

Sensualizing, Interlinking, Anchoring – Research Collage as an Explorative Research Practice in the Anthropocene

Till Zihlmann

Technical University of Braunschweig, Institute for Building Climatology and Energy of Architecture,
Braunschweig, Germany

ABSTRACT: The Research Collage addresses the challenges of contemporary architectural practice. This implements the end of the environmental conditions of the geological epoch of the Holocene and the beginning of the Anthropocene. The aim is to investigate the multi-dimensional manifestations of architectural practice in place and time in the Anthropocene and thus to extend the scope of observation to processes beyond the architectural object. In order to overcome familiar thought patterns, the technical perspective of architectural production is complemented by the consideration of the aesthetic dimensions which is intrinsically tied to architecture. In addition to imparting tangible knowledge of architectural education, the research practice aims to create a framework in which students can transform knowledge in an exploratory way and thus develop their own approach to a new geological reality. The methodology developed operates at the interface of scientific research and the visual translation of knowledge. Three instruments are therefore implemented: The (1) media technique of collage uses architecture-specific representations to sensualise knowledge and enables the multi-dimensional linking of different places and times. The inherent (2) iterative design process of a collage stimulates associative relationships and facilitates a dialogue between the technical and the sensuous dimensions of architecture. The (3) *Threads of Thought (Process, Locality, Temporality, Scale)* provide a language framework to describe the multi-dimensional manifestations of architectural practice and anchor them in the Anthropocene. The resulting Research Collage is an epistemic artefact of the study of contemporary architectural practice and operates as a constant aesthetic echo of the scientific research.

KEYWORDS: Anthropocene, Collage, Research practice, Media, Knowledge transformation

INTRODUCTION

The impulse for developing this exploratory research practice is a well-known question that has been debated throughout the history of architecture: What are appropriate architectural arguments for the present? The question has usually been provoked by a change in the context of architectural production. Despite sometimes drastic social and economic changes, this has always taken place in the context of reliable environmental conditions. Accordingly, our building culture developed in the stable geological environment of the Holocene. Today, anthropogenic climate change in particular makes it obvious that these environmental conditions, and thus the context of architectural practice, are changing radically. According to earth system science, the changes are so profound that they speak of a new geological epoch - the Anthropocene. (Zalasiewicz et al. 2019) Therefore, a central challenge of contemporary architectural education is to explore the facets and dimensions of this new context, thus enabling students to develop contemporary architectural arguments.

1.0 PRESENCE AND CHALLENGE

1.1 Context - a new geological epoch

The Anthropocene thesis has been discussed by scientists from different fields of research for more than 20 years now. (Crutzen & Stoermer 2000) In 2023, the Anthropocene Working Group presented Crawford Lake (Canada) as a candidate for the Global Boundary Stratotype Section and Point (GSSP) of the Anthropocene Series. (Max Planck Institute 2023) Although the proposal was rejected and, in terms of stratigraphy, we are still formally in the Holocene (International Commission on Stratigraphy 2024) there is no doubt that the environmental conditions have changed radically. (Steffen et al. 2018, Richardson et al. 2023) The discourse on a new geological epoch has become a much-discussed topic in the natural sciences, the humanities and the media (Gasperoni 2022) and has turned into an essential concept of reflection in recent years. (Clark 2015)

The end of a geological epoch implies radical chemical, biological and physical changes in environmental conditions. (Zalasiewicz et al. 2019) This means: We are facing a context that is fundamentally alien to us. Although the Anthropocene describes a geological epoch, i.e. something "outside" the human scale, it identifies the sum of human activity as the cause of geological change. (Crutzen & Stoermer 2000) The concept of the technosphere, developed by Haff as part of the Anthropocene discourse, describe an environment in which the dichotomy between culture and nature largely dissolves. (Haff 2019) Consequently, the building culture is fundamentally entangled with the current and future environmental conditions. The starting point of the Anthropocene is estimated to be in the middle of the 20th century. (Max Planck Institute 2023) Thus, science is not describing an event in the distant past

or in the future, but an event in the present. With respect to the human impact on the Anthropocene, this means that the manifestation of the new geological epoch is shaped by our actions in the present. Depending on how we act in the present, different future scenarios are possible (IPCC 2021), where change is not linear but can be accelerated (or slowed down) by tipping points. (Armstrong McKay et al. 2022) In the context of a new geological epoch, it is inadequate to reduce the agency of architectural practice to the scale, temporality and locality of urban design, economics, construction, technological innovation and cultural-historical references. However, the radical novelty of the context makes it challenging to describe it with all its unprecedented implications (cf. Figure 1). Donna Haraway describes how alien this new environment is to us in her book "Stay with the Trouble, Making Kin in the Chthulucene" (Haraway 2018). At the same time, she invites us to "make kin" with the world anew. In doing so, she describes "making kin" as an active act of making connections between different actors (human and non-human), rather than a passive causality in the sense of genealogy. (Haraway 2018)

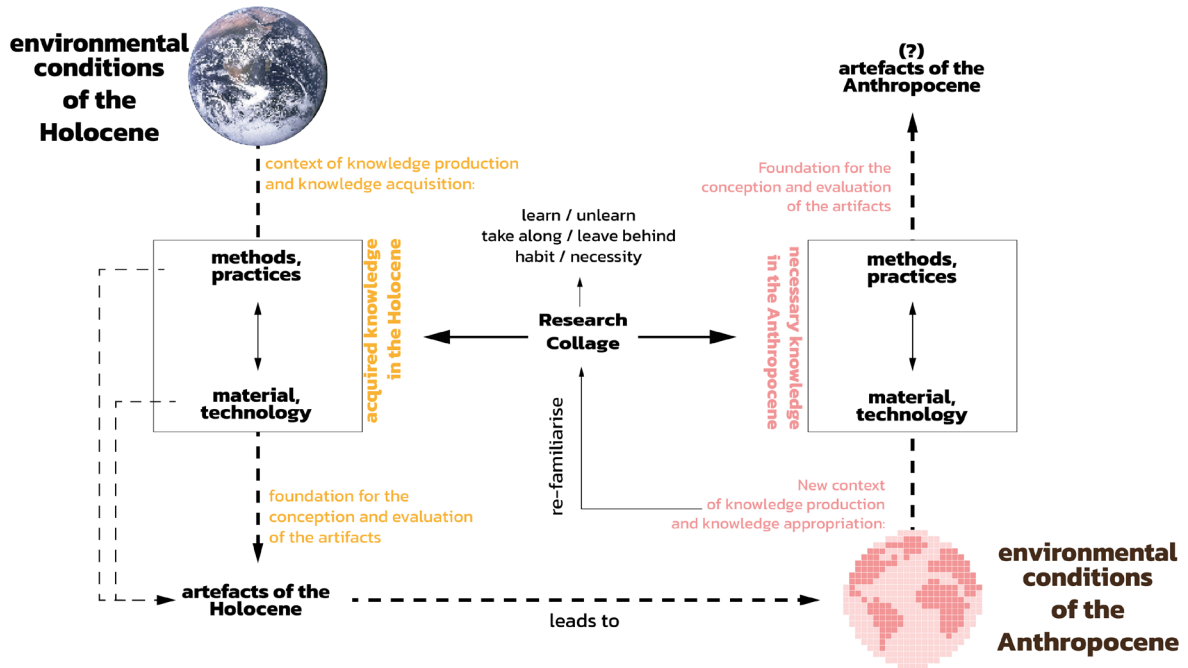


Figure 1: Re-evaluation of architecture practice in the context of the Anthropocene. Source: (Zihlmann 2024)

1.2 Sensualizing, interlinking, anchoring

Architecture, as a cultural practice and engineering discipline, unfolds at the interface of science, culture and art, manifesting itself as a sensuous reality in the environment. A building combines analytical as well as aesthetic and cultural dimensions and requires a multi-perspective view in its assessment. In the Holocene, we limited this consideration to the building itself. According to Haff, a building is a manifestation of the technosphere. (Haff 2019) Consequently, architectural production as a component of the technosphere cannot be considered independently of the lithosphere, the atmosphere, the hydrosphere and the biosphere. The concept of the technosphere aptly describes the interlinking of culture and technology with geological processes and expands the scope of architectural practice. As a result, architectural practice manifests itself not only as a sensuously perceptible reality in the form of a building, but also as a sensuously perceptible reality in the form of the infrastructure and resource extraction necessary for its construction and operation. Limiting the discourse to the scale of the building excludes the immanent interaction of the building with the five spheres and the sensualising of these interactions. The interaction of a building with the five spheres, includes a multitude of processes in multiple temporal and spatial scales. Expanding the scope of observation thus poses the challenge of describing and interlinking the multiple manifestations of architectural practice in place and time and thereby anchoring them in the new environmental conditions of the Anthropocene (cf. Figure 2). Morton describes this interconnection of processes in his book "Hyperobjects: Philosophy and Ecology after the End of the World" (Morton 2013), and Clark accurately describes the field of tension in which we operate in the present with the term "clash of scale". (Clark 2015)

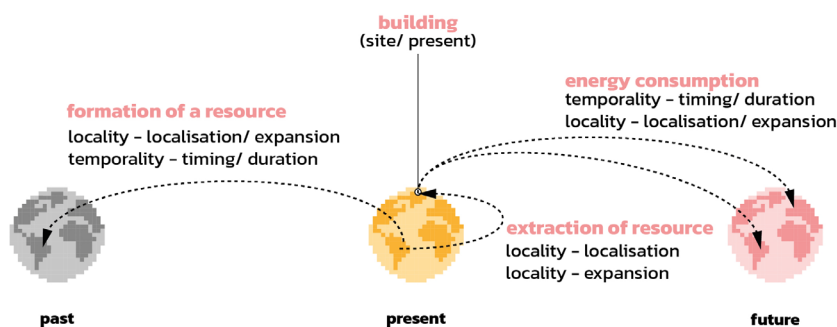


Figure 2: Multidimensional manifestation of architectural practice Source: (Zihlmann 2024)

Architectural practice in the Holocene has focused primarily on the object in the "here and now" and on a human scale. As a result, we lack the awareness and the vocabulary to describe multi-dimensional and multi-scalar manifestations in different spheres. The challenge of negotiating architectural arguments therefore lies, on the one hand, in the complexity of the discipline itself, and on the other hand, in the expanded perspective of the present. A radical transformation of architectural practice is therefore not only carried out along technical, normative, legal and material aspects but requires a re-embedding of architectural practice in the Anthropocene. In order for a radical transformation of building practice to be successful and empowered to act in the Anthropocene, we need architecture-specific methodologies and tools to consider and negotiate the aesthetic expression of the building as well as the aesthetic manifestation of all the processes involved.

2.0 EXPLORATIVE RESEARCH COLLAGE

2.1 Aim of the explorative practice

The Research Collage serves as a methodology to establish an aesthetic approach to an environment that has become alien to us. While students gain tangible knowledge of architectural issues, a framework is created in which they can work exploratively to familiarise themselves with the Anthropocene. Hence, the explorative practice does not aim to develop a solution to a specific technical problem, but to develop contemporary narratives by exploring architectural practice in the Anthropocene. To this end, the research practice operates at the interface of nature sciences and cultural studies, applying design-based processes and architecture-specific tools and media. They are used to investigate the effects of architecture in the environment rather than to design an architectural object. The process of (visual) transformation of knowledge provokes an aesthetic confrontation with the multi-dimensional manifestation of the object of investigation and serves as a framework to sensualising, interlinking an anchoring their knowledge. Thus, intrinsic dimensions of the Anthropocene are illuminated and interlinked with subject-specific knowledge. In doing so, it complements the current technical transformation of the building industry with the aesthetic and cultural transformation of building practice. In this way, trusted methods of reflection which were assimilated in the Holocene are dismantled. The instruments of research practice are intended to stimulate the exploration of contemporary questions and encourage the contextualization and reassessment of familiar arguments.

2.2 Instruments of the research practice

2.2.1 Threads of thought

The *Threads of Thought* summarize implicit dimensions of the Anthropocene and become an instrument for a contemporary examination of architectural practice. They cover four terms: *Process*, *Scale*, *Temporality*, *Locality* (cf. Figure 3). They provide a conceptual framework to describe the multi-scalar processes and manifestations of the five spheres (cf. chapter 1.2) in their spatial and temporal dimensions (cf. Figure 4).

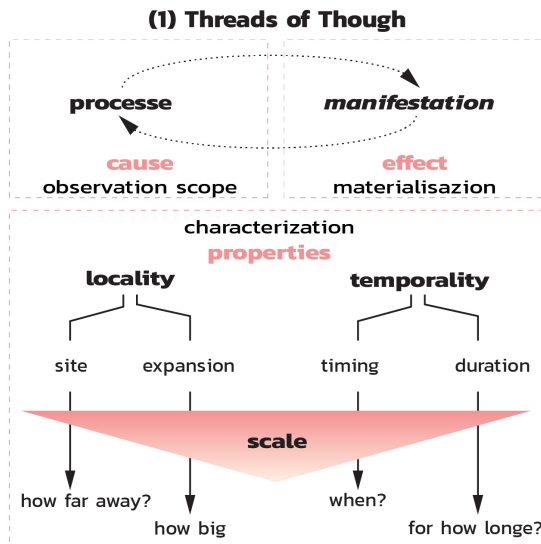


Figure 3: Systematics of the *Threads of Thought*. Source: (Zihlmann 2024)

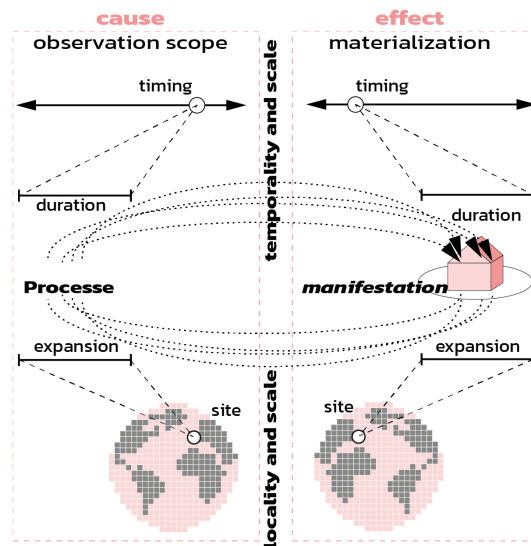


Figure 4: Dimensions of manifestation in the Anthropocene. Source: (Zihlmann 2024)

On the one hand, this allows specific processes to be interlinked; on the other, it allows the scope of observation to be broadened and anchored in the Anthropocene. In this way, they provoke an examination of the intrinsic agency of architecture in the present and encourage a break from the familiar human scale of the Holocene. The focus shifts from the building as an object to the multiple effects of architectural production in all five spheres.

2.2.2 Media technique of collage

A collage enables multi-scalar and multi-media work and requires an aesthetic engagement with the object of investigation, whereby it does not follow any clear normative guidelines. This allows an experimental transformation and interlinking of knowledge as well as the integration of aesthetic aspects of the manifestation. The Research Collage draws on a variety of visual media and tools from architectural practice (e.g. images, detailed technical drawings, pictograms and graphics, floor plans, spatial and atmospheric drawings). For the collage their individual qualities are exploited and enhanced by a textual layer. As a result, the collage provokes a translation of knowledge into visual and linguistic elements, thus making it sensuous. This can be achieved through representation, narration, comparison or translation into familiar units. The intrinsic quality of aesthetic translation to be precise as well as vague and associative allows for multi-layered readings and creates space for new relationships. It also allows for the simultaneous representation of processes on different temporal and local scales, which in a second step allows for the multi-dimensional interlinking of processes. The *Threads of Thought* serve to anchor the layer of observation in the context of a new geological epoch.

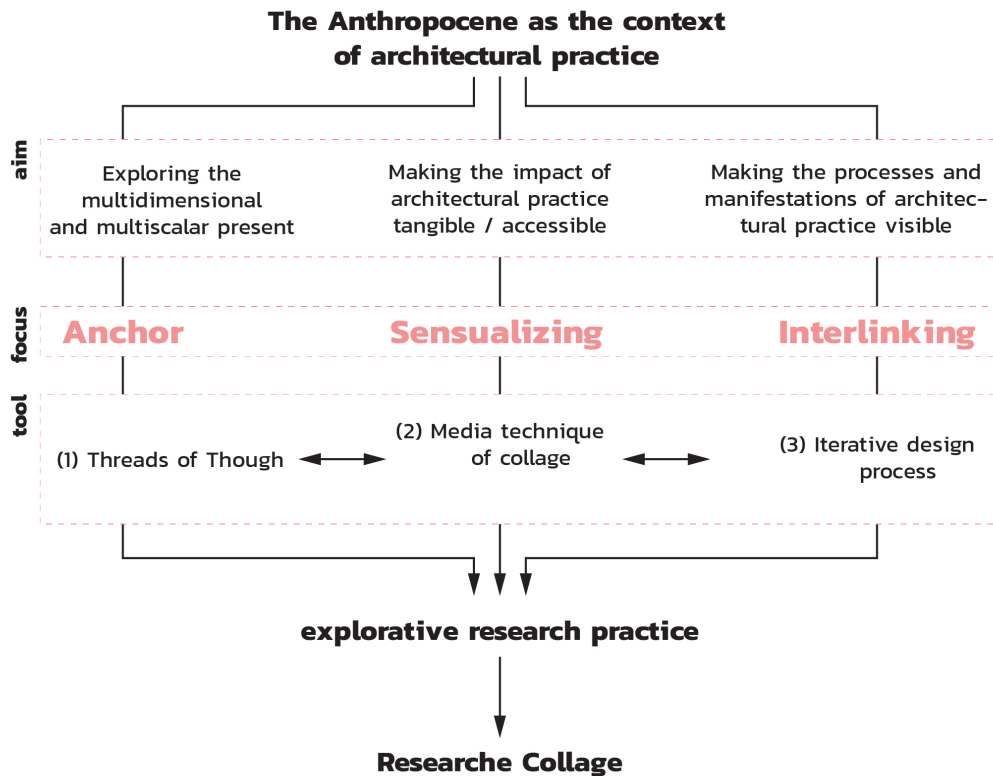


Figure 5: Methodology of the Research Collage. Source: (Zihlmann 2024)

In this sense, the collage technique offers a complexity beyond scientific data and creates a sensuous connection to the impact of architectural practice. Thus, while the Research Collage is capable of making visible the abstract and sensuous dimension of architectural agency. At the same time, it shifts the focus from the building in a stable and continuous environment (Holocene) to an agile fabric of processes in the Anthropocene.

2.2.3 Iterative design process

The dialogue between technical reasons and sensuous and cultural arguments typically takes place at the level of the building as part of the design process. Using the media technique of collage as a tool, the research practice can take advantage of this dialogue. In this way, the research practice does not aim for a linear process such as first defining a topic, then formulating a hypothesis, conducting the research and finally transcribing the results. Rather, it is a transformation of knowledge in which scientific research and the visual translation of knowledge follow an iterative process to overcome established patterns. In this way, the design process is applied as a "cognitive activity". This allows associative relationships to be established and adds (not replaces) a sensory and intuitive dimension to scientific research.

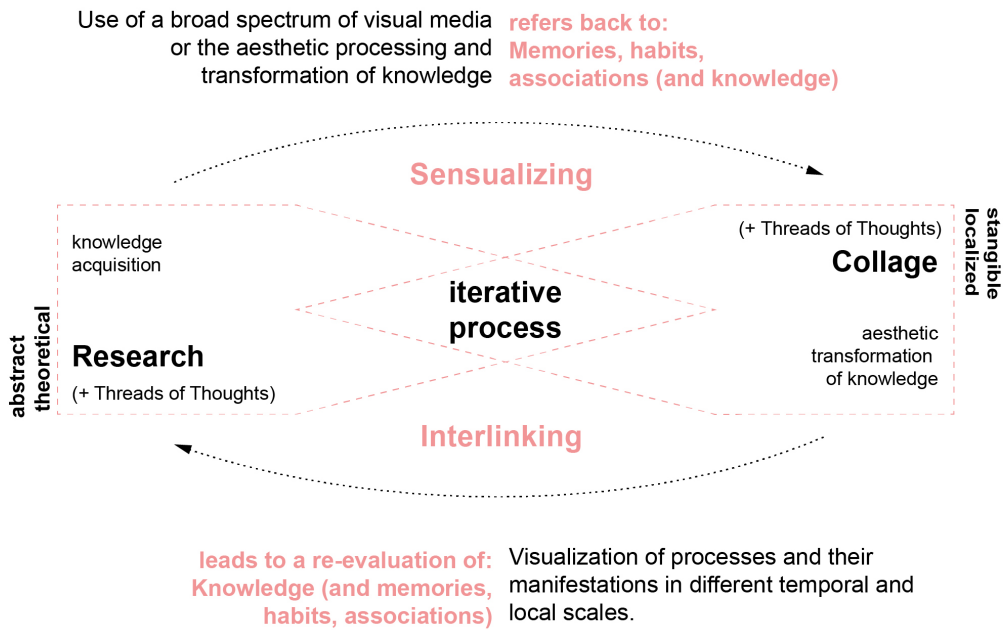


Figure 6: Explorative research process. Source: (Zihlmann 2024)

The Research Collage does not use the medium to represent a previously developed investigation, rather it is a permanent aesthetic echo of the scientific work. The collage itself provides a tool and is an epistemic artifact of the research process.

3.0 CASE STUDY – INBETWEEN INDOOR AND OUTDOOR CLIMATE

In the seminar, students work on different climatic building element each semester (winter 2022/23: window, summer 2023: roof, winter 2023/24: heat pump). The Research Collage is used to explore their agency in the Anthropocene. The seminar is structured as follows:

Table 1: Structure of the seminar. Source: (Zihlmann 2024)

Impulse lecture	Task (editig time)	Other elements
01 - Introduction to the Anthropocene thesis		Reading Session 01
02 - Introduction to aspects of the indoor climate	I.1 - Indoor climate (1 week)	
03 - Introduction to the explorative research practice	I.2 - Threads of Thoughts (1 week)	
04 - Introduction to aspects of the outdoor climate	I.3 - Outdoor climate (1 week)	Reading Session 02
05 - Introduction to the climatic building element	II - Explorative Research Collage (7 weeks)	
	III - Reflection/ Essay (2 weeks)	Reading Session 03 and Workshop

The five impulse lectures (cf. 01 - 05 in Table 1) provide an overview of the relevant topics. The preliminary exercises (I.1 - I.3) are conceived as a step-by-step introduction to the practice of explorative research. The explorative Research Collage (II) is the main element of the seminar and the reflection (III) allows students to reflect on their own approach and the (not) acquired knowledge. In the first task (I.1), the students choose a familiar room and investigate the room specific information relating to the indoor climate (e.g. geometry, façade and window area incl. building physics values, usage profile). This information is displayed in a spatial collage. The second task (I.2) operates with the *Threads of Thought* introduced in impulse lecture 03. The students develop two diagrams in which the *Threads of Thought* are applied to a particular material or object from the space selected in task I.1. The third task (I.3) explores the outdoor climate in the same way as the first task did. Therefore, the collage from task I.1 is to be revised and completed with the parameters relevant to the outdoor climate (e.g. position of the sun and angle of irradiation, surfaces/materiality of the environment). Following these three preliminary exercises, students start with the Research Collage (II).

CONCLUSION

Through the development of the Research Collage, students are introduced to the fundamentals of architectural practice. These fundamentals are considered in the multi-dimensional local and temporal context of the Anthropocene (technosphere, hyperobject) and discussed at the interface of scientific knowledge, cultural discourse and aesthetic manifestation. In this way, the Research Collage functions as a pedagogical practice to transform the understanding of the investigated element by sensualising and interlinking it and anchoring it in an environment unknown to us. The exaggerated demands of the research practice and the uncertainty of the “outcome” of the Research Collage are immanent components of the methodology and are intended to sensitize us to the complex and alien present. It is tempting to seek solutions according to familiar patterns established in the Holocene. However, the radically new environmental conditions represented by the Anthropocene require a critical and experimental openness to our building culture and environment, and a curiosity to explore radically new approaches.

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