It is clear that being on the water is its most important quality, for it is a barge or a boat: the boundary or limit on construction in Venice".

The installation will include materials and copies of documents from ASAC (the Historic Archive of the Contemporary Arts), the Aldo Rossi Foundation, Libreria Marciana, the Corner Museum and the RAI Archives, including a model of the Teatro del Mondo, the original metal sphere that crowned the roof, drawings, posters, photographs, videos and documentaries (such as Aldo Rossi. Il Teatro del Mondo by Francesco Savero Fera, directed by Daino Zambas), (by Agnese Bifulco)

Figure 5. Visual and text reviews of DA.

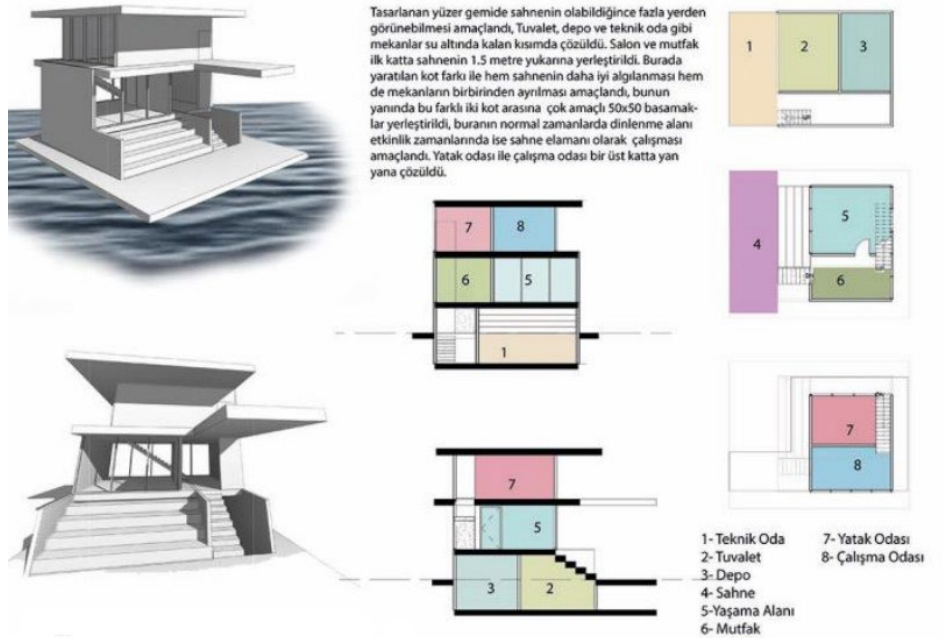


Figure 6. DA's drawing and presentation

The participant 'DA' conducted research focused on technical details and spatial configuration of the design proposal using sketches and models, along with the digital model after performing a general inspection of the floating house. He made up his conclusion after spending approximately an hour

The visuals that D investigates are concerned with the exterior appearance and facade, as well as materials and ambiance/atmosphere. When considering the participant's precedent-setting aesthetic preferences, it is clear that he makes choices based on the relevance on his design intention. In particular, the selected website for inspections e.g. the firm BIG, was investigated for inspirations. D makes search decisions based on dependability as BIG, a well-known design firm, he studied their several projects for a long time and getting the inspiration of a container from those projects.

When a design task is assigned, the participant A1 follows the same procedure (**Figure 9, 10**). It was explained that internet research is allowed, that the screen recordings will be made, and that at the end of the design process, an A3 presentation sheet should be submitted, and that the design can be detailed at any scale in conjunction with the concept presentation.

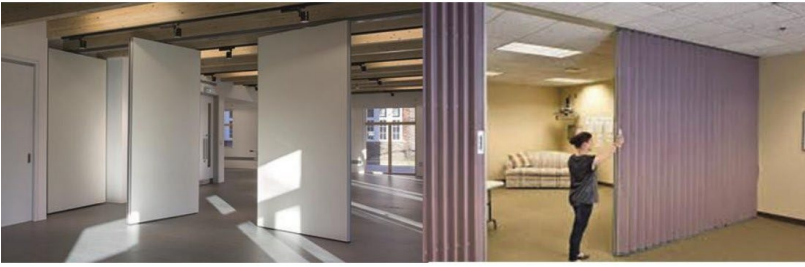


Figure 9: Visual search of A1.

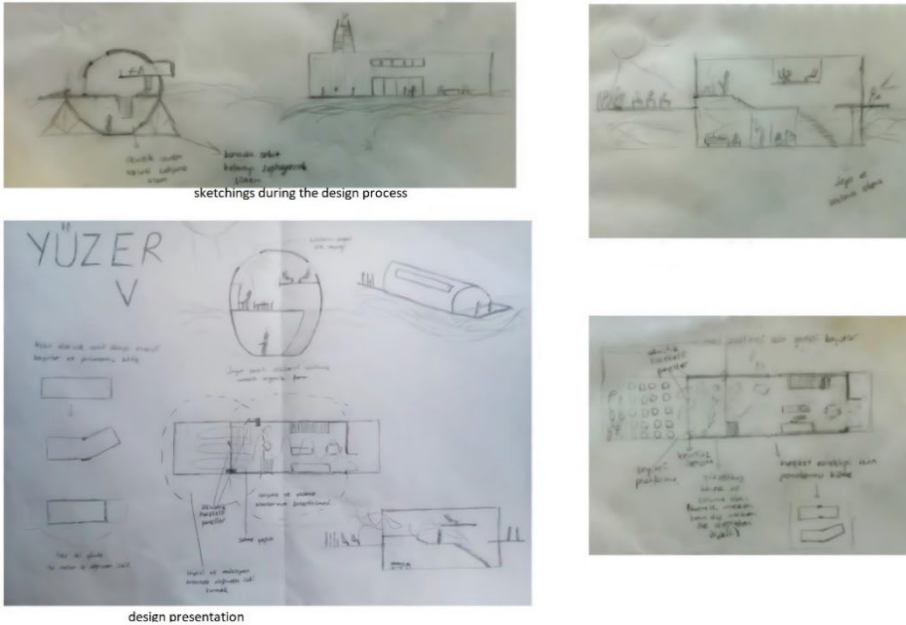


Figure 10: Sketches of Design Idea.

The participant A1 relied almost entirely on her own internal memory and, background knowledge, and her sketches are highly result-oriented and detailed, and they are thus more likely to be accurate representations of the design intent, despite the fact that she was frequently reminded that internet research is allowed during the process.

At the start of the participant A2's process, all that is required is to make sense of the design problem and look for a place in which design would worked. The Internet was only used to understand the given site that was the Baruthane Park and its surroundings in the form of a map and Google Street view pictures. The participant uses only his/her own internal memory, background knowledge and concentration. The whole design process is devoted to concept development (**Figure 11**).

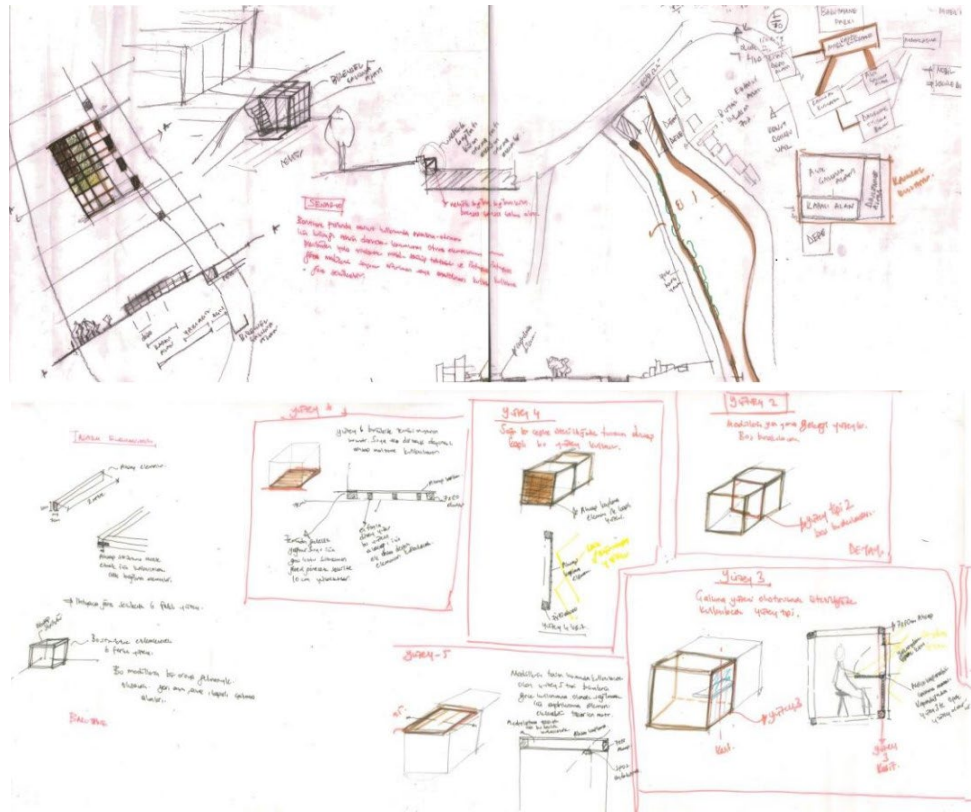


Figure 11: A2's sketches during the design process.

The experiments showed that digital design tools can influence designers' search behavior, and that designers may adapt the selected visual stimuli differently depending on the characteristics of the design platforms (more details can be seen in Author/s, 2018). One of the assumptions of this study is that, the digital search platforms (search engines) are likely to make designers more competitive and even force them to be more creative. In fact, the study participants mentioned in their retrospective interviews that they felt that they were part of the digital community when they were allowed to use web search engines to find relevant ideas to a particular design task (Author/s, 2018). As a result, they are becoming part of the digital habitus as seen in Bourdieu's metaphor of "play the game/ feel the play" as an insight into designers' processes.

3. CONCEPTS AND TOOLS IN DIGITAL HABITUS

Habitus enables individuals to exhibit behavior in certain situations they encounter socially without thinking much (Naulin & Jourdain, 2016). Habitus is the determining factor in establishing the balance between the subjective and objective structure of a social context. According to Bourdieu (Çeğin & Göker, 2015), "Actions are not mechanical rule-based but strategic." Actors perform similarities and differences as specific strategies in relation to economic, cultural, political, and social spheres of action.

The habitus varies according to the field and simultaneously changes the field itself. In this sense, the habitus implements different principles of distinction or uses principles of common distinction in different ways. Thus, the habitus generates discriminatory actions. "Habitus is a set of internalized dispositions that leads people to act and react in certain ways. It is thus the end of the product of what most people would call socialization or enculturation" (Stevens, 1998: p.57). With additional reference to Bourdieu, Stevens argued that architectural, cultural, social, and economic capital are produced and transmitted through relations between great master architects and colleagues or pupils, and these relations are based on "personal contact" (Stevens, 1998: p.159; as referenced in Troiani, 2010). However, Steven (1998) divides the architectural field into two subfields adopted from Bourdieu; in the restricted field (or favored circle), both elite architects and dominant educators compete for eminence and struggle to be "recognized as great creators or thinkers" (Larson, 2015). According to Larson (2015), this binary classification is insufficient to explain how the field functions and reduces the complexity of the architectural field. He again does not investigate the relationships between the restricted subfields. Firms, schools, journals, museums, and new media all play a role in creating public spaces for architecture. The production of knowledge and digital objects is increasingly accelerating in various forms such as image, sound, and video. Therefore, nowadays we could speak of more reflexivity in the habitus, which quickly adapts to current situations and relationships.

The profession of architecture and the common cultural base formed by architects are linked to technical instruments and the values they produce. Symbolic power operates within the cultural field. This power

can be represented by architecture. Architecture cannot be considered independent of the social realm, unlike other cultural products such as poems, music, or paintings. However, with the era of digital design tools and new media, the position of architecture in the cultural and academic field is changing. Referring to Oxman's (Oxman, R. & Oxman, 2010) definition of the new structuralism paradigm as previously described, the architectural design process is evolving into an increasingly autonomous design activity thanks to digital design and fabrication tools. By creating design precedents, aesthetic criteria, and methods as a separate field, digital design media also point to a process that is independent of the sociocultural conditions of its existence and educational/design institutions.

Manovich (2013) stated that the cultural producers today are the digital media formed by using software and technical tools. Based on these discussions, a digital habitus can be created by the architect's own digital practices (Author/s , 2018). In this habitus, designers are speculated to be not equal in the sense of being able to produce distinctive knowledge, ideas, and representations that are specific to the field (architectural design)¹. Design is a reasoning activity that uses tactile and visual sources to deal with pre-determined limitations. Interacting with intellectual and technical means and materials is an active part of it (Özkar, 2015). Our intellectual tools in this regard are the new media and the online platforms where the current architectural design projects all over the World are commonly published on. While Internet research has become a brainstorming activity, software skills and computer-aided design tools have become our technical tools and the factors that constitute our intellectual materials. Architecture provides important visual resources in representing today's digital culture, and spatial issues have begun to gain prominence. The design-oriented digital habitus feeds and is fed by this visual culture in a reciprocal relationship.

¹ What is meant here is the architectural design in particular and the digital media outlets in general where design practices take place. The value of the information (architectural design content) and the representations we produce using these outlets and the digital tools can be determined by the capital specific to the field which is shaped by the practices of habitus.

Conceptual Framework of the Digital Habitus of Architecture

In our conceptualization of digital habitus, architects continue the practices of the habitus by using the aforementioned capital they have acquired in accordance with their field. In this study, we examined habitus under two main categories: online and offline digital media. Information capital acquired through online platforms interacts with and is nourished by our physical world. Although habitus actors, both architects and designers, have a physical presence and perform physical actions, the actions and behaviors that their intellectual space performs in interacting with the digital interfaces and cyberspace require a redefinition of the abovementioned actors. The conceptual structure of the digital habitus of which architects and designers are actors are depicted in **Figure 12**.

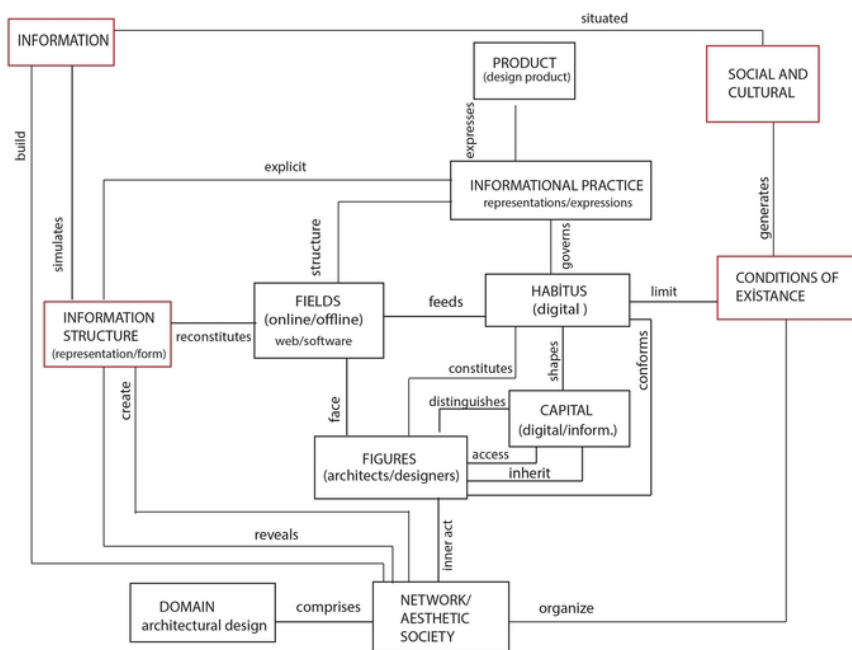


Figure 12: Conceptual structure of digital habitus of architecture (adapting from, Nasciment & Marteleto, 2008) (as referenced in, Author/s, 2018).

In this portrayal, which we consider a conceptual explanation and cycle of habitus, digital capital is seen as a factor that directly affects the distinction between actors and the value of design. Thus, with a further reference to Bourdieu, it is the digital competencies, skills, and digital fluency of architects that make the distinction between actors who possess differentiating capital in the field. The grouping and classification of digital design tools and applications used in the architectural design process were necessary to demonstrate the differentiating practices in the habitus. Turkle stated that every

profession has its own sacred space, and drawing is such an area for architecture (as cited in Burch, 2015). Burch argued that drawing is a distinctive value that has developed a cultural distinction in architectural production over the last century, destabilizing architectural drawing, which was an established value of that culture (Burch, 2015). In line with these views, sketching, modeling and the use of a variety of digital tools and resources are driving the development of a hybrid form of design representation and creating a new culture of designing as the digital habitus of architecture. The presentation of architectural forms as technical ideologies and manifestos in line with the policies of software technologies can lead to variability in the current sense of architectural drawing culture (Author/s, 2018). For example, Patriarch Schumacher (2009), in his manifestation of parametricism, has presented modern architecture as a field of research based on a parametric paradigm, which he discusses it as being a general, new, and urban postmodern style. For Schumacher, it is not possible to exist in the contemporary architectural scene without the support of experts in advanced computational technologies such as Rhino or MEL -scripting (Schumacher, 2009). Together with computational digital design tools, architectural drawing is not only a representation of architectural form, but also a new practical understanding that forces actions such as spatial planning and form/volume creation to become a holistic design process. In other words, architectural drawing is not only a representation, but also a design that is created by the continuous cyclic interaction between the designer/actor and digital/computational tools themselves.

4. CONCLUSION

The digital habitus of architecture, of which we draw a general conceptual framework, is an attempt to adapt a concept (habitus and field) previously discussed and produced in the field of sociology to the use of design-oriented media. Carpo (2018) stated that the new meaning of information production and science in the Big Data era has become a search, as all information is stored digitally. The only thing we need to do is to search for specific information in the digital sphere and digital archives using the right keyword. The concept of digital habitus, which has only been explained and discussed in this study through a limited number of examples, cannot fully illustrate the conceptual

extensions of practices that need to be further explored and questioned through a variety of case studies. The observed contradiction to aesthetic styles in all design disciplines is unmistakable and power struggles are now taking place in the field of architecture (Topolnicka, 2015), especially in digital design. The meaning of the visual object/image has become differentiated by the new technologies articulated in digital media and should be well discussed in further research. This can be done by applying new methods. In this study, we have outlined how habitus can be functionalized as a method and have elaborated the heuristic value of habitus through observations in school, narratives of students, and personal experiences of the authors within this article, a conceptual proposal was made in line with the studies conducted with a limited number of subjects (68 in total), and the possibility of this was confirmed by the findings and experiences from the literature review and online field search, including the scope of the authors' personal experiences and observations. For example, we did not include research on crowdsourcing design platforms or architectural competition processes by designers, nor were we able to explore the search for visuals and knowledge with changing design motivations in a more competitive environment. Based on our findings, this group of participants is relatively in an indistinct circle of digital habitus, as most of them mentioned only very common and general sources of knowledge on the Internet and very ordinary techniques for gathering information on design; they appear unsophisticated and digitally indistinct, as we grouped them above.

Today's designers acquire design experiences and learn about design conventions using the data and archival resources available in the online field. The design-oriented habitus has led designers to use certain computational design tools and specific online resources and create design rituals. At this point it becomes necessary to reiterate that habitus, which means a system of socially constructed tendencies, should not be confused with the concept of habit. Software and online tools generate a new way of thinking and collectivism. Manovich stated that certain social theories such as information society and network society are all possible thanks to software, regardless of the new features of contemporary formation (Bengtsson, 2015). For this reason, in explaining capital and privilege in the field of digital design, we have

focused on the characteristics of software programs and designers' abilities to use these tools. Although the concept of habitus is old, it does prove to be useful for understanding the forms of digital-media practices in both academic and applied fields.

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