Research Methodology and its importance in Architecture
A critical reflection of literature, fieldwork and typologies.

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I   **RESEARCH METHODOLOGY AND ITS POSITION IN ARCHITECTURE**

The importance of research and exploration stems from the need to draw on relevant precedent studies to culminate in a sophisticated process and outcome. It expands our ability to know and understand various topics and to sufficiently inform our decision-making processes[1]. Through leveraging on various quantity and qualitative research methodologies, researchers may formulate both the epistemological and ontological understanding of a field, and thus propels future research potentials[2]. Research is commonly thought of to be a process of *science*: the progress through deduction, induction and the forming of logical conclusions is not commonly associated with architecture[3]. However, the very act of designing and building reflects a heuristic process as well[4]. The ways in which architects decide on structure, or the choice of materials is in effect a "trial-and-error experimentation", involving observations, deductions, and local reasoning[5].

In the field of architecture, the processes and decisions culminate into the final product of a building. This field, however, does not function through the architect alone, and involves multidisciplinary inputs from various other fields, including that of social sciences, engineering, historical understandings to name a few. It is not independent of other academic domains and thus makes it necessary to rely on the multifaceted research and prior conclusions and experimental outcomes to contribute to the decision-making process. Without consulting these other fields, it would likely result in a building that has little relevance nor considering to practical needs and concerns. It also forms the bedrock for formulating further research questions and studies and through the marrying of previous findings and current social climates and demands, we arrive at a compelling outcome that is relevant to the needs of the people[6]. Julia W. Robinson presents the paradigm of anthropology as a possible way of studying or researching on architecture through the use of science[7].

As important as research is, it is necessary that we are equipped with the right tools for our research. As such, the awareness of the available research methodologies provides a robust platform for us to base our research on, and to complement our decision-making processes; our research is limited if our awareness of research methodologies is limited as well. It facilitates our epistemological understandings and streamlines the processes leading up to the final product. With the wide range of methodologies available, we are given the option to employ those most relevant to our current study, which might defer from previous methods. Specifically, I have been able to use the qualitative research method in the form of literature reviews and fieldwork introduced in the course to propel my current thesis research. This has differed greatly from my previous research method which are largely based on quantitative methods, which would have limited efficacy for the purposes of my current study.

The focus of Borders and Territory studio is on understanding spatial boundary conditions within a city, and specifically, the city of Tashkent. The city in Uzbekistan has been subjected to various transitions, governance and power, and this manifests in the planning of the city[8]. In 1965, the invasion of the Tsarist government resulted in the intrusion of Western ideologies into a predominantly Asian city[9]. One of the interventions introduced was the presence of clear axis which are sometimes lined along monuments and other important buildings, and relying on the literature by Aldo Rossi "The Architecture of the City" as well as "Space, Time, Architecture" by Sigfried Giedion, there is clear reason to believe that axis imply the underlying impulses and power struggle in Tashkent[10][11]. With the aim of understanding how the architectural element – the axis reflects the underlying power dynamics

[1] Florence S. Downs, and J. Fawcett. *The relationship of theory and research.* London: McGraw-Hill/Appleton & Lange, 1986, pg 23.

[2] Manfred Max Bergman, ed. *Advances in mixed methods research: Theories and applications.* Sage, 2008, pg 125.

[3] Ibid, pg 131

[4] Linda N. Groat, and David Wang. *Architectural research methods.* John Wiley & Sons, 2013, pg 55.

[5] Ibid, pg 20

[6] Henry Dreyfussy. *Designing for people.* Skyhorse Publishing Inc., 2003, pg 166.

[7] Julia W Robinson, "Architectural research: Incorporating myth and science." *Journal of Architectural Education* 44, no. 1 (1990): pg 20-32.

[8] Paul Stronsky. *Tashkent: forging a Soviet city, 1930–1966.* University of Pittsburgh Pre, 2010, pg 14.

[9] Ibid, pg 44

[10] Aldo Rossi and Peter Eisenman. *The architecture of the city.* Cambridge, MA: MIT press, 1982, pg 121

[11] Sigfried Giedion, *Space, Time and Architecture* (Cambridge Mass.: Harvard University Press, 1982))

in the city of Tashkent, this thesis employs the use of theoretical and historical approaches to understand the axis as a spatial vehicle in the embodiment of power.

II   RESEARCH-METHODOLOGICAL DISCUSSION

Considering that the research focus relates to the role of architecture as a reflection of the political and social struggles within Tashkent, much of the research concerns itself with the past and current narratives, as well as the historical backgrounds and social climate of Tashkent. Further pertaining to my study on the presence and the locations of axis, it is imperative to tangibly record my findings of the physical space. In this light, qualitative research will be the most appropriate form of study. Literature and historical studies provide insightful information into the possible areas of study and to streamline the research focus[12]. Through understanding the different perspectives formulated by various disciplines, we garner a more comprehensive view of other fields, like that of social sciences in order to arrive at a wholistic approach to research and the end product. Further, literature reviews also reflect the fact that no one topic of interest is so new that it cannot be substantiated or grounded by the wealth of literature available, and it is through literature research that we may be able to formulate ideas on how to further the research[13]. Specifically, Aldo Rossi's literature on "The Architecture of the City" provides crucial content into how we may view the city and from a subjective point of view, and how the "city (is a) field of applications for various forces", pointing to how certain power dynamics are reflected in the city[14].This is further supported by Giedion's literature, which attempts to understand the essence of various methods of designing axis and perspective during the renaissance and the baroque era, and thereafter apply it to the modern understanding of such designs.

This then shapes the area of study for the fieldwork, done through physically visiting Tashkent itself and recording the observations and findings. Bearing in mind the intent to study axis, its characteristics and deviations, typological research frames the kinds of observations being made. Fieldworks provide a very tangible manner to understand the context and relations between the people and spaces[15]. By leveraging on preliminary studies through literature research, visiting a site engages us in an empirical investigation bringing about an in-depth understanding of the place. In the study of Tashkent, the fieldwork employs the use of sketches and photographs, and the result is a repository that will be interpreted with the help of literature reviews. Also, the categorisations of the different types of axis and variations are done through current availability of maps.

Literature studies and fieldworks remain as useful research methodologies, largely because of the wealth of information it has to offer[16]. With the wide availability and access to quality literature, we can easily attain the relevant findings that will guide our studies. Presumably, each research expounds on previous ones to arrive at an added layer of findings, and thus it is without a doubt that literature reviews can be regarded as one of the key research methodologies. On the other hand, fieldworks may be more limiting due to the very nature of having to be physically present in the site. Studies into historical sites would have no means of engaging in fieldwork, but can only rely on preceding studies or speculations. Further constraints such as resources (time, finances) or accessibility to material due to language barriers, could possibly limit the possibility of engaging in fieldwork.

Adopting a typological framework in the study of axis provides the most direct manner of looking at the study. Through this approach, it enables us to outline the types of axis and thereafter draw relations between each type and the narratives behind it. One could speculate that the there is a

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[12] Ray Lucas. *Research methods for architecture*. London: Laurence King Publishing, 2016, pg 10-23.
[13] Linda N. Groat, and David Wang. *Architectural research methods*. John Wiley & Sons, 2013, pg 55.
[13] Ibid, pg 67
[14] Aldo Rossi and Peter Eisenman. *The architecture of the city*. Cambridge, MA: MIT press, 1982, pg 121.
[15] Roy F Ellen. *Ethnographic research: a guide to general conduct. Research methods in Social Anthropology 1.* Academic Press London, 1984, pg 12-13.
[16] Linda N. Groat, and David Wang. *Architectural research methods*. John Wiley & Sons, 2013, pg 68.

specific manner in which the display of power or the underlying power dynamics manifest in the types of axis.

Type Theory in Enlightenment Philosophy	Type Theory in Modernist İdeology	Type Theory in Neo-Rationalist Perspective
The architect of the Enlightenment looked at the beginnings of shelter as the first type of habitation	The modernist type theory is based on the changing social structure and the need for mass production after the post-war era	Emphasizes the continuity of form and history against the fragmentation produced by the mechanistic understanding of typology.
abbé-Marc-Antoine Laugier (1713-96) in *Essai sur l'architecture* proposed a natural basis for architecture to be found in the model of the primitive hut	İn this context, the form-making process became equivalent to the mass-production process. Type became standardized	At the center of this theory lies the traditional city and it emphasizes the natural process of growth of cities, and the unbreakable chain of continuity from the houses, to streets, to districts, and to the city itself.

Table 1: Summary of Table of Types[17]

III   RESEARCH-METHODOLOGICAL REFLECTION

Literature detailing the findings and observations of past researchers are a major source of theoretical research findings[18]. While literatures were heavily relied on to provide information, the accumulation of resources could lead to inefficient research processes. As such, literature reviews serve as a manner to catalogue and summarize research belonging to those of the same categories, and ensure consistency across the research[19]. This not only enhances the quality of research papers, but also ensures that research is not repeated simply due to the overwhelming large amount of information. In that sense, literature reviews themselves have now become a critical source of information.

However, it is crucial that the reviews themselves are critiqued with the same level of objectivity as research papers are. In light of the fact that there is now a greater repository of information from literature, it is necessary for extra standards and care to be taken to review literature findings. Also, with the growing volume of research on specific topics, research has become more nuanced, and requires a higher degree of precision to not only ensure originality of content (to prevent plagiarism issues), and to establish accuracy.

The historical changes in the study of typology can be traced back from its first emergence in the mid-19th century[20]. Typology builds on previous studies of "type", by specifically referring to the "study of types", as a means of comparing and classifying types according to their structures, styles, and various other characteristics. Based on methodological and historical interpretation, we can come to understand that the changes of the understanding and the study of typology took place over three developing stages: 1) Enlightenment philosophy, 2) Modernist Ideology, 3) Neo-Rationalist perspective.

1)   Enlightenment Philosophy

The first typological stemmed from the observations of "type" made by abbe-Marc-Antoine Laugier (1713-96) through his observations of the "primitive hut"[21]. Observing that the shelter consisted of rationalized elements and standards, it served as a basis and measure for architecture. His understanding of "type" was further built upon by Quatremére de Quincy (1755-1849) who proposed that "type" consisted of more than just elements and standards, but involved many other nuances. He then put forth the argument that philosophy and science needed to "examine the reasons for having so many different versions in each genre".

While Quatremére de Quincy's work centred offered a systematic way of theorizing the history of architecture, J. N. L. Durand (1760-1834), a professor of architecture also formulated his own theory of typology. He believed that architecture and economic needs were closely related, and had great focus on the rules of composition. Durand, building upon abbe-Marc-Antoine Laugier's work, presented an

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[17] Yasemin Ince Gurney, "Type and Typology in Architectural Discourse," *Journal of Balikesir University FBE*9 (July 1, 2007): pp. 3-18)

[18] Lucas, Ray. *Research Methods for Architecture*. London: Laurence King Publishing, 2016.
[19] Cynthia D Mulrow, "Rationale for Systematic Reviews," *Systematic Reviews* 309 (September 3, 1994): pp. 597-598, https://doi.org/10.7717/peerj.4676/supp-7)
[20] Type and typology in architectural discourse (Yasemin I. GUNEY) - http://fbe.balikesir.edu.tr/dergi/20071/BAUFBE2007-1-1.pdf
[21] Ibid, pg 6

understanding of typology and its uses that was heading towards the Modernist ideologies of the "prototype"

2) Modernist Ideology

As a response to the post-war era, mass production became extremely prevalent and the concept of "type" was based largely on the repetitive making of a product.[22] This reduced precedent significance of type and typology to represent not so much the studying of the various categorizations of products, but was geared towards a prototype or stereotype that was interested in products in its pure form, and was more concerned with functional determinism.

3) Neo-Rationalist perspective

The emergence of the Neo-Rationalist theory came as a rebuttal against the modern movement in the 1960s[23]. By looking at components of a city, such as the street, houses, and the city itself, the neo-rationalist approach highlight relationships of the parts and whole, giving rise to typological-morphological analysis. One of the pioneers in this methodology is Aldo Rossi, whom is known for his work "Architecture of the City" in identifying primary elements and urban artefacts. By reducing urban forms and components into "irreducible forms", Rossi is interested in the study of the built environment from autobiographical elements previously neglected in the modern movement. Even though it is highly criticised for its "idiosyncrasy" and qualitative approach, it gave rise to the space syntax approach. In the literature "Space is the Machine" by Bill Hillier, he considers the spatial configuration, i.e. complex relational schemes, "non-discursive aspects of design that are difficult to talk about"[24]. The inability for architects to discuss this phenomenon is due to it being "unconscious social knowledge".[25] The aim of space syntax is an inquiry into this "unconscious configurational basis of social knowledge"

IV   POSITIONING

The final product of the research conducted within the Building and Technology studio is the mapping of Tashkent, and to understand how the different ways of organization of urban space is a direct result of cartography. In cartography, what is of interest is the manifestation of how one understands the space – a representation rather than the precise geometry. In that light, the drawing of the map created narratives of the axis which manifest in our reality. Amidst all the different positions put forth, my research focuses on the typological study of axis in the urban scale, focusing on the various categorisation of axis and an attempt to put forth a concrete method of quantifying them. This project studies the topological relationship between the various elements of the city, specifically those of primary elements as described in Rossi's literature. Giedion's theoretical literature further pushes the discussion on the nature of perspective in space, and the designing of axis in the Renaissance and Baroque period[26].

In contrast, the position of praxeology has little relation as the elements of focus in my relation to my research are not that of an anthropological study. Through my research, it is evident that the notion of design for human use is not an area of consideration within the context of Tashkent, due to the very fact that axiality originated from the antiquities where axis was employed to organise a space for religious, mythological rationales (like the Pyramids of Giza), or for political purposes such as the Axe Historique in Paris. Axis were of monumental value, and were previously not intended to serve the everyday life of individuals or society. Thus, research from the point of praxeology would nullify the subject of the discourse.

Much of the discussion of the nature of public spaces in current times are largely interested in the humanistic interventions, such as advocating for the reclamation of spaces for the public. These debates surrounding whether or not public spaces are functioning effectively, such as how many Piazzas in Europe do not actually serve the activities and needs of the locals, but have instead become photo-taking spots for tourists, or how large areas taken up by axis could have been translated into more intimate cosy spaces reflect the humanistic positions. However, as important as these positions are, they are not of paramount focus in my research and the discussion of architecture tectonics of space, such as scale, axis and geometry, as per the neo-rationalist discussion poised by Rossi and his fellow scholarship. Another

[22] Ibid, pg 8
[23] Type and typology in architectural discourse (Yasemin I. GUNEY) - http://fbe.balikesir.edu.tr/dergi/20071/BAUFBE2007-1-1.pdf
[24] Bill Hillier, *Space Is the Machine: a Configurational Theory of Architecture*(London: Space Syntax, 2007))
[25] Type and typology in architectural discourse (Yasemin I. GUNEY) - http://fbe.balikesir.edu.tr/dergi/20071/BAUFBE2007-1-1.pdf
[26] Sigfried Giedion, *Space, Time and Architecture*(Cambridge Mass.: Harvard University Press, 1982))

position - humanitarian architecture and social design belongs to a realm of its own, and in the case of the chair of Borders and Territories, the studio takes a greater interest in understanding border conditions not as a form of moral judgement of the accounts by various stakeholders, but rather the focus is on the manifestation of power conditions that gave rise to the spatial manifestations of borders.

The study of the axiality within the city of Tashkent offers an insight into the historical – morphological dimension of the urban fabric, following the influx of the Tsarist regime. The transformation of the city as a result of various religious, political, ideological and economic powers at play is reflected clearly in the axis, and thus the study of axis becomes instrumental in facilitating such architectural tectonics. It also aids in characterising various descriptions of the city that is unique in an architectural research. This echoes the works of various architects, such as Rossi and Giedion, as mentioned earlier, as well as Peter Eisenmen, whose works were targeted at an epistemological understanding of architectural history. At the same time, they offer an ontological study of the existing built environment and its significance. The availability of research methodologies in the form of literatures and fieldwork, facilitates a deeper research and understanding on the axis and its significance and role in shaping or reflecting the power struggles in the city of Tashkent.

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