

Architectural Experiments

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How is new architecture created? And how is newness measured? We would like to explore this question from the perspective of spatial research. Every new design idea is related to an existing culture, to past designs, buildings, techniques, theories and stories, referring explicitly or implicitly to them. However, we do not understand the relationship between past and future designs as progressive-linear, following an evolutionary path towards a better architecture. In this sense, we are rather critical of the possibility of progress in architecture: Progress for whom? By whom? For what purpose? In what form?

Architecture only assumes coherence in resonance with the people who use it. And in turn, the latter is a product of the former. Progress can therefore only make sense within this dialectic. The normative dimension of progress points to a possible universal good that is central and relevant e.g. in the debates on urban sustainability—but only as long as the architectural strategies are context-sensitive and context-responsive. There isn't such a thing as the one perfect transferable solution for all contexts and epochs.

In order to gain a deeper knowledge of the context or the specificity of the respective situations for which build-

ings are to be constructed, empirical studies are absolutely indispensable. We therefore propose an experimental knowledge production for the architectural practice. By 'experimental', we mean on the one hand empirically-based, in the sense that the knowledge production is grounded in scientific empirical studies; and on the other hand design-based, in the sense that it involves an iterative design process, within which different possible scenarios are being designed, built in scale 1:1 and tested with regards to its use. In this sense, we advocate a definition of experimentation¹ that consciously takes up the ambivalence of the term and transcends the usual dichotomy between scientific and artistic experiments. While scientific experiments are usually presented as hypothesis-driven, repeatable and measurable, and artistic experiments are considered explorative, strange and singular, we regard the dichotomy between the two as both ideal-typical and obsolete. In all constellations, the difference, the chance, creativity, blurred contours and singularity play an important role. In the spirit of the historian of science Hans-Jörg Rheinberger, we plead for a "differential reproduction"² in which reproduction—in the sense of maintaining the material conditions of an experimental process—produces difference in the sense of divergence³. It is in this divergence that the actual new can occur. The result can be progressive or regres-

1 Here we refer to the anthology *Experimentieren*, in which we carried out a praxeology of the concept of experimentation in 25 disciplines (both natural, social and cultural sciences and design): Marguin, Séverine, Henrike Rabe, Wolfgang Schäffner, and Friedrich Schmidgall, eds. 2019. *Experimentieren. Vergleich experimenteller Kulturen in Wissenschaft und Gestaltung*. Bielefeld: transcript.

2 Rheinberger, Hans-Jörg. 2001. *Experimentalsysteme und epistemische Dinge. Eine Geschichte der Proteinsynthese im Reagenzglas*. Frankfurt am Main: Suhrkamp.

3 Marguin et al. (op. cit), p.15.

4 See the works of Barad, Karen. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham: North Carolina; and of Abbott, Andrew. 2001. *Chaos of disciplines*. Chicago: University of Chicago Press.

5 Kockelkorn, Anne. 2008. "Bürolandschaft - Eine vergessene Reformstrategie der deutschen Nachkriegsmoderne." *ARCH+*, no. 186/187: pp. 6–7.

6 Duffy, Francis. 1997. *The New Office*. London: Conran Octopus; Duffy, Francis, Colin Cave, and John Worthington, eds. 1976. *Planning Office Space*. Architectural Press; Duffy, Francis, Andrew Laing, and Vic Crisp. 1992. "The Responsible Workplace." *Facilities* 10 (11): pp. 9–15; Duffy, Francis, and Alfons Wankum. 1966. *Office Landscaping: A New Approach to Office Planning*. London: Anbar Publications.

7 Marguin, Séverine, Henrike Rabe, and Friedrich Schmidgall, 2020. *Experimental Zone. An Interdisciplinary Investigation on the Spaces and Practices of Collaborative Research*. Zurich: Park Books.

sive, completely unknown or take up the known in new ways—the point is that the experiment creates a deviating focus. In this sense we do not believe in a linear process of knowledge production but rather advocate a fractal or cyclical evolution of knowledge⁴.

We gave this approach a try in the field of spatial research. In our research project *ArchitecturesExperiments* at the Cluster of Excellence *Image Knowledge Gestaltung* of the Humboldt-Universität Berlin we have investigated the spaces of knowledge production. Our question was: How can space actively promote knowledge processes?

In the history of office architecture, a long tradition of experimentally and creatively exploring the connection between space and knowledge exists, including e.g. the development of the "office landscape" by the Quickborn team in the late 1950s⁵ or the typification of work spaces by Francis Duffy since the 1960s⁶. By contrast, the design of scientific architecture, i.e. the spaces in which scientific research and teaching take place, is not yet being questioned and experimented with to the same extent, although the university is the place of knowledge generation and innovation par excellence. In particular, the question arises what kind of spaces are conducive to an increasingly interdisciplinary and collaborative research.

Bild Wissen Gestaltung, to which our research project was affiliated, represented a large and unusually interdisciplinary research project and therefore offered the opportunity to examine such a research project from within: What influence does space have on knowledge production? Which spaces and spatial qualities are required to develop new knowledge at the interface between the disciplines? We placed particular emphasis on the question of collaboration: What effect does space have on collaboration within and between exist-

ing teams as well as on the emergence of new constellations? A specific challenge was to find spatial conditions that promote collaboration but also offer opportunities for individual retreat. In order to investigate these questions empirically, we developed a novel experimental and interdisciplinary method for the investigation and design of space, so-called 'experimental design-based field research'. For this purpose, a research area of 350 m², the *Experimental Zone*⁷, was created for forty scientists, which was redesigned and rebuilt approximately every two months over a period of three years. A total of eighteen experimental settings was carried out and observed both quantitatively and qualitatively. In line with a practice theoretical approach, the materialized knowledge practices and routines, i.e. bodies and objects, were afforded special scrutiny.

We developed the notion of the collaborative habitat to describe a synecological system for interdisciplinary knowledge production, which encourages interdisciplinary collaborations and synergies between individualized researchers, both in the context of existing teams as well as regarding the creation of new projects. The collaborative habitat is fundamentally based on the cultivation of a collective identity manifested in a sense of belonging and mutual trust among the researchers. This is an expected result. What our study has revealed, however, are the spatial implications and consequences associated with this. We have developed five statements that include recommendations for the design of interdisciplinary research spaces:

1. Physical co-presence is the prerequisite for existing and new collaborations: On the one hand, the study suggests that a gradual rapprochement with others and their unfamiliar practices facilitates acculturation processes as well as the emergence of new collaborations. On the other hand, our study concurs with the literature in confirming the fundamental role of interactions in physical co-presence. In particular, a combination of

a low connectivity and a low visibility severely inhibits informal exchange. As a design consequence, the study suggests that open and transparent typologies such as open-plan offices are especially suitable in order to encourage interdisciplinary collaborations.

2. The heterogeneous practices of a multidisciplinary group of researchers are in part incompatible when performed side by side. In response—and in contrast to trends such as activity-based working⁸—, the majority of the scientists investigated created individual and group territories that offer protection in the open space. As a design consequence, an architecture characterized by a high diversity of areas with different characteristics promotes the emergence of heterogeneous research spaces.

3. A research environment with a high visibility of work-in-progress content can stimulate the rapprochement between the disciplines and the emergence of new collaborations. We therefore advocate an architecture that encourages the display of research progress outside the computer, e.g. by integrating highly visible analog and digital media such as pinboards or collective displays in central and highly visible locations.

4. The analysis revealed that the fundamental prerequisites for the emergence of collaborative spaces are the seamless transition between individual and collaborative practices, as well as the possibility to look at media together. Spatial constellations that enable both help co-presence to evolve into collaboration.

5. A participative design approach contributes both to the collective identity and spatial reflexivity of the researchers and thus to the appropriation and formation of a collaborative habitat.

These statements could perhaps be misunderstood in the sense of a belief in a progress in architecture. By them we in some way plead for an improvement of the spaces of science: The empirical investigation has shown that traditional typologies with individual offices and corridors have become obsolete. However, it must be kept

in mind here—without relativism—that we have studied a specific target group in a specific context and that the results cannot easily be transferred to any other context. We therefore argue that the deviations of different contexts should be studied carefully. In fact, our investigation suggests that it is precisely from such deviations that new directions can emerge.

⁸ Veldhoen, Erik, and Bart Piepers. 1995. *The Demise of the Office: The Digital Workplace in a Thriving Organisation*. Rotterdam: William Stout Architectural Books.

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